AI in Manufacturing

New GenAI Capability Powers Synopsys' Copilot AI

584 words
17 November 2023
Asia Electronics Industry
ASELEC
English

Synopsys, Inc.[https://c212.net/c/link/?t=0&l=en&o=4026532-1&h=2306498451&u=https%3A%2F%2Fwww.synopsys.com%2F&a=Synopsys%2C+Inc.] has announced a breakthrough generative artificial intelligence (GenAI) capability for accelerating chip design, Synopsys.ai Copilot. Particularly, the new capability is the result of a strategic collaboration with Microsoft[http://www.microsoft.com/] to integrate Azure OpenAI[https://aei.dempa.net/archives/tag/microsoft-azure] Service that brings the power of GenAI[https://aei.dempa.net/archives/tag/Generative-AI] into one of the most complex engineering challenges. That is, the design process for semiconductors.

Meets Challenges of IC Manufacturing

Synopsys is the leader in semiconductor electronic design automation (EDA) [https://aei.dempa.net/archives/tag/EDA] and pioneered Synopsys.ai

Click to view image[https://s.w.org/images/core/emoji/14.0.0/72x72/2122.png]

, the industry's first AI-driven EDA suite. Furthermore, the Azure OpenAI Service gives customers access to OpenAI's large language models (LLMs) with the enterprise-ready capabilities of Microsoft Azure.

Together, the companies collaborated to support Synopsys' development of Synopsys.ai Copilot, bringing together Azure OpenAI Service generative AI capabilities with Synopsys' industry-leading chip design tools and IP. Thus, helping engineering teams accelerate time to market and address systemic complexity through the power of conversational intelligence.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/11/Synopsys_Copilot_Brain3-1024x576.jpg]

“The semiconductor industry is racing to develop faster, more efficient, and optimized computing, which is also driving complexity. At the same time, we're facing a projected 15% to 30% workforce gap for chip design engineers by 2030,” said Shankar Krishnamoorthy, general manager of the Synopsys EDA Group.

In addition, Krishnamoorthy said, “AI-driven design can help address these challenges. Synopsys pioneered AI-driven design with our Synopsys.ai EDA suite. Now, working collaboratively with Microsoft, we're taking AI-driven design to the next level with generative capability such as conversational intelligence delivered in this first Synopsys.ai Copilot.”

Today's announcement builds on a vision of innovation between the two companies. In 2022, Synopsys introduced the industry's first SaaS EDA solution powered by Microsoft Azure[https://c212.net/c/link/?t=0&l=en&o=4026532-

1&h=2617606049&u=https%3A%2F%2Fazure.microsoft.com%2Fen-us%2Fblog%2Faccelerate-silicon-design-innovation-on-azure-with-synopsys-cloud%2F&a=industry%27s+first+SaaS+EDA+solution+powered+by+Microsoft+Azure].

“Our history with Synopsys is built on a shared vision for accelerating semiconductor innovation through Cloud and AI,” said Corey Sanders, corporate vice president, Microsoft. “Microsoft's engineering teams worked closely with Synopsys to bring the transformational power of Generative AI to EDA. (This) will empower semiconductor design engineers using the Synopsys.ai Copilot with the best AI infrastructure, models, and toolchain built on Microsoft Azure.”

Specifics of Collaboration

This collaboration is designed to deliver:

* New AI-powered experiences: Synopsys.ai Copilot works alongside designers in the Synopsys tools they use every day, enabling conversational intelligence, in natural language, across the design team. Synopsys.ai Copilot, the first in a planned line of generative AI capability from Synopsys, is designed to learn new skills and grow with teams' needs, making it easier for chipmakers to boost productivity and achieve design targets across all stages of chip design, from system architecture exploration to design and manufacturing.

* AI infrastructure at scale: Deployable in any on-prem or on-cloud environment, Synopsys.ai Copilot integrates Microsoft Azure on-demand high-performance computing infrastructure with the availability, affordability, and capacity to handle AI workloads for advanced chip design and verification applications.

* Safe and responsible design: Underpinning the collaboration is a mutual focus on building responsible AI systems that are safe and trustworthy. The intention of this framework is to promote the safe deployment of AI technologies in the creation of new silicon-based applications.

The combination of AI-powered design capabilities available at scale on high-performance infrastructure can deliver a step-function improvement in helping engineering teams innovate faster and more efficiently. Synopsys.ai Copilot is available now for early-access customers. For more information: www.synopsys.ai[https://c212.net/c/link/?t=0&l=en&o=4026532-1&h=2086819657&u=http%3A%2F%2Fwww.synopsys.ai%2F&a=www.synopsys.ai].

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AI in Manufacturing

Schneider, Microsoft Strike New Deal to Drive GenAI

515 words
16 November 2023
Asia Electronics Industry
ASELEC
English

Automation leader Schneider Electric[https://www.se.com/ww/en/] is harnessing the capabilities of Generative artificial intelligence (GenAI) to empower customers and transform its internal operations.

Moreover, building on the foundations of a long-standing collaboration with Microsoft[http://www.microsoft.com/], Schneider Electric is integrating Microsoft Azure OpenAI to develop solutions that leverage algorithms to generate text, code, and other types of content.

This has empowered Schneider Electric[https://aei.dempa.net/archives/tag/schneider-electric] to reimagine its approach to various operational processes and streamlining time-consuming tasks. At the same time, optimizing resource allocation and gaining speed and efficiency. In addition, the Group continues to apply GenAI[https://aei.dempa.net/archives/tag/generative-AI] to advance innovation in its offer portfolio.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/06/Schneider-Featured-1024x603.png]

Features, Benefits

The key highlights of Schneider Electric's use of GenAI[https://aei.dempa.net/archives/tag/AI] include:

* Resource Advisor Copilot[https://www.se.com/ww/en/about-us/newsroom/news/press-releases/building-sustainability%E2%80%99s-digital-future-with-ecostruxure%E2%84%A2-resource-advisor-copilot-schneider-electric%E2%80%99s-latest-ai-advancement-64eca1cf6053e3d1d90ab96e] – using Large Language Model technology through Microsoft Azure OpenAI, Schneider Electric has securely built Copilot as a convenient digital companion embedded inside Resource Advisor. Moreover, Copilot equips customers with enhanced data analysis, visualization, decision support, and performance optimization. Furthermore, the ability to seamlessly process intricate industry knowledge and Resource Advisor system information.

* Jo-Chat GPT – internal conversational assistant based on Microsoft Azure OpenAI Service. Hence, allowing employees to profit from Generative AI capabilities in a secure way.

* Finance Advisor – this conversational assistant provides an easy and effective way to find precise information for financial analysts in accounting and other functions within global finance. It helps to achieve consistent, compliant, and timely decision-making.

* Knowledge Bot – conversational assistant helping customer care representatives find precise information to customer queries. In addition, proposing appropriate answer based on large internal documentation.

* Conversational search – helping our customers search for the products they need in a natural conversation style using semantic search capability.

Schneider Electric is also looking to integrate Github Copilot. Particularly, to further enhance its offer creation processes and operations as well as Sales Copilot.

Investing on a Game-Changer Tool

Commenting on these technological and business advancements, Philippe Rambach, Chief AI Officer at Schneider Electric, stated, “Generative AI is a game-changer and we are investing in this technology. It has already allowed us to enhance internal productivity, and it aligns perfectly with our commitment to continuous improvement and impactful innovation focused on sustainability.”

Most importantly, Schneider Electric launched in 2021 the AI hub organization, before the GenAI technology became prevalent. With the emergence of these new tools, the company created a dedicated GenAI core team to work closely with internal and external stakeholders. That is, to detect early application opportunities.

Schneider Electric's[https://aei.dempa.net/archives/tag/schneider-electric] adoption of Generative AI and integration with Microsoft Azure OpenAI underscores their commitment to staying at the forefront. Particularly, in technological innovation in energy management[https://aei.dempa.net/archives/tag/sustainability] and industrial automation[https://aei.dempa.net/archives/tag/automation]. The companies are focused on leveraging advanced technologies to drive efficiency gains, foster innovation, and achieve sustainable growth.

Schneider Electric portfolio of solutions built on Microsoft Azure offers its customers next-generation cloud-based, IoT (Internet of Things) solutions. In addition, it also carries advanced data and AI capabilities.

Together, the two companies help customers bridge the gap between setting ambitious sustainability goals and achieving them.

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Document ASELEC0020231116ejbg00007

AI in Manufacturing

Schaeffler, Siemens Bring Unique AI Industrial Copilot

495 words
15 November 2023
Asia Electronics Industry
ASELEC
English

Technology company Siemens[http://www.siemens.com/] is harnessing the power of generative artificial intelligence (AI) to help industrial companies drive innovation and efficiency. Particularly, across the design, engineering, manufacturing, and operational lifecycle of products.

At the Smart Production Solutions (SPS) trade show in Nuremberg, Siemens and the motion technology companySchaeffler[http://www.schaeffler.com/] showcased a production machine augmented with the Industrial Copilot for the first time. Moreover, the two companies demonstrated how Industrial Copilot can augment Siemens' industrial automation[https://aei.dempa.net/archives/tag/automation] engineering and operation solutions.

Siemens and Schaeffler introduce the Siemens Industrial Copilot, automating engineering and operation tasks on a production machine.[https://aei.dempa.net/wp-content/uploads/2023/11/IndustrialCopilot-1024x576.jpg]

Generating automation code with natural language input

The AI-powered assistant[https://aei.dempa.net/archives/tag/AI] connected to Siemens' engineering framework Totally Integrated Automation (TIA) Portal via the open API TIA Portal Openness can support various automation tasks. Particularly, the Industrial Copilot helps Schaeffler's automation engineers to generate code faster for programmable logic controllers (PLC)[https://aei.dempa.net/archives/tag/PLC], the devices that control most machines throughout the world's factories. Thus, engineering teams can significantly reduce time, effort, and the probability of errors. Specifically, by generating PLC code through natural language inputs.

With industrial companies speeding up their automation and digitalization[https://aei.dempa.net/archives/tag/digital-manufacturing] journey, there is an increasing demand for experienced automation engineers. Especially those in implementing these projects. The Siemens Industrial Copilot helps automate repetitive tasks, freeing up engineering resources for higher-value work. It will also empower less-experienced shop-floor employees to grow into engineering roles.

Industrial Copilot – Generating PLC code with natural language input: Making the workforce more efficient. [https://aei.dempa.net/wp-content/uploads/2023/11/Digitalization-1024x576.jpg]

Schaeffler CEO Klaus Rosenfeld said: "Driving the digital transformation is a top priority for Schaeffler and it plays a key role in our company strategy. Generative AI solutions like the Industrial Copilot will speed-up this journey and empower our employees. We partner with Siemens because we are both technology companies, sharing the same vision: Transform the way we operate."

Finding and fixing errors: Reducing machine downtime

Siemens Industrial Copilot has access to all relevant documentation, guidelines, and manuals to assist shopfloor workers. Most especially, in identifying possible errors. These capabilities enable maintenance teams to identify errors and generate step-by-step solutions more quickly. Thus, this will help to significantly reduce machine

downtime, make industrial companies more efficient and thus support sustainability efforts.

“This is the beginning of a new era: In the past, we had to speak to machines in their language. With the Siemens Industrial Copilot, we can speak to machines in our language,” said Cedrik Neike, Member of the Managing Board of Siemens AG and CEO Digital Industries. “In few years, AI will be omnipresent in industry. Siemens and Schaeffler are frontrunners, joining forces to make Generative AI industrial grade.”

Overall, the generative AI-powered assistant will assist in optimizing the engineering and operation lifecycle. From the planning phase to validation, generating unit tests of function blocks, monitoring to optimizing machine performance, the Industrial Copilot will make human-machine interactions faster, more intuitive, and more efficient.

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Document ASELEC0020231115ejbf00001

AI in Manufacturing

SymphonyAI's New Model to Catalyze Smart Manufacturing

654 words
10 November 2023
Asia Electronics Industry
ASELEC
English

SymphonyAI,[https://www.symphonyai.com/] a leader in predictive and generative enterprise AI SaaS, has announced the industry's first-ever industrial large language models (LLM) [https://www.symphonyai.com/industrialLLM/] focused on accelerating industrial transformation at scale.

Particularly, the Industrial LLM has been trained on 1.2 billion tokens using one of the world's largest industrial datasets. Furthermore, these datasets comprise 3 trillion data points, more than 500,000 machine tests, 150,000 components, and 80,000 different assets. Thus, bringing the power of predictive and generative AI[https://aei.dempa.net/archives/tag/AI] to help industrial customers improve operational efficiency, productivity, and margins. The model puts contextualized information in the hands of operators for better, faster decision making.

Moreover, the LLM provides relevant context-aware data and delivers actionable knowledge to operators up to 90% more rapidly than their existing systems.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/11/SAI-logo-horizontal-full-color-1024x135.jpg]

Brings Significant Advancements

Microsoft Azure hosts the Industrial LLM[https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fwww.symphonyai.com%2FindustrialLLM%2F&esheet=53774535&newsitemid=20231108723413&lan=en-US&anchor=Industrial+LLM&index=1&md5=bafb32ad6b061888fac41ba3bf40f75f] and efficiently connects and contextualizes manufacturing operation information at all levels. Particularly, spanning from individual assets to global multi-plant operations. The Industrial LLM is a self-contained intelligence source to address asset performance and reliability queries.

Alternatively, it may be integrated with downstream systems and plant data sources. Either mode supports real-time, quantifiable business outcomes while fostering the growth of industrial knowledge for a more informed and interconnected workforce.

SymphonyAI Industrial LLM (Graphic: Business Wire)[https://aei.dempa.net/wp-content/uploads/2023/11/Slide1-1024x576.jpg]

When incorporated into diverse manufacturing and maintenance processes, the Industrial LLM can derive insights from a wide array of data. These include events, sensor data, asset details, work orders, warranty information, product documentation and manuals, troubleshooting guides, and reliability and maintenance reports. The Industrial LLM's self-learning abilities adapt in real time to incoming data and actions to keep pace with rapidly changing operational variables.

The Industrial LLM puts meaningful context-aware data into the hands of the operator or plant manager. Thus, ensuring that even inexperienced users have access to years of domain knowledge to quickly overcome complex

challenges.

“Bringing Industrial LLM to the industrial market is a significant advancement for the industry,” said Indranil Sircar, CTO of Manufacturing at Microsoft. “SymphonyAI's approach of combining the precision of industrial domain knowledge with the power of generative AI will enable manufacturers to tap into the expertise of the operator or technician and unlock never-before-seen value from their data.”

New Era of Intelligent Manufacturing

“…the SymphonyAI Industrial LLM is a game-changer. It serves as the foundation for a new generation of industrial applications and computational processes that push the limits of physics. While fundamentally altering how plant managers, operators, reliability engineers, and quality analysts derive insights from available data and execute vital tasks,” said Prateek Kathpal, President and CEO of SymphonyAI Industrial.

In addition, Kathpal said, “We are launching a new era of intelligent manufacturing[https://aei.dempa.net/archives/tag/smart-manufacturing], tapping into the depth of our product portfolio and our extensive history and visibility across domains and datasets. These including both machine and non-machine datasets.”

Furthermore, Kathpal said world-class industrial datasets have trained the new Industrial LLM. For that reason, it provides essential groundwork for digital manufacturing[https://aei.dempa.net/archives/tag/digital-manufacturing] innovators to unleash transformative AI solutions.

The Industrial LLM is one of the first-ever industrial domain-grounded LLMs, trained on large proprietary industrial datasets and a curated knowledge base. Thus, performing specific tasks that are relevant for industrial users.

The tasks include machine condition diagnostics and prescriptive recommendations, answering questions on specific fault conditions, test procedures, maintenance procedures, manufacturing processes, and industrial standards.

The Industrial LLM is initially available for private preview. Developers can sign up to build their own robust custom industrial applications through the Industrial LLM API. The Industrial LLM will be available in the Microsoft Teams AI Library and as a model in the Model Catalog in the Azure Machine Learning Studio. It is also available as a learning tool for use by universities and colleges training intelligent manufacturing talent for the future.

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Document ASELEC0020231110ejba00004

India Business

‘India will become AI -Powered manufacturing hub’

Siva G

305 words
9 November 2023
The Times of India
TOI
English

VISAKHAPATNAM: The Co-Convenor of the G20 Health, Pharma, and Tech Summit Series, Gedela Srinubabu emphasized the growing demand for Artificial Intelligence (AI) professionals and ethicists. He envisions India as a global AI-powered manufacturing hub, propelling the nation to become the world's third-largest economy by 2026.While interacting with Prime Minister Narendra Modi in Hyderabad, he said the integration of artificial Intelligence into the Make in India initiative was termed as a game-changer in the manufacturing sector. The meeting with PM Modi provided an ideal platform for Srinubabu to express his profound appreciation and support for the India Business Promotion Scheme (IBPS) under the Digital India initiative.He highlighted the importance of investing in training and projected a need for seven million Artificial Intelligence engineers and data scientists to unlock a global opportunity worth Rs. 15 trillion dollars.

The IBPS is rooted in its capacity to drive rural employment, especially in Tier 2 and Tier 3 cities, with a focus on empowering women. This reflects the essence of India's rich culture, emphasizing the significance of retaining the working population in small towns and villages.“By nurturing a workforce that remains close to their roots rather than migrating to bustling metropolises, we can ensure that our children grow up imbibing the wisdom of their grandparents from an early age,” he said. Pulsus Group has played a pivotal role in generating a remarkable 25,000 direct and indirect jobs.Srinubabu, the CEO of Pulsus Company, emphasized the vital significance of translating essential information in the fields of agriculture and healthcare into local languages. This transformative initiative has the potential to enhance access to critical knowledge in rural areas, significantly impacting the well-being of Indian citizens.

Bennett, Coleman & Co., Ltd.

Document TOI0000020231108ejb8000lm

Basetwo and Genecis Secure $4.3 Million Project to Revolutionize Life Science Manufacturing with AI-Enabled Digital Twins

Globenewswire
405 words
7 November 2023
08:01
The Canadian Press
CPR
English

TORONTO, Nov. 07, 2023 (GLOBE NEWSWIRE) -- Basetwo, in partnership with Genecis, a leading Canadian biotechnology company, is proud to announce $4.3 million in funding from Next Generation Manufacturing Canada (NGen) to spearhead a groundbreaking project that will transform the landscape of life science manufacturing.

The COVID-19 pandemic highlighted several vulnerabilities in local life science manufacturing capabilities across the globe, necessitating a significant increase in domestic production capacity using next-generation technologies. At the heart of Basetwo's and Genecis's innovative project is the utilization of hybrid models[https://www.globenewswire.com/Tracker?data=ZlvjXGGpTjF34SmtonJ1TFvGLxp2kZUuZYxfjEKCTP7g4l8rBpEASFhkFv0xcn3vNXLUCeGK7m0lelU4V9mWnUDo6r4kFFh8RlQiipf_Pw5VXyTIZBR_cB8sGdm-dM-Z], a cutting-edge simulation technology that fuses AI with the fundamental principles of physics and chemistry, enabling the effective modeling of complex industrial systems, such as bioreactors or distillation columns.

The shared vision for this project consists of creating AI-enabled ‘digital twins’ of bioreactor systems capable of predicting and optimizing operations at various scales in real-time, enabling model-predictive scale-up and technology transfer. The project also promises to deliver on significant environmental benefits, focusing on optimizing Genecis’ novel manufacturing processes that convert food waste into biodegradable plastics.

“We're thrilled to be partnering with Genecis on this project,” said Thouheed Abdul Gaffoor, CEO of Basetwo. “This collaboration exemplifies our commitment to industrial manufacturers to create a more efficient, sustainable future with AI.”

“At Genecis, we are excited to join forces with Basetwo on pioneering this project. This joint effort exemplifies our shared dedication to sustainability. Together, we are poised to position Canada as a leader in next-generation manufacturing technologies,” adds CEO of Genecis, Luna Yu.

Basetwo and Genecis's collaboration with NGen represents a significant leap forward in redefining Canada’s life science manufacturing capabilities and underscores each company’s commitment to driving both innovation and sustainability in the global market.

For more information about Basetwo, Genecis, and this transformative project, please contact:

Victoria Galimanis

victoria@basetwo.ai[https://www.globenewswire.com/Tracker?data=iz6rCWVUl9_uWfjemIiq3BcEbO8geoWNR0WD1nECepgLk1dem2C_ZQPaak96bqq98gDUveTTa1sz38DND79sgzmJXYatrJwAcpmzdoX6HVA=]

About Basetwo:

Basetwo is a Toronto-based software company harnessing generative AI copilots and hybrid modeling to streamline complex engineering environments, empowering engineers to make manufacturing smarter, faster, and more resilient.

https://www.basetwo.ai/[https://www.globenewswire.com/Tracker?data=MQHeshQDWXHFYgUf14LLGN7HrKPxTXASdJYckk984Hxvpth_zi4XQOWS0ZYbTTeTXBqARXGErllmxUxsdXsTkA4_dc6Ukb1JGoXW4T-uxec=]

About Genecis:

Genecis is a leading Canadian biotech company turning organic waste into sustainable, biodegradable materials, offering a circular economy solution for products' beginning and end of life.

https://www.genecis.co/[https://www.globenewswire.com/Tracker?data=MQHeshQDWXHFYgUf14LLGB9vCFKKWspRBSvgRCNmFxi3E_mBn-GpOrxhUekt-n-DiCpzwJCoHw4rb-0Fd-zdLUHD8jzhQkZj0HpcYS1y3SM=]

NEWS RELEASE TRANSMITTED BY Globe Newswire

The Canadian Press

Document CPR0000020231107ejb700lrd

NGen Launches $55M in New AI for Manufacturing Projects

Globenewswire
801 words
7 November 2023
06:31
The Canadian Press
CPR
English

HAMILTON, Ontario, Nov. 07, 2023 (GLOBE NEWSWIRE) -- Next Generation Manufacturing Canada (NGen) [https://www.globenewswire.com/Tracker?data=NcJ8bey-ufsubKqRwqyDtFKbhIQXHiyJ-mA_UlQgqty6TBm0wqf8RExMjH5m4QLPIblz1cD2d99S6Tuhmq_veuu4e9OkMYrVbGBXvwl4fP7IcT_4j_K0CDLTLXTr4yYm], has announced $19 million in Global Innovation Cluster funding for 12 new AI for manufacturing projects valued at a total of $55 million. NGen's AI for Manufacturing Challenge was designed to build advanced manufacturing capacity and enhance the commercialization of artificial intelligence and machine learning innovations across manufacturing sectors in Canada.

AI4M funding is provided from the Government of Canada's Pan-Canadian AI Strategy Commercialization program. It is intended to support the development and scale-up of solutions involving Artificial Intelligence and Machine Learning as well as the steps required by manufacturers for their successful implementation. The program aims to enhance the competitiveness of Canadian manufacturers, enable the development of new commercial opportunities for AI solution providers and manufacturers alike, develop a diverse and inclusive workforce highly skilled in AI applications in manufacturing, and contribute to environmental sustainability, supply chain resilience, and the health and safety of Canadians.

The following project consortia represent the cohort of successful applicants to NGen's AI4M program:

Next Generation Factory Acceptance Test

Ballard Power Systems Inc. (Burnaby, BC)

Acerta Analytics Solutions Inc. (Kitchener, ON)

AI/Machine Vision Quality Control

Keirton Inc. (Surrey, BC)

Organigram Inc. (Moncton, NB)

Smart, Connected and Collaborative Canadian Robotic Framework

Kinova Inc. (Boisbrand, QC)

Labforge Inc. (Waterloo, ON)

Inertia Manufacturing (Toronto, ON)

Linamar Corporation (Guelph, ON)

High Speed AI Powered 3D Inspection

Apera AI Inc. (Vancouver, BC)

Stronach Centre for Innovation - Magna International (Aurora, ON)

A Flexible, Scalable AI Manufacturing Quality System

Lantern Machinery Analytics Inc. (Vancouver, BC)

e-Zinc Inc. (Toronto, ON)

AI-Enabled Autonomous Manufacturing Equipment

Linamar Corporation (Guelph, ON)

Cyberworks Robotics (Oro-Medonte, ON)

Digital Manufacturing Production AI Engine

Mosaic Manufacturing (Toronto, ON)

AI-Innovative Solutions Inc. (Burlington, ON)

Matter and Form (Toronto, ON)

Using AI to Fast-Track Electrochemical Technology Developments

Ayrtron Energy (Calgary, AB)

Pulsenics Inc. (Toronto, ON)

AI-Driven Digital Twins to Accelerate and Enhance Life Sciences Manufacturing

Basetwo Artificial Intelligence Inc. (Mississauga, ON)

Genecis Bioindustries Inc. (Scarborough, ON)

AI in Manufacturing for the World’s First Digital Gynecology Platform

Cosm Medical Corp. (Toronto, ON)

SiteRocket Labs (Toronto, ON)

Hamilton Health Sciences Corporation (Hamilton, ON)

Objex Unlimited Inc. (Etobicoke, ON)

Enhanced AI Traceability for Manufacturing

Linamar Corporation (Guelph, ON)

Acerta Analytics Solutions Inc. (Kitchener, ON)

AI-Enabled Robotic Solution for Building Component Prefabrication

Promise Robotics Inc. (Toronto, ON)

Landmark Group of Companies Inc. (Edmonton, AB)

As NGen launches AI4M projects, the cluster is simultaneously seeking project applications to its Quantum Advantage program in support of Canada's National Quantum Strategy[https://www.globenewswire.com/Tracker?data=rjJd3Fxw0CYfD-VDJBNXgbg5DXaSeJeCLPh4Acgvyo6wRAgvzVVyhZE8KoXRQMc5QkrXKVDFJt4gVAYoTp6Q5RJi0MuDiPKxQ_HK9FSrdWH1cMwtYvJiVODDXDdKujH756rRR3XJoSKSNCkevNvPRyeBeg9bexDi3wTJ_5zVFua7M9BADPMGOYYfPAIgS3zEFfGYMRA7Gi1MLoy4x0WrLw==]. Interested parties are encouraged to visit https://quantumadvantage.ngen.ca/[https://www.globenewswire.com/Tracker?data=f__bCNXoLNJOQFpEfRXYbNR_4n1ysKoDziTnV6q0nDYVuYPxZ-kTGl4ZI_JPWnQwQBOk-jR4IP2ASbFxaOPrlKi2L0dhVYTwTAUpOgg9CfdRTpLDE-qo8xKJp-aF_TeM] for more information about the program and to submit project applications.

Quotes

"NGen is helping close the gap to commercial success for our home-grown AI providers," said Jayson Myers, CEO, NGen. "By connecting our leading-edge technology firms to our domestic manufacturing base, NGen is helping to develop a suite of unique solutions that will have tremendous commercial potential in global markets."

"Canada's Global Innovation Clusters are key to supporting the commercialization of Canadian AI innovations," said François-Philippe Champagne, Minister of Innovation, Science and Industry. "Canada is a leader in the responsible development and safe use of AI, and with the support from Canada's Advanced Manufacturing Cluster, NGen, we are not only generating new commercial opportunities for Canadian AI providers but also developing world-leading technology capabilities for Canada's manufacturing base."

About The Pan-Canadian AI Strategy

Through the Pan-Canadian Artificial Intelligence Strategy, the Government of Canada is investing in efforts to drive the adoption of artificial intelligence across Canada's economy and society. The second phase of the strategy bridges Canada's world-class talent and research capacity with programs to enable commercialization and adoption to help ensure that Canadian ideas and knowledge are mobilized and commercialized here at home. Canada's Global Innovation Clusters are strengthening the national innovation landscape by promoting the adoption of made-in-Canada artificial intelligence technologies by businesses in key industries, and by public and not-for-profit entities.

About NGen

NGen is the industry-led not-for-profit organization that leads Canada's Global Innovation Cluster for Advanced Manufacturing. Its mandate is to help build world-leading advanced manufacturing capabilities in Canada for the benefit of Canadians. NGen works to strengthen collaboration among its membership of more than 5,000 manufacturers, technology companies, innovation centres, and researchers, and provides funding and business support to industry-led initiatives that aim to develop, apply, or scale-up transformative manufacturing solutions in Canada for commercialization in global markets.
www.ngen.ca/membership[https://www.globenewswire.com/Tracker?data=Tu-BOLK0xorwU45JCe8qTju9eR9CSzWhcb2kZnNmye6EzbHIsGsC6o37C7HYVSN5k-8_hr1bwv8-gZXZQy8Z6Bm6lLMZ-PQk4a1iM0v9Y74=]

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Robbie.macleod@ngen.ca[https://www.globenewswire.com/Tracker?data=YkTXOhlMNn1vxpH_P26P5vRUuAYJU-3UkiJ4OrUE0vX0TpC_MmFH-4Zr5V1mxUMVw0pYTrlJ-r-2Wc5cDABrbx6EfHBn4Uf3ClADLWRSvU4=]

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NEWS RELEASE TRANSMITTED BY Globe Newswire

The Canadian Press

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KARNATAKA

Karnataka Digital Economy Mission for more women in manufacturing, AI sectors

363 words
3 November 2023
The Hindu
THINDU
English

MYSURU KARNATAKA

Click to view image[https://th-i.thgim.com/public/todays-paper/tp-national/tp-karnataka/2dy64t/article67491354.ece/alternates/FREE_660/KDEM-organises-%2BGRIBVA89K.3.jpg.jpg]

KDEM organises Women@Work (W@W) conclave in Mysuru. Event held in a bid to foster gender diversity and empower women

Karnataka Digital Economy Mission (KDEM) in association with Karnataka Skill Development Corporation (KSDC) organised Women@Work (W@W) conclave in Mysuru on Thursday, to empower women and actively participate in the workforce.

The event was held as part of the Big Tech Show at Infosys, Mysuru and organised in a bid to foster gender diversity and empower women.

Sanjeev Gupta, CEO of KDEM, who addressed the women workforce said that there is a critical need for more women to participate in manufacturing and Artificial Intelligence sectors, breaking cultural and social biases.

He also emphasised the importance of networking and said that it plays a pivotal role in empowering women to bolster their self-confidence, negotiate with finesse, and achieve excellence in their careers.

In a professional landscape where connections play a pivotal role, women who excel at networking, can leverage their contacts to access resources, share knowledge, and navigate the complexities of their chosen fields, he added.

There were panel discussions on subjects such as ‘’Reskilling and Upskilling’’, ‘’Women in India’s Tech and Digital Economy’’, ‘’Women in Life Sciences: Navigating Pathways to Success’’, where experts emphasised the need to break the cultural and social biases that have been holding women back in their professional journeys.

As part of Beyond Bengaluru initiative, ‘Mysuru Blue’, an initiative was also organised at SJCE-STEP, which saw the participation of 15 local startups and three student teams.

During the event, entrepreneurs presented their ideas to potential investors, urging them to provide the essential capital needed to bring their innovative concepts to life. The top three ‘fundable startups’ will be unveiled at an upcoming ceremony scheduled for Friday at the Big Tech Event.

The KDEM is a government initiative committed to fostering digital transformation and innovation in the State and aims to create an inclusive and thriving digital ecosystem, where every individual, regardless of gender, has equal opportunities to excel in the digital economy.

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Microsoft and Siemens Innovate Manufacturing with AI-Powered Assistant and Industrial Metaverse Integration

Anusuya Lahiri

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Microsoft Corp(NASDAQ: MSFT[https://www.benzinga.com/stock/msft#NASDAQ]) andSiemens AG(OTC:SIEGY[https://www.benzinga.com/stock/siegy#OTC]) are deepening their partnership by bringing the benefits ofgenerative AI to[https://www.benzinga.com/analyst-ratings/analyst-color/23/10/35498936/microsofts-iphone-moment-with-m365-copilot-analysts-predict-10b-ai-revenue-surge-by]industries worldwide.

As a first step, the companies are introducing Siemens Industrial Copilot, an AI-powered jointly developed assistant to improve human-machine collaboration in manufacturing.

Also Read:Microsoft, Google, And Adobe Navigate AIs Profitability Challenge[https://www.benzinga.com/news/23/10/35146260/microsoft-google-and-adobe-navigate-ais-profitability-challenge]

In addition, the launch of the integration between Siemens Teamcenter software for product lifecycle management and Microsoft Teams will further pave the way to enabling the industrial metaverse.

It will simplify the virtual collaboration of design engineers, frontline workers, and other teams across businessfunctions[https://news.microsoft.com/2023/10/31/siemens-and-microsoft-partner-to-drive-cross-industry-ai-adoption/].

Siemens Industrial Copilot will allow users to rapidly generate, optimize, and debug complex automation code and significantly shorten simulation times.

This will reduce a task that previously took weeks to minutes. The copilot ingests automation and process simulation information from Siemens' open digital business platform, Siemens Xcelerator, and enhances it with Microsoft's Azure OpenAI Service.

The companies envision AI copilots assisting professionals in various industries, including manufacturing, infrastructure, transportation, and healthcare.

Schaeffler AG, a leading automotive supplier, is among the first in the automotive industry to embrace generative AI in the engineering phase.

Price Actions:Microsoft shares traded lower by 0.46% at $335.77 on the last check Tuesday.

Disclaimer:This content was partially produced with the help of AI tools and was reviewed and published by Benzinga editors.

Benzinga.com

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AI in Manufacturing

Rockwell Automation, Microsoft Ally on Generative AI

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Asia Electronics Industry
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Rockwell Automation, Inc[https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fwww.rockwellautomation.com%2Fen-us.html&esheet=53647446&newsitemid=20231026300444&lan=en-US&anchor=Rockwell+Automation%2C+Inc&index=1&md5=8e447502205945b139582be19b949797]. and Microsoft Corp[https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fnews.microsoft.com%2Fsource%2F&esheet=53647446&newsitemid=20231026300444&lan=en-US&anchor=Microsoft+Corp&index=2&md5=c821ad275620e8606731d1914e9310f4]. have announced an extension of their longstanding relationship to accelerate industrial automation design and development. Particularly, through generative artificial intelligence (AI).

The companies are combining technologies to empower the workforce and accelerate time-to-market for customers building industrial automation[https://aei.dempa.net/archives/tag/industrial-automation] systems. The first outcome of this collaboration will add Microsoft's Azure OpenAI[https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fazure.microsoft.com%2Fen-us%2Fproducts%2Fai-services%2Fopenai-service&esheet=53647446&newsitemid=20231026300444&lan=en-US&anchor=Azure+OpenAI&index=3&md5=ecd61934afd80831a816ce730acc1137] Service into

FactoryTalk® Design StudioClick to view image[https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fwww.rockwellautomation.com%2Fen-us%2Fproducts%2Fsoftware%2Ffactorytalk%2Fdesign-studio.html&esheet=53647446&newsitemid=20231026300444&lan=en-US&anchor=FactoryTalk%26%23174%3B+Design+Studio%26%238482%3B&index=4&md5=af4324e7514e610457b0452de306339b]

. Hence, delivering industry-first capabilities accelerates time-to-market for their customers building industrial automation systems.

“The skilled labor shortage and ensuing lost productivity is the biggest challenge facing industrial organizations and their service providers today. These shortages are increasing the need, value, and complexity of automation projects when the ecosystem of service providers is less equipped to deliver on time, quality, and budget,” said Matthew Littlefield, President LNS Research. For that reason, Littlefield said generative AI has already proven its ability to capture the imagination and enhance the productivity of workers. Particularly, in a range of IT and business scenarios.

“Rockwell's decade-long relationship with Microsoft illustrates our ongoing commitment to providing best-of-breed solutions that empower customers and support our shared vision of driving industries forward through innovation and collaboration,” said Blake Moret, Chairman and CEO of Rockwell Automation.

Rockwell Automation and Microsoft Expand Partnership to Leverage Generative AI Capabilities for Enhanced

Productivity and Faster Time-to-Market (Photo: Business Wire)[https://aei.dempa.net/wp-content/uploads/2023/10/Feature-Image-1024x603.jpg]

“Together, we're not just addressing current market needs; we're shaping the future of technology in industrial automation.”

Spur Greater Innovations

Rockwell[https://aei.dempa.net/archives/tag/rockwell-automation] and Microsoft[https://aei.dempa.net/archives/tag/microsoft] recognize the importance of using AI[https://aei.dempa.net/archives/tag/ai] to enhance automation[https://aei.dempa.net/archives/tag/automation] across various roles, from decision makers to control engineers and operators. In fact, this is a key area where they can come together to help customers streamline their processes and drive worker productivity.

Adding Azure OpenAI Service into FactoryTalk Design Studio helps engineers generate code using natural language prompts, automating routine tasks and improving design efficiency. It will also empower seasoned engineers to accelerate development and mentor newcomers on a learning path more efficiently and effectively. Additionally, it will assist in finding relevant help from vast collections of information to further educate developers. Rockwell and Microsoft see a bright future in extending this integrated technology to solve other challenges, including Quality Management and Improvement, Failure Mode Analysis, and training frontline workers to execute manufacturing processes through chat-based collaboration with experienced human workers as well as Azure Open AI Service-based chatbots.

“The explosive growth and interest in artificial intelligence is driving organizations to partner with Microsoft as a trusted cloud and AI provider,” said Judson Althoff, executive vice president and chief commercial officer at Microsoft. “I am pleased to further strengthen our longstanding relationship with Rockwell by combining its expertise in industrial automation with Microsoft’s generative AI technology to help industrial professionals expedite the creation of complex control systems, optimize the efficiency of their operations, and spur greater innovation across industrial organizations.”

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Features

Data conference guest says AI could improve manufacturing sector

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28 October 2023
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WBEL
1; National
11
English

A LEADING data scientist has said he is seeing a lot of enthusiasm for the use of artificial intelligence across several industries in Northern Ireland.

Speaking ahead of his speech at Big Data Belfast, a tech conference dedicated to analytics and business data which took place earlier this week, Analytics Engine scientist Jordan Mc- Donald said he sees growth for the use of the technology in NI sectors like manufacturing.

"Manufacturing has a large presence here in Northern Ireland, and a big part of their process is around the integrity of the financial procedures and structure lines based on how they create their devices and a huge part of AI is predicting and preventing maintenance.

"For example if there is a problem on an assembly line, it's hugely costly, and there are so many ways AI can help this, like providing early indications of faults and giving that information back to humans before the problem happens," he said.

Mr McDonald said he has been amazed at the rise of generative AI over the past year, a theme which will make up much of the conference, which took place on Thursday at ICC.

"In many ways, AI is at the heart of analytics, but what's taken to the next level is the rapid emergence of generative artificial intelligence like ChatGPT.

"It's about how we make the human more effective, and efficient and how AI can be used to recommend decisions, and I think what I recommend is mapping the journey to find the solution to the problem and lots of the time is using artificial intelligence and more people in NI are willing to adopt it."

Independent News & Media (Northern Ireland)

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News

How AI is revolutionising fashion design and manufacturing processes.

Shemona Safaya

640 words
27 October 2023
Just-Style
JUSTY
English

The fashion industry is undergoing a revolution, and at the heart of this transformation is Artificial Intelligence (AI). Riley believes that there has been a huge adoption and reception for AI and this is evident from the platform Chat GPT gaining 1 million users in just five days as opposed to apps like Spotify and Instagram.

She continues to say there are many players in AI now, whether general platforms or specialised.

“The first thing to come through AI was feature recognition,” says Riley. “Feature recognition has been a part of our mobile phones for four to five years now. It picks up things from our images, and classifies it. We can even search our images on phone.”

For instance, she begins explaining, how in the fashion realm domain-specific AI can pick up features related to the garment in the image. Once it recognises things, it can also deduce and make conclusions based on the visuals.

As a matter of fact, companies are using AI to deduce physical properties from a scanned image of fabric. These physical properties can be then used in 3D modelling, suggests Riley. Whereas the features and deductions from the image can help with making predictions.

Riley points out that the one thing AI is very powerful in is trend forecasting and sales forecasting. While she believes companies are using this already as when you shop in person or even online there are personalised recommendations. This becomes possible because platforms are enabled with bots which register these choices and tailor-make recommendations based on it.

But the advent of AI in fashion doesn’t stop here. AI is used prominently in manufacturing and supply chains as well, especially for forecasting, inspection, connecting upstream to downstream, supplier to buyer, in optimisation and warehouses for moving things around.

At the forefront of this AI revolution is generative AI, a technology that creates images and designs based on specified criteria. Whether it is human-like faces in a specific skin colour or hair style, generative AI can do it all.

Riley says if you have a digital product and combine it with generative AI you can showcase the finished product.

She continues: “The garment doesn’t exist, the people don’t exist and it works very well. Beyond generating faces or humans, the AI can generate absolutely anything in terms of garment design, fit, length, colours, shading, based on fashion, based on forecasting, based on trends currently. It can even crawl the internet and figure out what’s going to be in season. So this is where we are at.”

Pointing to figures from McKinsey Global Institute occupation database, Riley highlights that in 2017, there were questions around when will Generative AI achieve human-level creativity with assumptions of seeing an average level of creation around 2030-45. However, this year, the data showcases we have already reached middle-level creativity from AI.

But to achieve this level of creativity Riley shares we need to explore and build those skills. She raises some important questions like how can we make the AI generate what we have in mind? How do we reach the creativity we want to reach?

The answer according to her lies in building, exploring and making the right partnerships.

It seems like in this era of AI-driven transformation, the fashion industry is not just embracing technology; it’s embracing limitless creativity. As AI continues to evolve, so does the potential for fashion innovation.

Feature recognition and forecastingUsing generative AI for crafting the future of fashion This article was originally published on just-style.com on 27 October 2023. For authoritative and timely style business information visit http://www.just-style.com[http://www.just-style.com].

GlobalData UK Limited

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AI in Manufacturing

Ansys Continues AI Innovations With New Technologies

526 words
26 October 2023
Asia Electronics Industry
ASELEC
English

Ansys[http://www.ansys.com/] is reinforcing its ongoing investment in artificial intelligence (AI) innovation through the upcoming introduction of Ansys SimAI and Ansys AI+ technologies. Accordingly, the upcoming releases build on Ansys' ongoing expansion of AI integration across its simulation portfolio and customer community.

Ansys SimAI is a cloud-enabled, physics-neutral platform that will empower users across industries to accelerate innovation and reduce time to market. Thus, with Ansys SimAI, users will be able to reliably predict the performance of complex simulation scenarios in minutes instead of hours or days. The tool will encourage more design testing, faster progress, and ultimately more innovation.

Brings Smart, Sustainable Technologies

Ansys SimAI will allow users to first train an AI model[https://aei.dempa.net/archives/tag/AI] using simulation[https://aei.dempa.net/archives/tag/simulation] results and then make predictively accurate analogous designs. Unlike methods where users had to describe their designs using a set of geometric parameters, Ansys SimAI will use the shape of a design as the input to facilitate expansive design exploration. This enables leveraging existing simulation results for training, even if the structure of the shapes is inconsistent.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/10/AI-Ansys.jpg]

With Ansys AI+, Ansys will incorporate and extend AI features within its industry-leading desktop products. Thus, enhancing core functionalities. For example, machine learning modules come in the desktop version of Ansys Granta MI AI+. Ansys optiSLang AI+ users perform efficient optimization, sensitivity studies, and robust design with advanced field and scalar ML-based meta-models.

The new AI+ offerings will empower customers, like MANN+HUMMEL, with more choice for how they access Ansys AI capabilities across our desktop products.

“Simulation democratization, digital thread, optimization, and machine learning are shaping the modern product development process at MANN+HUMMEL,” said Dr. Florian Keller, director, of engineering, air filter elements & simulation at MANN+HUMMEL. “Ansys' expanded AI offerings, like Ansys optiSLang AI+, allowed our team to perform a design of experiment on a parametrized model of air filter properties…In doing so, we reduced our simulation effort significantly, which will help us bring smart and sustainable technologies to get to the market faster.”

Revolutionize Product Development

Meanwhile, Shane Emswiler, senior vice president of product at Ansys said the company’s continuing investment in AI is a testament to its commitment to advance customer experience. Moreover, it also means accelerating the democratization of simulation and powering next-generation innovation.

In addition, Emswiler said, “By integrating AI capabilities into new and existing products, the time to predict the

performance of a complex model can be reduced from 15 days to just minutes. This type of time savings has the potential to revolutionize product development for our customers across industries."

Ansys previously announced[https://c212.net/c/link/?t=0&l=en&o=4005864-1&h=1844633289&u=https%3A%2F%2Fwww.ansys.com%2Fnews-center%2Fpress-releases%2F7-27-2023-ansys-accelerates-innovation-by-expanding-ai-offerings-with-new-virtual-assistant&a=previously+announced] the beta release of AnsysGPT, a virtual assistant that garners engineering expertise across physics domains, provides 24/7 comprehensive technical support, and reduces response times. AnsysGPT will be available in Q1 of 2024.

While Ansys SimAI will launch in early 2024, AI+ product capabilities will be available on a rolling basis beginning this Fall. First, with the release of Ansys optiSLang AI+ and then Ansys Granta MI AI+.

Dempa Publications, Inc.

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Higher Fences And An Increasingly Bigger Yard: Commerce Department Aims To Restrain Chinese Military Modernization By Tightening US Export Controls On Advanced AI Chips And Additional Semiconductor Manufacturing Items

John Barker

3945 words
25 October 2023
Mondaq Business Briefing
BBPUB
English

On October 17, the U.S. Department of Commerce's Bureau of Industry and Security (BIS) issued new rules amending its controls under the Export Administration Regulations (EAR) on advanced computing and semiconductor manufacturing items destined to countries of concern, including China. The new restrictions come roughly a year after BIS issued two rules on October 7, 2022 to counter China's acquisition of certain semiconductor and supercomputer items that could be used to further its military modernization efforts (October 7 Rules). Notably, the restrictions now extend to additional types of chip manufacturing equipment and chips with fewer capabilities than those previously subject to BIS' rules and apply to a broader range of countries.

Building upon the comments received after the October 7 Rules, BIS has updated its controls on semiconductor manufacturing equipment (SME), subjecting such equipment to a higher level of control, as well as clarifying certain available license exemptions and prohibited activities by U.S. persons. These actions were deemed necessary "to maintain the effectiveness of [such] controls, close loopholes, and ensure [controls] remain durable." In addition, the new rules focus on advanced computing integrated circuits (IC), as well as artificial intelligence (AI), broadening the scope of such controls and creating a new License Exception. The addition of 13 new entities to the Entity List for their IC and AI capabilities further underscore BIS priorities.

The two interim rules are titled "Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections" and "Export Controls on Semiconductor Manufacturing Items."

Key Takeaways

Performance Density Standard and the "Grey Zone": BIS adopts performance density, as opposed to interconnect speed, as the new regulatory parameter. Chips that do not exceed the new performance density threshold but "contravene the original intention of the rule" may fall into a "gray zone," require prior notification, and become subject to future licensing restrictions.

Crackdown on Circumvention: BIS targets China's use of transshipment points or firms to circumvent rules, effectively expanding licensing requirements to 43 countries, the D:1, D:4, and D:5 country designations.

New Restrictions on Semiconductor Manufacturing Equipment (SME): BIS adds equipment used for fabricating certain chips under a 16-nanometer threshold in an apparent attempt to achieve parity with recent Japanese and Dutch restrictions. BIS also updates controls on U.S. persons, end uses and facilities, stating that the controls are "calibrated to address the national security concerns . . . without unduly undermining the ability of U.S. persons to work for companies headquartered in the United States and closely allied countries."

Additional Flexibility for Domestic and U.S.-Allied Semiconductor Suppliers: BIS adds new presumption of approval

review policies for advanced semiconductor licenses for products subject to foreign competition, as well as two new Temporary General Licenses (TGLs) for SME and Advance Computing activities undertaken on behalf of companies headquartered in less sensitive locations.

Expansion of the Entity List: BIS adds 13 entities involved in the development of artificial intelligence. The rules also restrict foundries, wherever located, from sending chips to listed parties.

Below, we explain these rule revisions, including the items that are subject to heightened controls (e.g., ECCNs with enhanced performance parameters meeting or exceeding those in ECCN 3A090 and 4A090); new license exceptions and changes to those which already exist; expansion and changes to end-use controls, country scope for SME and supercomputer-related controls, and the advanced computed Foreign Direct Product Rule (FDPR); additional "U.S. Person" activities restrictions; changes to license review standards; and new TGLs. Finally, we describe the additions to the Entity List.

1. Additional Items Now Subject To Heightened Control

Revisions to Export Control Classification Number (ECCN) 3A090 and 3A991.p:

3A090.a now covers control parameter with control integrated circuits (ICs) with one or more digital processing units having either (1) a "total processing performance" of 4800 or more or (2) a "total processing performance" of 1600 or more and a "performance density" of 5.92 or more.

3A090.b now covers ICs with one or more digital processing units having either: (1) a "total processing performance" of 2400 or more and less than 4800 and a "performance density" of 1.6 or more and less than 5.92 or (2) a "total processing performance" of 1600 or more and a "performance density" of 3.2 or more and less than 5.92.

BIS specifically excluded from ECCN 3A090 ICs that are not designed or marketed for use in datacenters and do not have a "total processing performance" of 4800 or more. However, such ICs may still require a license under another ECCN. Conforming changes were also made to 3A991.p.

BIS revised the control parameters for ECCN 3A090 to expand its scope to adequately capture items useful for training advanced AI for potential military applications.

Removal of ECCN 3B090 and Revisions to 3B001 and 3B002:

3B001.a.4 (equipment designed for silicon, carbon doped silicon, silicon germanium (SiGe), or carbon doped SiGe epitaxial growth)

3B001.c (certain equipment designed for dry etching and certain equipment designed for wet chemical processing)

3B001.d (certain semiconductor wafer fabrication deposition equipment)

3B001.f.1.b (equipment with a light source wavelength equal to or longer than 193 nm meeting certain parameters)

3B001.k (equipment designed for ion beam deposition or physical vapor deposition of multi-layer reflector for Extreme Ultraviolet (EUV) masks)

3B001.l (equipment designed for coating, depositing, baking, or developing photoresist formulated for EUV lithography)

3B001.m (equipment for manufacturing EUV pellicles)

3B001.n (equipment designed for coating, depositing, baking, or developing photoresist formulated for EUV lithography)

3B001.o (semiconductor wafer fabrication annealing equipment with specified parameters)

3B001.p (three types of semiconductor wafer fabrication cleaning and removal equipment)

3B002.c (added to establish control of inspection equipment designed for EUV mask blanks or EUV patterned masks)

BIS undertook such revisions because it determined controls on SME should be aligned with similar equipment already specified under other ECCNs. Such an action is intended to assist the industry as well as the U.S. government in further compliance and enforcement measures.

BIS removed ECCN 3B090 and moved SME previously controlled under this ECCN to ECCN 3B001. ECCN 3B002's heading was revised to add "inspection" to reflect the addition of inspection equipment to this ECCN. Other additions and revisions include the following:

No De Minimis Level for 3B001.f.1.b.2.b Items: BIS also amended 15 C.F.R. § 734.4 to specify there is no de minimis level for lithography equipment described in ECCN 3B001.f.1.b.2.b if for the "development" or "production" of "advanced-node integrated circuits." This means if U.S.-origin content controlled under this ECCN is incorporated into a foreign-made item, BIS will retain jurisdiction over the foreign-produced item and it may be subject to applicable licensing requirements. However, BIS did limit the reach of this licensing requirement if the country from which the foreign-made item will be exported or reexported maintains an equivalent control on such equipment.

The newly listed items within 3B001 and 3B002 (and the former 3B002.c redesignated as 3B002.b) are controlled for Regional Stability (RS) reasons if destined to Macau and other destinations identified as subject to a U.S. arms embargo (including China) (i.e., countries listed in Country Group D:5), as well as National Security (NS) and Anti-Terrorism (AT) reasons. ECCNs 3D001, 3D002, and 3E001 were also revised to impose similar NS and RS controls. Pre-existing subparagraphs of ECCN 3B001 remain controlled for NS:2 and AT reasons. In addition, BIS revised the available license exceptions under these ECCN subparagraphs to limit the eligibility of License Exception Shipments of Limited Value (LVS). Only license exceptions found in 15 C.F.R. § 740.2(a)(9) may be used.

Licenses for equipment previously classified as 3B090 will remain valid until they expire, are revoked, or are suspended.

2. Nine ECCNs Identified Where Performance Parameters Meet or Exceed Those in ECCN 3A090 and 4A090

BIS identified a list of nine additional ECCNs that have performance characteristics or functions that meet or exceed the performance parameters of ECCNs 3A090 or 4A090 and added new "item" level paragraphs to those ECCNs. This revision came after several public comments argued BIS' previous catch-all provision deviated from the Commerce Control List (CCL)'s common structure and would have led to unnecessary confusion regarding the appropriate classification and control on such items.

First, BIS revised ECCNs 3A001, 4A003, 4A004, 4A005, 5A002, 5A004, 5A992, 5D002, and 5D992 to address overlapping controls and added a .z paragraph to each of the nine ECCNs designed to control items that meet the technical descriptions of a given ECCN but also meet or exceed the performance parameters in 3A090 or 4A090. These new .z paragraph items are subject to RS controls.

Second, BIS amended the export clearance-related requirements for .z paragraph items. Shipments of .z items to China, regardless of dollar value, require an Electronic Export Information (EEI) filing, and exporters must identify such items in their EEI filings.

3. Introduction of New License Exception and Changes To Certain License Exception Eligibility

BIS also issued a new license exception called "License Exception Notified Advanced Computing" (NAC) which authorizes eligible items to any destination specified in Country Groups D:1, D:4, or D:5, subject to certain requirements and restrictions such as prohibited end users and end uses.

Any export or reexport (but not in-country transfers) authorized under License Exception NAC must be made pursuant to a written purchase order, except for commercial samples which are not subject to this purchase order requirement. For exports or reexports to Macau or a destination specified in Country Group D:5, BIS must be notified upon which the U.S. government will have 25 days to determine whether the license exception may be used or if a specific license must be obtained.

BIS also acknowledged the inadvertent exclusion of License Exception Temporary Imports, Exports, Reexports, and Transfers (in-country) (TMP) when implementing the October 7 Rules. Therefore, BIS amended 15 C.F.R. § 740.2 to include License Exception TMP so that eligible companies can temporarily send foreign produced advanced computing items for inspection, test, calibration, or repair purposes to Macau or destinations specified in Country Group D:5.

4. Expansion of and Changes to End-Use Controls

BIS imposed an end-use control that applies to any "technology" subject to the EAR and specified in ECCN 3E001 (for 3A090) "technology" when the technology meets all of the following:

The technology is developed by an entity headquartered in or whose ultimate parent company is headquartered in Macau or a destination specified in Country Group D:5

The technology is subject to the EAR pursuant to the FDPR in §§ 734.9(h)(1)(i)(B)(1) and (h)(2)(ii) of the EAR

The technology is for the reexport or transfer (in-country) from or within Macau or a destination specified in Country Group D:5 to any destination worldwide

The technology is for the "production" of commodities or software specified in ECCN 3A001.z, 3A090, 4A003.z, 4A004.z, 4A005.z, 4A090, 5A002.z, 5A004.z, or 5A992.z

These expansions were adopted by BIS "to capture PRC operations outside of China in light of ongoing national security concerns related to diversion and misuse of items subject to the EAR."

BIS also revised restrictions applicable to SME-related end use controls. The restrictions were narrowed for items subject to the EAR and specified on the CCL and front-end IC production equipment and other items specified in 3B ECCNs. Masks and other items specified in ECCNs 3B001.g, 3B001.h, 3B001.j, and 3B991.b.2 were excluded, and BIS also made conforming changes in light of ECCN redesignations. In addition, BIS added an exclusion for "back-end" production steps, such as assembly, test, or packaging steps, that do not alter the technology level of an IC consistent with its guidance provided in a Frequently Asked Question (FAQ).

5. Country Scope Expansions for SME and Computing Use Controls

BIS also revised restrictions applicable to SME and supercomputer controls by expanding the country scope to

cover not only Macau and China, but also other Country Group D:5 countries, as well as making conforming changes in light of ECCN redesignations.

Certain changes to license exception eligibility and license requirement exclusions were also made:

BIS added an exclusion for natural "U.S. persons" employed or working on behalf of a company headquartered in the U.S. or a destination specified in Country Group A:5 or A:6 that is not majority-owned by an entity headquartered in Macau or a destination specified in Country Group D:5.

The rule excludes servicing of items in a facility that does not produce "advanced-node integrated circuits" to avoid restricting servicing (including installation) at legacy-node facilities.

BIS added an exclusion for "back-end" production steps that do not alter the technology level of an integrated circuit, consistent with a prior FAQ.

For advanced computing-related restrictions, BIS expands the country scope even further to include Country Groups D:1, D:4, and D:5. Under this new rule, a license will be required for items subject to the EAR and specified in ECCN 3A001.z, 3A090, 4A003.z, 4A004.z, 4A005.z, 4A090, 5A002.z, 5A004.z, 5A992.z, 5D002.z, or 5D992.z. if exported, reexported, transferred (in-country) to or within any destination not specified in Country Groups D:1, D:4, or D:5, excluding any destination also specified in Country Groups A:5 or A:6, when the exporter, reexporter, or transferor has "knowledge" at the time of the export, reexport, or transfer (in-country) that the item is destined for any entity that is headquartered in, or whose ultimate parent company is headquartered in, either Macau or a destination specified in Country Group D:5.

BIS drafted this additional end-use control to ensure Macau, China, and other Country Group D:5 entities are not able to set up cloud or data servers in other countries to circumvent the rules.

6. Broadening the Country Scope of Advanced Computed FDPR

BIS also broadened the country scope of the advanced computing FDPR to include any "destination specified in Country Groups D:1, D:4, or D:5, excluding any destination also specified in Country Groups A:5 or A:6." In the rule, BIS clarified the requirements apply when any of the companies headquartered in or whose ultimate parent company is headquartered in these jurisdictions are a party to the transaction involving the foreign-produced item. The interim rules also specify that the model certificates BIS had provided for the advanced computing FDP rule may be used for other FDP rules as well.

7. "U.S. Person" Activities Restrictions

BIS consolidated Section 744.6(c) and clarified that "knowledge" of a violation is required to trigger the license requirements. BIS also revised restrictions regarding semiconductor "development" and "production" activity to clarify the types of end users captured by the controls. First, BIS replaced the phrase "that fabricates" with "where 'production' ... occurs" to leverage the existing defined term "production." Second, BIS removed the qualifying phrase "semiconductor fabrication" in front of "facility." These modifications keep the focus on facilities (i.e., buildings) at locations that may have multiple production lines with different production technology nodes but cover instances where production may occur beyond a fabrication facility.

8. Changes to License Review Standards

BIS revised license review standards, clarifying what presumptions will be given to the new rules. BIS adopted a license review standard of presumption of approval when 3A090, 4A090, and related items (including .z items) are destined to destinations not specified in Country Group D:5 (except Macau), unless the export, reexport, or transfer

(in-country) is to an entity headquartered in, or whose ultimate parent company is headquartered in, either Macau or a destination specified in Country Group D:5.

For end-use controls under § 744.23, BIS revised the license review standards for license applications intended for Macau or other destinations specified in Country Group D:5. Such applications will be reviewed under a presumption of denial. BIS will review an application with a presumption of approval (1) if there is a foreign-made item available that is not subject to the EAR and has the same function as the item subject to the EAR or (2) it is for end users headquartered in the U.S. or a destination in Country Group A:5 or A:6 that are not majority-owned by an entity headquartered in either Macau or a destination specified in Country Group D:5.

BIS also amended its license review policy in Section 744.6(c) of the EAR to indicate it will review applications with a presumption of denial when they include destinations in Macau and destinations in Country Group D:5, except when there is a foreign-made item available that is not subject to the EAR and has the same function as an item subject to the EAR, which will be reviewed with a presumption of approval. Other license applications will be reviewed on a case-by-case basis.

9. New TGLs

TGL for SME:TGL for Advanced Computing Items:BIS provided the following two new TGLs, effective October 17, 2023 through December 31, 2025.

The rule removes the TGL provided under the October 7 Rules and adds a new TGL for companies headquartered in the U.S. or a destination specified in Country Group A:5 or A:6. Under the new TGL, items controlled for AT-reasons only may be sent to recipients "developing" or "producing" parts, components, or equipment of certain Category 3B ECCNs if it is not at the direction of an entity that is headquartered in either Macau or a destination specified in Country Group D:5.

The purpose of this TGL is to allow "SME producers in the United States and Country Groups A:5 and A:6 countries additional time to identify alternative sources of supply outside of arms-embargoed countries, or to acquire individually validated licenses." The TGL does not overcome the licensing requirements of Sections 744.11 or 744.21 when an entity listed in Supplements No. 4 or 7 to Part 744 is a party to a transaction or if there is knowledge of any other prohibited end user or end use. The new TGL cannot be used for the indigenous "development" or "production" of Category 3B tools in either Macau or a destination specified in Country Group D:5, i.e., where the "part," "component," or "equipment" is "developed" or "produced" at the direction of an entity that is headquartered in either Macau or a destination specified in Country Group D:5. All exports, reexports, or in-country transfers and exports from abroad shipped under the TGL are subject to recordkeeping requirements.

BIS also provided a new TGL for advanced computing items. To rely on such items, the recipient must be located in, but not headquartered in or whose ultimate parent company is not headquartered in, a destination specified in Country Groups D:1, D:4, or D:5 that is not also specified in Country Groups A:5 or A:6. The end-use scope authorizes eligible entities to continue or engage in integration, assembly (mounting), inspection, testing, quality assurance, and distribution of items covered by items specified above, provided the items are for ultimate end use (1) outside of destinations specified in Country Groups D:1, D:4, or D:5, excluding destinations also specified in Country Groups A:5 or A:6 and (2) by entities that are not headquartered in, or whose ultimate parent company is not headquartered in, Macau or Country Group D:5. Items eligible are those subject to the EAR that are specified in the following ECCNs:

3A001.z; 3A090; 3D001 (for "software" for commodities controlled by 3A001.z, 3A090)

3E001 (for "technology" for commodities controlled by 3A001.z, 3A090)

4A003.z; 4A004.z; 4A005.z; 4A090; 4D001 (for "software" for commodities controlled by 4A003.z, 4A004.z, and 4A005.z)

4D090; 4E001 (for "technology" for commodities controlled by 4A003.z, 4A004.z, 4A005.z, 4A090 or "software" specified by 4D001 (for 4A003.z, 4A004.z, and 4A005.z), 4D090)

5A002.z; 5A004.z; 5A992.z; 5D002.z; 5D992.z; 5E002 (for "technology" for commodities controlled by 5A002.z or 5A004.z or "software" specified by 5D002 (for 5A002.z or 5A004.z commodities))

5E992 (for "technology" for commodities controlled by 5A992.z or "software" controlled by 5D992.z)

New Entity List Designations

In parallel to the new rules, BIS also added 13 entities to the Entity List because their activities with advanced computing ICs could be used to provide AI capabilities to further develop weapons of mass destruction, advanced weapons systems, and high-tech surveillance applications, which pose serious national security concerns and run contrary to U.S. foreign policy.

The thirteen entities are:

Beijing Biren Technology Development Co. Ltd.

Guangzhou Biren Integrated Circuit Co. Ltd.

Hangzhou Biren Technology Development Co. Ltd.

Light Cloud (Hangzhou) Technology Co. Ltd.

Moore Thread Intelligent Technology (Beijing) Co. Ltd.

Moore Thread Intelligent Technology (Chengdu) Co. Ltd.

Moore Thread Intelligent Technology (Shanghai) Co. Ltd.

Shanghai Biren Information Technology Co. Ltd.

Shanghai Biren Integrated Circuit Co. Ltd.

Shanghai Biren Intelligent Technology Co. Ltd.

Superburning Semiconductor (Nanjing) Co. Ltd.

Suzhou Xinyan Holdings Co. Ltd.

Zhuhai Biren Integrated Circuit Co. Ltd.

All items subject to the EAR require a license to be exported, reexported, or transferred (in-country) to a designated entity. This includes foreign-produced items subject to the EAR pursuant to § 734.9(e)(2), Entity List FDPR: Footnote 4, because BIS added a footnote 4 designation to each of the 13 entities. All licenses related to these entities will be reviewed under a presumption of denial. However, there is a limited "savings clause" available for all shipments of items removed from eligibility which were en route aboard a carrier to a port of export, reexport, or transfer (in-country) of items on October 17. Those shipments may proceed without a license as long as they occur prior to November 16.

Conclusion

The new rules also give insight into areas of future concern for BIS. In particular, BIS requested public comments on the possible circumvention of existing controls via the cloud or remote access and deemed exports and reexports. This suggests BIS may seek to limit or control such activity in the future.

These new restrictions will not be effective for 30 days, or until November 16. This does not include the Entity List restrictions, as described above, and the TGLs, which are effective immediately. Companies in the related sectors should carefully review the implications of these new controls for their business. In addition, interested parties may wish to consider submitting comments during the 60-day comment period.

The content of this article is intended to provide a general guide to the subject matter. Specialist advice should be sought about your specific circumstances.

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AI in Manufacturing

Infineon Opens Lab for Quantum Electronics, Power AI

533 words
25 October 2023
Asia Electronics Industry
ASELEC
English

Infineon Technologies AG[http://www.infineon.com/] has opened a new laboratory for the development of quantum electronics in Munich, Germany. Particularly, the objective is to develop and test microelectronic circuits for quantum computers.

Primarily, the microelectronic circuits are stable and small, will operate reliably, and are feasible for industrial-scale production. Approximately, twenty researchers will work at the lab. In addition to quantum computing, activities will also focus on the development of AI algorithms for the early detection of variances in power systems.

“Infineon plans to reinvent the core element of the quantum computer. One of the central tasks of the new quantum laboratory will be to develop and test electronic systems for ion trap quantum computing. With the objective of integrating these systems in the Quantum Processing Unit,” said Richard Kuncic, Senior Vice President and General Manager Power Systems at Infineon Technologies.

Infineon Laboratory Opening Quantum Electronics and Power AI in Oberhaching, near Munich (From left to right: from Infineon Chuck Spinner, Head of Central R&D Power Systems and Solutions (PSS); Hartmut Hiller, Head of R&D at Infineon; Adam White, President Power Systems and Solutions; Richard Kuncic, Head of Power Systems) Image Credit: Infineon[https://aei.dempa.net/wp-content/uploads/2023/10/Infineon_Quantum_Laboratory_Opening-1024x768.jpeg]

Revolutionize Many Applications

In addition, Kuncic said quantum computers will revolutionize many applications because of their compute powers. Nonetheless, quantum computers need to be industrialized, a process Infineon is driving ahead in its new laboratory.

Accordingly, Infineon[https://aei.dempa.net/archives/tag/infineon] has installed an innovative cryostat, a kind of super-refrigerator that can cool down to temperatures as low as 4 Kelvin (-269 degrees Celsius). Qubits, the smallest units for calculations with quantum computers, are extremely sensitive and only adequately stable under extreme conditions. Typically, temperatures below -250 degrees Celsius and at the lowest possible pressures. Furthermore, the electronic systems have to keep working perfectly in spite of these extreme conditions. In environments this cold, many materials change their properties, including their electric behavior.

Although there are already a substantial number of quantum computers[https://aei.dempa.net/archives/tag/quantum], the research facilities[https://aei.dempa.net/archives/tag/rd] made the installations. Several development steps will have to be mastered before scaling to powerful quantum computers and industrialization of the technology. This includes the precise electronic manipulation of hundreds and thousands of qubits.

Among other things, the team in Oberhaching is developing optical detectors for reading out the quantum states of the ions. Here, the colleagues work together closely with the Infineon quantum laboratory in

Villach[https://aei.dempa.net/archives/2532], which itself specializes in ion traps. Furthermore, the new lab will also pursue synergies with colleagues in Dresden and Regensburg who conduct research on silicon and superconductor qubits.

Proactive Maintenance

In the area of power semiconductors[https://aei.dempa.net/archives/tag/power-semiconductor], the laboratory will use Artificial Intelligence[https://aei.dempa.net/archives/tag/AI] to simulate and better predict the aging and failure characteristics of microelectronics in the Power sector. This calls not only for the development of the necessary algorithms. However, for practical measurements will have to establish the data basis for training neural networks and verifying their behavior. Thus, this will help better estimate the service life of power converters and will aid in the detection of anomalies.

These insights are important for effective proactive maintenance[https://aei.dempa.net/archives/tag/predictive-maintenance], which is to prevent equipment failure and thus optimize periods of use.

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Ai Group - Mentoring program opens doors for women in QLD manufacturing

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Access the original document here[https://www.aigroup.com.au/news/blogs/2023/mentoring-program-opens-doors-for-women-in-qld-manufacturing/]

Mentoring program opens doors for women in QLD manufacturing

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F emale students planning a career in manufacturing in Queensland are being urged to register for a free mentoring program.

Successful applicants will be paired with inspirational professionals in the manufacturing sector who will offer support, share knowledge and experience and demonstrate the importance of networking.

High school students in Years 10-12, first-year apprentices undertaking vocational and education training and first-year university students are all encouraged to register for the program, run by Ai Group and the Queensland Government Department of Regional Development, Manufacturing and Water.

Students will have the opportunity to meet their mentors at least once a month, take part in an industry visit to see the workshop floor and be introduced to key representatives of their mentor's company.

Online training modules consolidate their learning.

At the end of the nine-month program, a celebratory wrap-up event bringing together all the mentors and mentees will be held.

Just 29 per cent of Queensland's manufacturing industry employees are women - and they are disproportionately represented in office and clerical positions over technical and trade professions.

The goal is to lift the participation rate of women taking up technical and trade professions in the manufacturing sector throughout Queensland.

Click here[https://www.aigroup.com.au/link/cbab882d6e5340a6a89180cb73208802.aspx] to find out more about

the Women in Manufacturing Mentoring Program.

Wendy Larter

Wendy Larter is Ai Group's Communications Manager. She has more than 20 years' experience as a reporter, features writer , contributor and sub -editor for newspapers and magazines including The Courier-Mail in Brisbane and Metro, News of the World , The Times and Elle in the UK .

* This content was originally posted here[https://www.aigroup.com.au/news/blogs/2023/mentoring-program-opens-doors-for-women-in-qld-manufacturing/]

Disclaimer

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KELLY, SINEMA HIGHLIGHT PHOENIX SELECTION AS TECH HUB TO ACCELERATE AI AND MACHINE LEARNING FOR MEDICAL DEVICE MANUFACTURING; Sen. Mark Kelly (D-AZ) News Release

382 words
24 October 2023
Congressional Documents and Publications
CONGDP
English

Arizona Senators Mark Kelly and Kyrsten Sinema celebratedthat Phoenix was selected to receive a Tech Hub Strategy Development Grant from the U.S. Department of Commerce's Economic Development Administration (EDA) to accelerate leveraging artificial intelligence (AI) and machine learning technologies in smart medical device manufacturing.

The Medical Device Manufacturing Multiplier Strategy Development Consortium (MDM2) led by the Greater Phoenix Economic Council (GPEC), will use the grant to increase local coordination and planning activities to strengthen regional capacity to manufacture, commercialize, and deploy technologies critical to U.S. economic and national security. The Tech Hubs Program, authorized by the CHIPS and Science Act, is investing in U.S. regions and aims to transform them into globally competitive innovation centers. This consortium was selected for a grant from a competitive pool of 181 applications.

"This award will strengthen Arizona's leadership in cutting edge bioscience innovation, creating more opportunities for investment and good-paying jobs," said Sen. Kelly. "The Regional Technology Hub program is designed to identify high-growth regions for critical industries, like Phoenix, so that we outcompete China and other adversaries in critical technology. I'll continue to work closely with Secretary Raimondo, Assistant Secretary Castillo, and leaders in Phoenix to ensure this is a success for our state and the country."

"Thanks to our leadership, Phoenix will receive critical federal funding to boost manufacturing, medical research, and development, creating jobs, growing Arizona's economy, and ensuring our state remains a great state to grow a business and call home for generations to come," said Sen. Sinema.

"The work of the MDM2 consortium will accelerate the region's impact within the international bioscience industry while strengthening domestic manufacturing capacity and processes," said GPEC President and CEO Chris Camacho. "With this comes more opportunities to train a skilled workforce and increase access to high-quality care which creates a healthier, more equitable future for our communities."

For a full list of Tech Hubs, visit TechHubs.gov.

Read this original document at: https://www.kelly.senate.gov/newsroom/press-releases/kelly-sinema-highlight-phoenix-selection-as-tech-hub-to-accelerate-ai-and-machine-learning-for-medical-device-manufacturing/[https://www.kelly.senate.gov/newsroom/press-releases/kelly-sinema-highlight-phoenix-selection-as-tech-hub-to-accelerate-ai-and-machine-learning-for-medical-device-manufacturing/]

The United States Congress

Document CONGDP0020231025ejao000an

Business

Google for India 2023 Highlights: From manufacturing Google Pixel in India to growing role of AI, Google for India packs a punch

Ritarshi Banerjee

146 words
19 October 2023
Financial Express Online
FIEXON
English

Google for India 2023, 9th Edition Live Updates: Today's Google for India 2023 is expected to generate developments for the global digital economy. It's believed that the event's ninth version will reveal advancements related to technological changes In 2015, Google unveiled its pilot AI search feature called RankBrain. Since then, it has proceeded with launching more AI facilities to develop its search engine features. Reportedly, Google has emphasised on betterment of three parts through AI, namely supporting 1,000 languages, backing artists and creators, and addressing health and climate change drawbacks. Subscribe to our page for live updates!

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Google for India Event Live Updates: Reportedly, Google has emphasised on betterment of three parts through AI[https://www.financialexpress.com/wp-content/uploads/2023/10/Untitled-design-2023-10-19T085427.566.jpg?w=1024]

Indian Express Group

Document FIEXON0020231020ejaj0004s

AI in Manufacturing

NVIDIA, Foxconn to Propel AI Industrial Revolution

720 words
18 October 2023
Asia Electronics Industry
ASELEC
English

NVIDIA[https://www.nvidia.com/en-us] has announced it is collaborating with Hon Hai Technology Group (Foxconn) [https://www.foxconn.com/en-us/] to accelerate the AI industrial revolution.

Particularly, Foxconn will integrate NVIDIA technology to develop a new class of data centers powering a wide range of applications. Moreover, encompasses the digitalization[https://aei.dempa.net/archives/tag/digital-transformation] of manufacturing and inspection workflows, the development of AI-powered electric vehicle, and robotics platforms. It will also cover a growing number of language-based generative AI services. [https://aei.dempa.net/archives/tag/AI]

The two companies sealed the alliance during the fireside chat with NVIDIA[https://aei.dempa.net/archives/tag/nvidia] founder and CEO Jensen Huang and Foxconn[https://aei.dempa.net/archives/tag/foxconn] Chairman and CEO Young Liu at Hon Hai Tech Day, in Taipei. Furthermore, the collaboration started with the creation of AI factories, an NVIDIA® GPU computing infrastructure specially built for processing, refining and transforming vast amounts of data into valuable AI models and tokens. These will be based on the NVIDIA accelerated computing platform, including the latest NVIDIA GH200 Grace Hopper

Click to view image[https://s.w.org/images/core/emoji/14.0.0/72x72/2122.png]

Superchip and NVIDIA AI Enterprise software.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/10/NVIDIA-Foxconn3-1024x361.jpg]

Emergence of New Type of Manufacturing

Foxconn is also developing its smart solution platforms[https://aei.dempa.net/archives/tag/smart-factory] based on NVIDIA technologies. Namely, the Foxconn Smart EV will be built on NVIDIA DRIVE Hyperion

9, a next-generation platform for autonomous automotive fleets.

The NVIDIA DRIVE Thor

, the future automotive systems-on-a-chip, will power the platform. Next, the Foxconn Smart Manufacturing robotic systems will be built on the NVIDIA Isaac

autonomous mobile robot platform.

Finally, the Foxconn Smart City will incorporate the NVIDIA Metropolis intelligent video analytics platform.

“Most importantly, NVIDIA and Foxconn are building these factories together. We will be helping the whole industry move much faster into the new AI era,” said Foxconn Chairman and CEO Young Liu.

On the other hand, Huang said, “A new type of manufacturing has emerged — the production of intelligence. And the data centers that produce it are AI factories.”

“Foxconn, the world’s largest manufacturer, has the expertise and scale to build AI factories globally. We are delighted to expand our decade-long partnership with Foxconn to accelerate the AI industrial revolution.”

Enabling Foxconn Customers to Build AI Data Factories

Working closely with NVIDIA, Foxconn is likely to build a large number of systems based on NVIDIA CPUs, GPUs, and networking. Particularly, for its global customer base, which is looking to create and operate their own AI factories. These factories will be optimized with NVIDIA AI Enterprise software.

Foxconn will be using NVIDIA technologies to create these custom designs. Among them, the NVIDIA HGX

reference designs featuring eight NVIDIA H100 Tensor Core GPUs per system, NVIDIA GH200 Superchips, NVIDIA OVX

reference designs and NVIDIA networking.

With these systems, Foxconn customers can leverage NVIDIA accelerated computing to deliver generative AI services. In addition, use simulation to speed up the training of autonomous machines, including industrial robots, and self-driving cars.

Foxconn Eyes Potential AI Factory

In addition to equipping its customers with NVIDIA technology-powered AI factories, Foxconn is eyeing its own. Most importantly, tapping into the NVIDIA Omniverse

platform and Isaac and Metropolis frameworks to meet the strict production and quality standards of the electronics industry.

Advances in edge AI and simulation are enabling the deployment of autonomous mobile robots. That is, traveling several miles a day. Also, industrial robots for assembling components, applying coatings, packaging and performing quality inspections.

An AI factory with these NVIDIA platforms can give Foxconn the ability to accomplish AI training and inference. At the same time, to enhance factory workflows and to run simulations in the virtual world before deployment. Simulating the entire robotics and automation pipeline from end to end provides Foxconn with a path to operational efficiency gains, saving time and costs.

Developing Safe, AI-Powered EVs

Foxconn will also deliver a range of NVIDIA DRIVE

solutions to global automakers. Particularly, serving as a tier-one manufacturer of NVIDIA DRIVE Orin

-based electronic control units (ECUs) today. Moreover, scaling to NVIDIA DRIVE Thor-based ECUs in the future.

As a contract manufacturer, Foxconn will offer highly automated and autonomous, AI-rich EVs featuring the upcoming NVIDIA DRIVE Hyperion 9 platform. This includes DRIVE Thor and a state-of-the-art sensor architecture. Finally, this will enable Foxconn and its automotive customers to realize a new era of functionally safe and secure software-defined cars.

Dempa Publications, Inc.

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AI Firm Leucine Secures $7M To Transform Drug Manufacturing

335 words
18 October 2023
Technology Times
ASTECH
English

Leucine, an AI firm, has secured $7 million in a Series A fundraising round, making a huge step toward transforming medication production.

Leucine's Compliance Cloud platform is set to evolve and scale as a result of this cash injection, offering improved compliance, safety, and operational effectiveness for the pharmaceutical manufacturing industry. Ecolab was the driving force behind the investment round, with the unwavering backing of previous investors like Pravega Ventures and others.

As the pharmaceutical industry embraces the transformative potential of artificial intelligence, Leucine emerges as a pioneering force. The Compliance Cloud platform is set to usher in a new era of compliance procedures, marking a departure from conventional paper-based records. While automation has made significant inroads in various facets of drug development and manufacturing, compliance protocols have remained relatively untouched by digitization.

Vivek Gera, CEO of AI firm Leucine, emphasized the critical role played by paper-based records in the pharmaceutical industry. He stated, 'Paper-based manufacturing records are the industry's Achilles' heel, fuelling not only regulatory nightmares but also ballooning production costs and inefficiencies. The legacy solutions are no better, with their extremely long implementation cycles and rigid, siloed applications that leave manufacturers in a lurch.'

At its core, the Compliance Cloud platform operates as a digital twin of the manufacturing shop floor, harnessing the power of artificial intelligence to oversee and optimize compliance processes. What sets Leucine's platform apart is its capacity to actively provide real-time insights to uphold compliance standards, setting a new benchmark in the industry.

This funding milestone underscores the increasing recognition of the pivotal role played by AI in redefining the pharmaceutical landscape.

With compliance as a linchpin in drug manufacturing, Leucine is poised to drive transformative change, ensuring that the sector not only meets but exceeds regulatory expectations. As the industry marches towards an era of unprecedented innovation, Leucine stands at the forefront, armed with a platform poised to revolutionize drug manufacturing compliance.

Technology Times

Document ASTECH0020231018ejai00006

PM Modi and Google CEO Sundar Pichai Explore India's Electronics Manufacturing Ecosystem and AI Tools for Effective Governance

Monitor News Desk

392 words
17 October 2023
Kashmir Monitor
HTKASM
English

Srinagar, Oct. 17 -- Prime Minister Narendra Modi on Monday held a virtual meeting with Google chief executive officer (CEO) Sundar Pichai.

During his interaction, PM Modi discussed with Pichai on Google's plan to participate in expanding the electronics manufacturing ecosystem in India. The prime minister appreciated Google's partnership with Hewlett Packard (HP) to manufacture Chromebooks in India.

PM Modi acknowledged Google's 100 languages initiative and encouraged efforts to make AI tools available in Indian languages. He also encouraged Google to work on AI tools for Good Governance, the Prime Minister's Office (PMO) said in a statement.

Modi welcomed Google's plans to open its global fintech operations center at the Gujarat International Finance Tec-City (GIFT) in Gandhinagar. Pichai informed the PM regarding Google's plans to improve financial inclusion in India by leveraging the strength and reach of GPay and UPI. He also emphasised Google's commitment to contribute to the development trajectory of India.

PM Modi also invited Google to contribute to the upcoming Global Partnership on AI Summit, which will be hosted by India in December 2023 in New Delhi.

Earlier this year, Pichai had met the prime minister during the latter's state visit to the Unite dstates. "It was an honour to meet PM Modi during the historic visit to the US. We shared with the Prime Minister that Google is investing $10 billion in India's digitisation fund", he had said.

"We are announcing the opening of our global fintech operation centre in GIFT City, Gujarat. PM's vision for Digital India was way ahead of his time; I now see it as a blueprint that other countries are looking to follow", Pichai added.

The Google CEO had also met the PM during his visit to India in December last year. The prime minister had posted on X,"Was a delight to meet you @sundarpichai and discuss innovation, technology and more. It is important the world continues to work together to leverage tech for human prosperity and sustainable development".

The Kashmir Monitor

Document HTKASM0020231017ejah0002u

AI in Manufacturing

Siemens Platform New Updates Expands AI Capabilities

612 words
16 October 2023
Asia Electronics Industry
ASELEC
English

Siemens Digital Industries Software[http://www.siemens.com/] is bringing AI-assisted design and greater cloud-based collaboration to its Solid Edge 2024® software. Furthermore, it has also enhanced its product design and engineering software for the mainstream and part of the Siemens Xcelerator portfolio.

The latest updates enable manufacturers of all sizes to begin or expand their digital transformation strategy. At the same time, reuse data more efficiently.

Moreover, it will also prod innovation at the front-end of mechanical and electrical design and manufacturing. Particularly, through new applications of artificial intelligence in product design, greater cloud-based data sharing and collaboration.

Bringing AI-assisted design to the mainstream

Solid Edge 2024 delivers artificial intelligence (AI)[https://aei.dempa.net/archives/tag/ai] assisted design to Solid Edge for the first time – found in several key enhancements. Now, when replacing parts in an assembly, the new AI assembly relationships capability intelligently predicts and offers valid alternatives. Elsewhere, an AI-powered user interface learns to use patterns to present relevant commands, in the right context, at the cursor. Meanwhile a new AI assisted Operation Editing capability in Solid Edge® CAM Pro can guide users through the machining operation editing process. Hence, it offers suggestions based on the machining application and learned part-programming style.

These updates build on existing intelligent modeling capabilities already in the system such as synchronous technology’s ability to recognize and maintain design intent in real-time. This is true even on models coming from other systems.

Siemens' latest update to Solid Edge introduces artificial intelligence-based design assistance to help speed design through the automation of repetition, and common, tasks.[https://aei.dempa.net/wp-content/uploads/2023/10/siemens-solid-edge-2024-newsroom-1280x720-1-1024x576.jpg]

When used aside Solid Edge’s generative design capabilities to automatically design concepts based on defined geometric and functional constraints, they can remove repetitive work from common activities and speed design. Moreover, it enables designers and engineers to focus on true exploration and innovation.

“Solid Edge 2024 helps us work smarter and be more productive,” said David Iverson, Ariel Corporation. “Incorporating AI into our design processes will cut down time spent on tedious tasks, letting us do more of the fun stuff.”

Extending the benefits of cloud-based collaboration

Meanwhile, subscriptions to Solid Edge SaaS include access to cloud-based data sharing and collaboration with the Teamcenter® Share app. Delivered as a benefit of any Siemens

Xcelerator[https://aei.dempa.net/archives/tag/siemens-xcelerator] as a service subscription, Teamcenter Share is a rich set of cloud-based capabilities that enable collaboration with colleagues, partners, and customers.

The latest update brings streamlined integration across Siemens' broad range of industry software, improved out of the box integration connecting Solid Edge to Teamcenter Share, interactive previews of both Office documents and 3D data, kanban board display enhancements, improved assignment/status visibility, increased storage and expanded file support help customers to improve communication and move projects forward at the pace industry demands.

Bring real-time product configuration direct to the sale process

The new Solid Edge® Design Configurator Connect software delivers instant online product configuration. Thus, allowing rapid configuration of a product that meets a customers' specific requirements. Built on existing Solid Edge® Design Configurator software, this allows sales engineers and end customers to configure products for quotation. Particularly, via a web-based portal, without the need for a local Solid Edge install.

Greater productivity across the full Solid Edge product family

Alongside the marquee updates delivered with the latest update to Solid Edge, the 2024 update also delivers productivity enhancements along with extended functionality across the entire product suite.

From huge gains in large assembly performance (now 9x faster when initially opening complex product models), to new real-world environments that automatically update with model movement for more immersion.

Dempa Publications, Inc.

Document ASELEC0020231016ejag00006

AI in Manufacturing

Renesas Partners with EdgeCortix to Streamline AI/ML Development

527 words
13 October 2023
Asia Electronics Industry
ASELEC
English

Renesas Electronics Corporation[https://www.renesas.com/us/en] has announced a strategic partnership with EdgeCortix[https://www.edgecortix.com/en/], a Japan-based edge artificial intelligence (AI) [https://aei.dempa.net/archives/18327] fabless semiconductor development and design company. In conjunction with the strategic collaboration, Renesas has invested in EdgeCortix's most recent funding round. Through both the investment and the partnership, this relationship will provide Renesas with unique access to EdgeCortix's industry-leading technology.

Specifically, EdgeCortix is a start-up founded on the idea of creating a high-speed, low-power, AI-focused processor with a software-first approach for edge applications. The company's suite of proprietary software and AI chip products accelerate AI inference tasks at very low power with low latency. EdgeCortix has brought three products to market. These include MERA, its multiple hardware platform compatible compiler software framework; Dynamic Neural Accelerator (DNA), its scalable, run-time reconfigurable neural network processor intellectual property (IP); and the power-efficient SAKURA AI co-processor device. Collectively, these form an integrated solution, especially suited for real-time edge AI. EdgeCortix's solutions can deliver up to 50× better energy efficiency and 10× better performance/TOPS versus conventional GPUs and CPUs.

Edgecortix SAKURA AI co-processor[https://aei.dempa.net/wp-content/uploads/2023/10/Edgecortix-Sakura-AI-Co-Processor-Lockup.webp]

For its part, Renesas has staked a leadership position in edge and endpoint AI. It boasts the industry's widest offering of embedded computing solutions. Also, its Reality AI Software and a larger number of internal and partner solutions for AI in industrial, smart home, automotive, and other applications complement these solutions. Partnering with EdgeCortix will support Renesas in streamlining and unifying its overall AI/ML (Machine Learning) developer experience across its entire MCU and MPU portfolio. Also, it will enable a seamless back-end layer for compilation that supports heterogeneous architectures.

"Renesas saw the potential for AI/ML at the edge and endpoint very early on, and we have moved swiftly to solidify our position in this fast-growing segment," said Sailesh Chittipeddi, Executive Vice President and General Manager of Renesas' Embedded Processing, Digital Power and Signal Chain Solutions Group. "The combination of our embedded processors and Reality AI Software along with EdgeCortix solutions will enable our customers to seamlessly compile their AI code with support for heterogeneous architectures, reducing their development risk, time and cost."

Working with EdgeCortix provides Renesas the ability to leverage its existing IP and hardware, while simultaneously tapping into EdgeCortix's expertise in key technology areas, including Apache TVM1, compiler development as well as heterogeneous framework design. This partnership also enables Renesas to access specialized hardware expertise that EdgeCortix has developed leveraging Arm as well as multiple other architectures including Renesas' DRP-AI accelerator.

EdgeCortix Founder and CEO Dr. Sakyasingha Dasgupta holds a board equipped with the company's proprietary SAKURA-I AI Processor.[https://aei.dempa.net/wp-content/uploads/2023/10/Edgecortix.webp]

"We are delighted to grow and enhance our current strategic collaboration with an industry leader that also shares our vision and enthusiasm for the vast potential of supporting energy-efficient AI/ML applications at the edge," said Sakyasingha Dasgupta, Founder and CEO of EdgeCortix. "We are confident that both companies will benefit from this relationship, however, the real winners will be our collective customers."

Dempa Publications, Inc.

Document ASELEC0020231013ejad00007

Nanya reports biggest loss in a year WAITING FOR AI:Nanya Technology attributed losses to costs for idle manufacturing equipment, but said it has seen signs that the slump is nearing its bottom

By Lisa Wang

Staff Reporter
521 words
12 October 2023
Taipei Times
TAIP
English

Nanya Technology Corp yesterday reported its biggest quarterly loss in about a year, but the DRAM chipmaker said it has seen nascent signs indicating that the slump is close to bottoming out as rising demand is propping up chip prices.

Nanya Technology expects an improvement in demand for advanced DDR5 memory chips driven by growing demand for artificial-intelligence (AI) computing for enterprise cloud centers.

The company expects to see a rebound in smartphone sales in China this quarter and better PC demand following the launch of new chips by Intel Corp, it said.

Strong demand for Huawei Technologies Cos new phones did not benefit Nanya Technology, as it was not granted a waiver from the US to resume supply of DDR4 and low-power DDR4 chips to Huawei, it said.

On the supply side, overall chip inventory is slimming down as the worlds major memorychip makers have maintained capacity after reducing it, Nanya Technology said.

Additionally, chipmakers are concentrating on shifting capacity to next-generation high-end DDR5 and high-band-memory (HBM) chips mostly used in servers, leading to a lower supply of mainstream DDR4 chips, it said.

Nanya has a chance to shrink its losses this quarter, as end-product demand is improving. In addition, chip prices are more stable than in the third quarter, company president Lee Pei-ing told an online media briefing yesterday. The prices of DDR5 have picked up. We expect a slight increase in DDR3 and DDR4 prices in the fourth quarter. We have seen some early signs.

Nanya Technology primarily supplies DDR4, low-power DDR4 and DDR3 memory chips. The chipmaker expects to add its first DDR5 chip to its product lineup by the end of next year.

The New Taipei City-based memorychip maker plans to cut factory utilization by about 20 percent this quarter, extending its output control measures from the past few quarters. Like most major memory chipmakers, Nanya Technology said its inventory is thinning, but has not returned to healthy levels yet.

Shipments would rise moderately this quarter on a quarterly basis, following 10 percent growth last quarter, Lee said.

Losses widened to NT$2.51 billion (US$78.14 million) during the July-to-September period, compared with the losses of NT$771 million in the second quarter, the companys financial statement showed.

That marked the fourth straight unprofitable quarter.

Nanya Technology attributed the losses to costs for idle manufacturing equipment.

A sequential decline of a high single-digit percent in chip prices was also a major factor, it said.

Gross margin worsened to minus-25.2 percent last quarter from minus-11.2 percent the prior quarter.

Revenue increased 10.1 percent quarter-on-quarter to NT$7.74 billion last quarter from NT$7.03 billion.

The company plans to spend NT$15 billion on new facilities and equipment this year, down from NT$20.7 billion last year.

Liberty Times Ltd.

Document TAIP000020231011ejab00001

Artificial Intelligence; Research Reports from Fraunhofer Institute for Production Technology Provide New Insights into Artificial Intelligence (Elaborating the potential of Artificial Intelligence in automated CAR-T cell manufacturing)

464 words
9 October 2023
Clinical Trials Week
CTRW
1407
English

2023 OCT 9 (NewsRx) -- By a News Reporter-Staff News Editor at Clinical Trials Week -- Researchers detail new data in artificial intelligence. According to news originating from Aachen, Germany, by NewsRx editors, the research stated, "This paper discusses the challenges of producing CAR-T cells for cancer treatment and the potential for Artificial Intelligence (AI) for its improvement. CAR-T cell therapy was approved in 2018 as the first Advanced Therapy Medicinal Product (ATMP) for treating acute leukemia and lymphoma."

Our news reporters obtained a quote from the research from Fraunhofer Institute for Production Technology: "ATMPs are cell- and gene-based therapies that show great promise for treating various cancers and hereditary diseases. While some new ATMPs have been approved, ongoing clinical trials are expected to lead to the approval of many more. However, the production of CAR-T cells presents a significant challenge due to the high costs associated with the manufacturing process, making the therapy very expensive (approx. $400,000). Furthermore, autologous CAR-T therapy is limited to a make-to-order approach, which makes scaling economical production difficult. First attempts are being made to automate this multi-step manufacturing process, which will not only directly reduce the high manufacturing costs but will also enable comprehensive data collection. AI technologies have the ability to analyze this data and convert it into knowledge and insights."

According to the news editors, the research concluded: "In order to exploit these opportunities, this paper analyses the data potential in the automated CAR-T production process and creates a mapping to the capabilities of AI applications. The paper explores the possible use of AI in analyzing the data generated during the automated process and its capabilities to further improve the efficiency and cost-effectiveness of CAR-T cell production."

For more information on this research see: Elaborating the potential of Artificial Intelligence in automated CAR-T cell manufacturing. Frontiers in Molecular Medicine, 2023,3. The publisher for Frontiers in Molecular Medicine is Frontiers Media S.A.

A free version of this journal article is available at https://doi.org/10.3389/fmmed.2023.1250508[https://doi.org/10.3389/fmmed.2023.1250508].

Our news journalists report that more information may be obtained by contacting Niklas Backel, Fraunhofer Institute for Production Technology IPT, Aachen, Germany. Additional authors for this research include Simon Hort, Tamas Kis, David F. Nettleton, Joseph R. Egan, John J. L. Jacobs, Dennis Grunert, Robert H. Schmitt.

Keywords for this news article include: Fraunhofer Institute for Production Technology, Aachen, Germany, Europe, Machine Learning, Emerging Technologies, Artificial Intelligence.

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IBR Breakfast Series Panel: The adoption of AI in the manufacturing industry

Chloe Baul

860 words
5 October 2023
Idaho Business Review
IDBZRW
English

The adoption of artificial intelligence (AI) in manufacturing has revolutionized the industry by enhancing both quality and efficiency. By reducing the reliance on manual labor and introducing intelligent systems, manufacturing processes have become more streamlined, cost-effective and error-free. This transformation not only helps to improve the bottom line but also elevates the role of manufacturing employees, offering them more high-skilled positions. Overall, AI has become the cornerstone of modern manufacturing, reshaping the industry's landscape and ensuring its competitiveness in an ever-evolving market.

That was the message at Idaho Business Review's Breakfast Series event on Oct. 4 at The Grove Hotel, where three panelists Brian Havey, director of sales at VersaBuilt, Chris Morgan, senior director of R&D at Bastian Solutions, and Jan Roeser, regional economist at Idaho Department of Labor explored the impacts of AI technology in manufacturing.

The discussion was led by Kenneth C. Howell, business and finance group partner and banking group co-chair at Hawley Troxell, the event's presenting sponsor. Here are some of the highlights:

Howell: How has technology changed your manufacturing operations?

Havey: "It has an incredible impact on the bottom line of the shop, and I've seen this evolve over the last 10 years. When the automation first landed on the floor, the employees were fearful of it. 'Automation took jobs' that was the initial thought. The actual outcome is 180-degrees away from that.

There are fewer people, but the people that are there have been there for 10 years. We have robot operators now instead of operators that are doing these dangerous, potentially dangerous tasks, and these operators are moving up in the organization."

Howell: Do you think the Idaho Department of Labor is still going to be relevant in 5 years?

Roeser: "I do believe, absolutely, that we still need humans and human intervention and we need to, we have to do quality control checks. And you see that across pretty much all industries. We have automation indexes that we look at, and they measure whether jobs would be obsolete. A lot of those were physical jobs, manufacturing, construction some of those that we anticipate will go away with robotics.

Our productivity is increasing, which only brings the opportunity for human ingenuity, creativity and innovation to continue in a different form. I don't think we will ever be without some form of human intervention. But most importantly, we still need humans even though we have these fabulous tools that are at our avail."

Howell: Could you comment on human capital given the rise of technology in the manufacturing industry?

Morgan: "During COVID, the companies that were the most successful were companies like Amazon they were able to continue their success during that time because they didn't require as much labor.

[These companies] can make decisions to invest their human capital more intelligently, enabling growth and allowing AI to handle both routine and critical decision-making tasks that contribute to business forecasting AI isn't limited to manufacturing alone. So in terms of human capital, it allows folks to work in more intelligent ways and hopefully grow their careers as well, because you're upskilling employees dramatically."

Howell: What are you now going to be looking for in your employment workforce given the continued implementation of technology?

Havey: "In the world that I live in, we need technicians that are capable of going and installing this equipment, and it's very important that the experience is positive for the customer. That requires a person that has a mix of skills It takes a salesperson with an engineering background. We have some very specialized people that we bring in and we have to add to their skill set to make them as effective as possible."

Morgan: "In reference to AI, it's really difficult to find skilled AI developers. A lot of really strong AI developers are self-taught. So, it's hard in my business to find folks who really hit the ground running I want to see the universities to help build these folks up and make them much stronger. You have to really bring people in that have a mix of disciplines mechanical engineering, design, engineering and computer science."

Howell: How does the Department of Labor view the impact of technology on employment in Idaho?

Roeser: "If you look at the numbers, [manufacturing in Idaho] continues to grow. We have a lot going for us here in Idaho with the business environment that we have, the utility rates that we offer, and also the growth of our population has been very strong for the past 10 years.

The labor shortage is real. We literally have lower fertility rates, we're not replacing the mass exodus to retirement. And we acknowledge that the way that we will continue on with a nice GDP is with automation and AI, across all jobs. There's just no stopping it and it's not that we're losing jobs, we're evolving jobs."

BridgeTower Media

Document IDBZRW0020231011eja50000h

BRIEF-Machina Labs Secures $32 Million In Series B Investment To Revolutionize Ai-Driven Manufacturing

76 words
5 October 2023
12:55
Reuters News
LBA
English

Oct 5 (Reuters) -

* MACHINA LABS SECURES $32 MILLION IN SERIES B INVESTMENT TO REVOLUTIONIZE AI-DRIVEN MANUFACTURING

* MACHINA LABS - ROUND WAS CO-LED BY NEW INVESTOR NVENTURES, NVIDIA'S VENTURE CAPITAL ARM , AND EXISTING INVESTOR INNOVATION ENDEAVORS

* MACHINA LABS - LATEST FUNDING BRINGS TOTAL RAISED BY MACHINA LABS TO $45 MILLION Source text for Eikon:

Released: 2023-10-5T17:55:11.000Z

Reuters News & Media Inc.

Document LBA0000020231005eja502f6y

U.S. Military Research; Study Data from Air Force Research Laboratory Update Knowledge of U.S. Military Research (Future Directions In Ceramic Additive Manufacturing: Fiber Reinforcements and Artificial Intelligence)

490 words
4 October 2023
Defense & Aerospace Week
DEFAER
311
English

2023 OCT 4 (VerticalNews) -- By a News Reporter-Staff News Editor at Defense & Aerospace Week -- Fresh data on U.S. Military Research are presented in a new report. According to news reporting originating from Wright-Patterson AFB, Ohio, by VerticalNews correspondents, research stated, "Research in the field of ceramic additive manufacturing (AM) has been rapidly accelerating, resulting in hundreds of publications and review articles in recent years. While strides have been made in forming near-net and complex-shaped ceramic components, challenges remain that inhibit more widespread implementation."

Financial supporters for this research include Air Force Office of Scientific Research (AFOSR), U.S. Department of Defense Basic Research Office.

Our news editors obtained a quote from the research from Air Force Research Laboratory, "In this perspective, we provide a meta-analysis of recent review articles and highlight a deficiency in two areas of promising future directions to address remaining challenges. The first is incorporation of fiber reinforcements in printed parts to overcome the challenges of poor mechanical performance of monolithic ceramics. Recent work in the area has shown promise incorporating discrete fiber reinforcements as an easier use case given existing equipment limitations, but continuous fibers are needed to reach full toughness potential. Here, we overview some options and future directions bases on success in polymer composites. Second, artificial intelligence (AI) approaches, including machine learning (ML), are suggested in order to accelerate feedstock development and process optimization. While there has been very limited work to date in utilizing AI/ML techniques for ceramic AM, again inspiration and lessons learned are drawn from the polymer AM community."

According to the news editors, the research concluded: "Schematic of future directions in ceramic additive manufacturing in integration of machine learning and fiber reinforcements.image."

This research has been peer-reviewed.

For more information on this research see: Future Directions In Ceramic Additive Manufacturing: Fiber Reinforcements and Artificial Intelligence. Journal of the American Ceramic Society, 2023. Journal of the American Ceramic Society can be contacted at: Wiley, 111 River St, Hoboken 07030-5774, NJ, USA. (Wiley-Blackwell - www.wiley.com/[http://www.wiley.com/]; Journal of the American Ceramic Society - onlinelibrary.wiley.com/journal/10.1111/(ISSN)1551-2916)

The news editors report that additional information may be obtained by contacting Lisa M. Rueschhoff, Air Force Research Laboratory, Wright Patterson Afb, OH, United States. Additional authors for this research include Luke A. Baldwin, James O. Hardin and Jonathan Kaufman.

Keywords for this news article include: Wright-Patterson AFB, Ohio, United States, North and Central America, Air

Force Research Laboratory, Artificial Intelligence, Cyborgs, Emerging Technologies, Machine Learning, U.S. Air Force, U.S. Military Research, United States Air Force, Air Force Research Laboratory.

NewsRX, LLC

Document DEFAER0020231004eja4000f7

Artificial Intelligence; Gachon University Researcher Updates Current Data on Artificial Intelligence (Artificial Intelligence and Carbon Emissions in Manufacturing Firms: The Moderating Role of Green Innovation)

449 words
2 October 2023
Global Warming Focus
GLOWRM
1038
English

2023 OCT 2 (VerticalNews) -- By a News Reporter-Staff News Editor at Global Warming Focus -- Investigators publish new report on artificial intelligence. According to news reporting out of Seongnam, South Korea, by VerticalNews editors, research stated, "Carbon emissions have gained worldwide attention in the industrial era."

Financial supporters for this research include Gachon University.

Our news journalists obtained a quote from the research from Gachon University: "As a key carbon-emitting industry, achieving net-zero carbon emissions in the manufacturing sector is vital to mitigating the negative effects of climate change and achieving sustainable development. The rise of intelligent technologies has driven industrial structural transformations that may help achieve carbon reduction. Artificial intelligence (AI) technology is an important part of digitalization, providing new technological tools and directions for the low carbon development of enterprises. This study selects Chinese A-share listed companies in the manufacturing industry from 2012 to 2021 as the research objects and uses a fixed-effects regression model to study the relationship between AI and carbon emissions. This study clarifies the significance of enterprise AI technology applications in realizing carbon emissions reduction and explores the regulatory mechanism from the perspective of the innovation effect. The results show that the application of enterprise AI technology positively impacts carbon emissions reduction."

According to the news reporters, the research concluded: "Simultaneously, green technological innovation, green management innovation, and green product innovation play moderating roles; in other words, enterprise green innovation strengthens the effect of AI on carbon emissions reduction. This study clarifies the necessity of intelligent manufacturing and enriches theories related to AI technology and carbon emissions."

For more information on this research see: Artificial Intelligence and Carbon Emissions in Manufacturing Firms: The Moderating Role of Green Innovation. Processes, 2023,11(9). (Processes - https://www.mdpi.com/journal/processes[https://www.mdpi.com/journal/processes]). The publisher for Processes is MDPI AG.

A free version of this journal article is available at https://doi.org/10.3390/pr11092705[https://doi.org/10.3390/pr11092705].

Our news editors report that additional information may be obtained by contacting Yixuan Chen, College of Business, Gachon University, Seongnam 13120, South Korea. Additional authors for this research include Shanyue Jin.

ORCID is an identifier for authors and includes bibliographic information. The following is ORCID information for the author of this research: Shanyue Jin (orcid.org/0000-0002-4835-8664).

Keywords for this news article include: Gachon University, Seongnam, South Korea, Asia, Climate Change, Global

Warming, Greenhouse Gases, Machine Learning, Emerging Technologies, Artificial Intelligence.

NewsRX, LLC

Document GLOWRM0020231002eja20002f

AI in Manufacturing

Siemens Offers Complete Industrial 5G Solutions

575 words
2 October 2023
Asia Electronics Industry
ASELEC
English

For the first time, Siemens[http://www.siemens.com] is launching a private infrastructure developed in-house for the 5G mobile communications standard. Particularly, the solution enables industrial companies to build their own local 5G networks that will provide optimal support for automation applications.

Axel Lorenz, CEO of Process Automation at Siemens said enabling industrial companies to build their own 5G networks is launching the next stage of connected production. In addition, Lorenz said 5G is a crucial tool in smart applications[https://aei.dempa.net/archives/tag/smart-manufacturing] such as mobile robots, autonomous logistics, and driverless transport system in factors.

“Siemens' private 5G infrastructure also gives users sole control over the data in their 5G network at all times, and they can custom-configure the network for their applications.”

Private industrial 5G infrastructure for the deployment of a local 5G network (Image Credit: Siemens)
[https://aei.dempa.net/wp-content/uploads/2023/09/private-5g-infrastructure-from-siemens-1024x656.jpeg]

Other industrial 5G wireless technology scenarios include the integrated use of connected tablets, VR glasses, and smart tools. Furthermore, edge devices can be used flexibly. For example, in brownfield applications, it’s difficult to lay cables. In contrast to other wireless technologies, private 5G networks use a licensed frequency band. Therefore, can be operated without interference.

5G Network Components from a Single Source

Siemens has developed its 5G infrastructure[https://aei.dempa.net/archives/tag/5G] for the requirements of industrial customers and industrial applications. Specifically, it consists of a 5G core and a radio access network (RAN). The RAN includes the central unit (CU), the distributed unit (DU), and the radio units (RUs).

Furthermore, different 5G end devices can connect to the 5G infrastructure and communicate in the private network. The all-in-one 5G solution also complements use in harsh industrial environments.

SCALANCE M80000 industrial 5G radio unit (Image Credit: Siemens)[https://aei.dempa.net/wp-content/uploads/2023/09/Industrial-5G-Radio-Unit-SCALANCE-M80000-1024x768.jpeg]

Before the market launch, Siemens extensively tested its private 5G infrastructure in real production environments like at the Siemens production site in Karlsruhe.

By implementing and operating the prototype network in its own production facilities, Siemens was able to extensively test and refine the technology. Thus, ensuring that it can withstand the requirements of industrial production environments. At the same time, support industrial applications.

The private Siemens 5G infrastructure is now available in Germany, and other countries will follow. One of the pilot customers for the complete 5G solution is the German steel group Salzgitter AG: “We don't just want to build any

5G network. We want an industrial 5G[https://aei.dempa.net/archives/tag/industrial-5g] that meets the enormous requirements of the steel industry," says Gerd Baresch, Chief Technology Officer at Salzgitter Flachstahl GmbH.

Highest data security with 5G infrastructure in campus networks

Private 5G networks, or campus networks, are 5G networks restricted to a defined company premises, an area, or an individual building. From Siemens' point of view, private 5G networks offer many advantages for the industry. Companies build them locally at their locations and can precisely modify them to meet their needs and applications. Moreover, companies also have full control over their data, because private 5G networks use their own local 5G spectrum.

A private 5G infrastructure like the one offered by Siemens is necessary to build a local 5G network. Furthermore, it can make the 5G signal available on the company's premises.

Siemens has been offering industrial 5G routers like the SCALANCE MUM853-1 and MUM856-1. Particularly, for connecting robots, AGVs, and other industrial devices to a private 5G network since 2021. These routers are the final components necessary for efficient wireless connectivity in industrial environments.

Dempa Publications, Inc.

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Ohio Manufacturers' Association - 10 Strategies for Using AI in Manufacturing

Ohio Manufacturers' Association published this content on 29 Sep 2023 and is solely responsible for the information contained herein. Distributed by PUBT, unedited and unaltered, on 02 Oct 2023 16:36:10 UTC.
111 words
29 September 2023
U.S. Political and Economic Organizations News via PUBT
USPEO
English

Access the original document here[https://www.ohiomfg.com/communities/leadership/10-strategies-for-using-ai-in-manufacturing/]

10 Strategies for Using AI in Manufacturing

The text version of this document is not available. You can access the original document here[https://www.ohiomfg.com/communities/leadership/10-strategies-for-using-ai-in-manufacturing/].

* This content was originally posted here[https://www.ohiomfg.com/communities/leadership/10-strategies-for-using-ai-in-manufacturing/]

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PUBT Inc

Document USPEO00020231002ej9t002bo

ROOTCLOUD INTRODUCES AI SYSTEM FOR MANUFACTURING SECTOR

NUR ATHIRAH BINTI MOHD SHAHARUDDIN

172 words
29 September 2023
Bernama Daily Malaysian News
BRNAMA
English

KUALA LUMPUR, Sept 26 (Bernama) – Rootcloud Technology (Malaysia) aims to introduce an artificial intelligence (AI) system for the manufacturing sector, similar to ChatGPT by 2024 to help businesses in Malaysia in achieving their sustainable development goals (SDGs).

Its assistant director of business development Qistina Khaizuran said through the company's AI system known as Intelligent Energy Management System (iEMS), companies could monitor and measure electricity usage and reduce consumption, thus reducing their carbon footprint.

"With the new tariff hike that is about 440 per cent, companies are paying more now to produce the same products due to the rise in cost of production.

"Through the use of AI, they can monitor electricity consumption and be more cost-effective," she told Bernama during Malaysia ICT Summit 2023 organised by Huawei Technologies (M) Sdn Bhd today.

Software provider Rootcloud Technology was established in June 2016 and is headquartered in China. It owns a digital Industrial Internet of Things (IIoT) called Rootcloud platform.

Pertubuhan Berita Nasional Malaysia (Bernama)

Document BRNAMA0020231002ej9t00062

The eRulemaking Program - Request for Information: Discussion Paper: Artificial Intelligence in Drug Manufacturing

The eRulemaking Program published this content on 27 Sep 2023 and is solely responsible for the information contained herein. Distributed by PUBT, unedited and unaltered, on 27 Sep 2023 13:43:12 UTC.
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27 September 2023
U.S. Government News and Documents via PUBT
USGND
English

Access the original document here[https://www.regulations.gov/document/FDA_FRDOC_0001-12456]

Request for Information: Discussion Paper: Artificial Intelligence in Drug Manufacturing

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

[Docket No. FDA-2023-N-0487]

Discussion Paper: Artificial Intelligence in Drug Manufacturing, Notice; Request for Information and Comments; Reopening of the Comment Period

Agency

Food and Drug Administration, HHS.

Action

Notice; establishment of a public docket; request for information and comments; reopening of the comment period.

Summary

The Food and Drug Administration (FDA or the Agency) is reopening the comment period for the notice, published in the Federal Register of March 1, 2023, establishing a public docket and requesting information and comments. FDA is reopening the comment period to update comments and to receive any new information.

Dates

FDA is reopening the comment period on the notice published March 1, 2023 (88 FR 12943). Either electronic or written comments must be submitted by November 27, 2023.

Addresses

You may submit comments as follows. Please note that late, untimely filed comments will not be considered. The https://www.regulations.gov[https://www.regulations.gov] electronic filing system will accept comments until 11:59 p.m. Eastern Time at the end of November 27, 2023. Comments received by mail/hand delivery/courier (for written/paper submissions) will be considered timely if they are received on or before that date.

Electronic Submissions

Submit electronic comments in the following way:

• Federal eRulemaking Portal:https://www.regulations.gov[https://www.regulations.gov]. Follow the instructions for submitting comments. Comments submitted electronically, including attachments, to https://www.regulations.gov[https://www.regulations.gov] will be posted to the docket unchanged. Because your comment will be made public, you are solely responsible for ensuring that your comment does not include any confidential information that you or a third party may not wish to be posted, such as medical information, your or anyone else's Social Security number, or confidential business information, such as a manufacturing process. Please note that if you include your name, contact information, or other information that identifies you in the body of your comments, that information will be posted on https://www.regulations.gov[https://www.regulations.gov].

* If you want to submit a comment with confidential information that you do not wish to be made available to the public, submit the comment as a written/paper submission and in the manner detailed (see "Written/Paper Submissions" and "Instructions").

Written/Paper Submissions

Submit written/paper submissions as follows:

• Mail/Hand Delivery/Courier (for written/paper submissions): Dockets Management Staff (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852.

* For written/paper comments submitted to the Dockets Management Staff, FDA will post your comment, as well as any attachments, except for information submitted, marked and identified, as confidential, if submitted as detailed in "Instructions."

Instructions: All submissions received must include the Docket No. FDA-2023-N-0487 for "Discussion Paper: Artificial Intelligence in Drug Manufacturing, Notice; Request for Information and Comments." Received comments, those filed in a timely manner (see ADDRESSES), will be placed in the docket and, except for those submitted as "Confidential Submissions," publicly viewable at https://www.regulations.gov[https://www.regulations.gov] or at the Dockets Management Staff between 9 a.m. and 4 p.m., Monday through Friday, 240-402-7500.

• Confidential Submissions-To submit a comment with confidential information that you do not wish to be made publicly available, submit your comments only as a written/paper submission. You should submit two copies total. One copy will include the information you claim to be confidential with a heading or cover note that states "THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION." The Agency will review this copy, including the claimed confidential information, in its consideration of comments. The second copy, which will have the claimed confidential information redacted/blacked out, will be available for public viewing and posted on https://www.regulations.gov[https://www.regulations.gov]. Submit both copies to the Dockets Management Staff. If you do not wish your name and contact information to be made publicly available, you can provide this information on the cover sheet and not in the body of your comments and you must identify this information as "confidential." Any information marked as "confidential" will not be disclosed except in accordance with 21 CFR 10.20 and other applicable disclosure law. For more information about FDA's posting of comments to public dockets, see 80 FR 56469, September 18, 2015, or access the information at: https://www.govinfo.gov/content/pkg/FR-2015-09-18/pdf/2015-23389.pdf[https://www.govinfo.gov/content/pkg/FR-2015-09-18/pdf/2015-23389.pdf].

Docket: For access to the docket to read background documents or the electronic and written/paper comments received, go to https://www.regulations.gov[https://www.regulations.gov] and insert the docket number, found in brackets in the heading of this document, into the "Search" box and follow the prompts and/or go to the Dockets Management Staff, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852, 240-402-7500.

For Further Information Contact

Elizabeth Giaquinto Friedman, Center for Drug Evaluation and Research, Food and Drug Administration, 10903 New Hampshire Ave., Bldg. 51, Rm. 4162, Silver Spring, MD 20993, 240-402-7930, Elizabeth.Giaquinto@fda.hhs.gov.

Supplementary Information

In the Federal Register of March 1, 2023 (88 FR 12943), FDA established a public docket to solicit comments on the "Discussion Paper: Artificial Intelligence in Drug Manufacturing." The discussion paper presents areas for consideration and policy development identified by the Center for Drug Evaluation and Research (CDER) scientific and policy experts associated with application of artificial intelligence to pharmaceutical manufacturing. The discussion paper includes a series of questions to stimulate feedback from the public, including CDER and the Center for Biologics Evaluation and Research stakeholders.

Interested persons were originally given until May 1, 2023, to comment on the content of the discussion paper.

Following publication of the March 1, 2023, notice, FDA has decided to reopen the public docket to allow interested persons additional time to comment on the discussion paper. We note that there is also a public workshop organized by FDA and the Product Quality Research Institute entitled "Regulatory Framework for the Utilization of Artificial Intelligence in Pharmaceutical Manufacturing: An Opportunity for Stakeholder Engagement," which is scheduled for September 26 and 27, 2023 (https://pqri.org/fda-pqri-aiworkshop/[https://pqri.org/fda-pqri-aiworkshop/]).

Dated: September 21, 2023.

Lauren K. Roth,

Associate Commissioner for Policy.

[FR Doc. 2023-20902 Filed 9-26-23; 8:45 am]

BILLING CODE 4164-01-P

* This content was originally posted here[https://www.regulations.gov/document/FDA_FRDOC_0001-12456]

FOOD AND DRUG ADMINISTRATION ISSUES NOTICE: DISCUSSION PAPER: ARTIFICIAL INTELLIGENCE IN DRUG MANUFACTURING, NOTICE; REQUEST FOR INFORMATION AND COMMENTS; REOPENING OF THE COMMENT PERIOD

206 words
27 September 2023
US Fed News
INDFED
English

WASHINGTON, Sept. 27 -- Food and Drug Administration has issued a notice called: Discussion Paper: Artificial Intelligence in Drug Manufacturing, Notice; Request for Information and Comments; Reopening of the Comment Period.

The notice was published in the Federal Register on Sept. 27 by Lauren K. Roth, Associate Commissioner for Policy.

Summary: The Food and Drug Administration (FDA or the Agency) is reopening the comment period for the notice, published in the Federal Registerof March 1, 2023, establishing a public docket and requesting information and comments. FDA is reopening the comment period to update comments and to receive any new information.

For more information, contact Elizabeth Giaquinto Friedman, Center for Drug Evaluation and Research, Food and Drug Administration, 10903 New Hampshire Ave, Bldg. 51, Rm. 4162, Silver Spring, MD 20993, 240-402-7930, Elizabeth.Giaquinto@fda.hhs.gov.

The full text of the notice can be found at: http://www.gpo.gov/fdsys/pkg/FR-2023-09-27/html/2023-20902.htm[http://www.gpo.gov/fdsys/pkg/FR-2023-09-27/html/2023-20902.htm]

Document INDFED0020230927ej9r000dn

ROOTCLOUD INTRODUCES AI SYSTEM FOR MANUFACTURING SECTOR

NUR ATHIRAH BINTI MOHD SHAHARUDDIN

173 words
26 September 2023
Bernama Daily Malaysian News
BRNAMA
English

KUALA LUMPUR, Sept 26 (Bernama) – Rootcloud Technology (Malaysia) aims to introduce an artificial intelligence (AI) system for the manufacturing sector, similar to ChatGPT by 2024 to help businesses in Malaysia in achieving their sustainable development goals (SDGs).

Its assistant director of business development Qistina Khaizuran said through the company's AI system known as Intelligent Energy Management System (iEMS), companies could monitor and measure electricity usage and reduce consumption, thus reducing their carbon footprint.

"With the new tariff hike that is about 440 per cent, companies are paying more now to produce the same products due to the rise in cost of production.

"Through the use of AI, they can monitor electricity consumption and be more cost-effective," she told Bernama during Malaysia ICT Summit 2023 organised by Huawei Technologies (M) Sdn Bhd today.

Software provider Rootcloud Technology was established in June 2016 and is headquartered in China. It owns a digital Industrial Internet of Things (IIoT) called Blue Cloud Platform.

Pertubuhan Berita Nasional Malaysia (Bernama)

Document BRNAMA0020230927ej9q0002i

Canada's manufacturing sector seeks to reduce 'repetitive labour' through AI

Sammy Hudes

The Canadian Press
754 words
22 September 2023
13:18
The Canadian Press
CPR
English

TORONTO — Artificial intelligence and increased automation can help lessen the load for workers at a time when Canada faces a labour shortage in the construction and manufacturing sector.

That's one of the messages being shared at this year's Canadian Manufacturing Technology Show taking place in Toronto next Monday to Thursday. The annual event is put on by SME, formerly the Society of Manufacturing Engineers, which represents various players in North America's manufacturing industry.

Combatting misconceptions about AI is one of the challenges facing the industry, especially as new technology becomes increasingly necessary, said Julie Pike, senior director of event strategy for SME.

"The human level to resist change is always there," she said, noting that some in the industry often fear new technology is being ushered in to replace jobs rather than alleviate their workloads.

"As organizations set up technologies that allow systems that are normally produced by humans to be more streamlined, we can free up human capital," said Pike.

"We can free up our time and resources to grow those areas further so you do have a job."

Last year, Canadian Manufacturers and Exporters' annual labour survey showed that labour and skills shortages resulted in nearly $13 billion of economic losses. Sixty-two per cent of the 563 manufacturers surveyed said they have lost or turned down contracts due to a lack of workers, resulting in $7.2 billion in lost sales.

A separate report released in June by KPMG Canada found nine in 10 Canadian construction companies are dealing with a shortage of skilled labour or trades amid unprecedented demand.

The survey of 275 construction companies found digital technology was widely viewed as a solution to addressing those shortages. But respondents said Canada's construction industry has been slow to adopt new digital technologies, with nearly three-quarters feeling the sector lags behind other countries in that regard.

"A large portion of our organizations are small-to-medium-sized companies and they're really in varying stages on this pursuit of adapting and adopting (AI) into their processes and operations that will ultimately help them from an efficiency side, cost savings, improvements and the like," said Pike.

She pointed to the story of Massimiliano Moruzzi, one of this year's keynote speakers at the conference and CEO of intelligent automation startup Xaba.

The Toronto-based company, launched last year, uses an AI platform to enable the creation of a fully functional robotic car chassis that understands the properties of carbon fibre and is capable of calculating and controlling the material’s variables on its own.

Using industrial AI software, he said robots designed by Xaba can take on tasks such as welding, drilling, assembling and additive manufacturing — eliminating the need for extra programming expenses and time-consuming trial-and-error efforts.

"A big missing point in the automation industry, in the AI bridging to the automation … was the lack of a synthetic brain," he said.

"We've developed a synthetic brain for the automation industry — for robotics and machines as well. We built the robot at Xaba and then we built the brain of the robot. We saw the machine responding completely differently to us. In essence, we saw the machine unlocking capacity."

Moruzzi said the technology is different from existing AI solutions as it allows real people to work with a machine "that can talk to you and use its own knowledge to help solve the business challenges you face" — as opposed to performing tasks in place of a human.

"Current mechanization is … removing the job. You have robots that are spreading the jam on your bread, like a human does today," he said.

"That's the problem that we have. They are not creating jobs, they are not creating anything new. They're creating something that we have already known for ages. We have to go away from that."

Pike said industry leaders are focusing on educating their peers on how AI can help them at a time when there are simply not enough workers available to handle every task that companies need to get done.

"The truth is it's hard to build and fly the plane or drive the car at the same time," she said.

"So how do we help manufacturers and industry at large adapt and continue to be productive at the same time?"

This report by The Canadian Press was first published Sept. 22, 2023.

The Canadian Press

Document CPR0000020230922ej9m00qe1

Sustainability Research; Study Results from Civil Aviation University of China Provide New Insights into Sustainability Research (Smart Knob Integrated By Artificial Intelligence-based Green Manufacturing Model for Sustainable Environment)

416 words
15 September 2023
Ecology, Environment & Conservation
ECECON
3211
English

2023 SEP 22 (VerticalNews) -- By a News Reporter-Staff News Editor at Ecology, Environment & Conservation -- Investigators discuss new findings in Sustainability Research. According to news reporting from Tianjin, People's Republic of China, by VerticalNews editors, the research stated, "Speed-torque performance, size, and cost factors, brushless dc motor motors (BLDCMs) are in exceptionally high demand in low-powered electrical vehicle as well as commercial applications. This research proposes a novel technique in smart knob for brushless motor based on fielded oriented control (FOC) in green manufacturing with machine learning techniques in industry 4.0. here the principle of brushless motor is developed based on smart knob with FOC."

Financial support for this research came from Innovation and Entrepreneurship Training Program for College Students of Civil Aviation University of China Fund.

The news correspondents obtained a quote from the research from the Civil Aviation University of China, "Then, the operation of brushless motor is monitored for fault analysis using convolutional Q-Gaussian hidden neural networks. The experimental analysis is carried out for the operation of brushless motor with their principle in terms of power density, peak power pulse, Model Accuracy, model loss, and Mean Average Error. Because sensor less technology has improved traditional control and sensing techniques, BLDC motor drivers now perform and operate more reliably."

According to the news reporters, the research concluded: "Then, recent innovations in this field are discussed, together with their benefits and disadvantages, and analysis is provided of their actual implementation problems and applications."

This research has been peer-reviewed.

For more information on this research see: Smart Knob Integrated By Artificial Intelligence-based Green Manufacturing Model for Sustainable Environment. The International Journal of Advanced Manufacturing Technology, 2023. The International Journal of Advanced Manufacturing Technology can be contacted at: Springer London Ltd, 236 Grays Inn Rd, 6TH Floor, London WC1X 8HL, England.

Our news journalists report that additional information may be obtained by contacting Zhangyi Zhao, Civil Aviation University of China Nanyuan, School of Electronic Information and Automation, 2898 Jinbei Rd, Tianjin 300300, People's Republic of China.

Keywords for this news article include: Tianjin, People's Republic of China, Asia, Artificial Intelligence, Emerging Technologies, Machine Learning, Sustainability Research, Civil Aviation University of China.

NewsRX, LLC

Document ECECON0020230915ej9f000b5

Georgia General Assembly - Rep. Doreen Carter to Participate in Community Engagement Panel Session on Artificial Intelligence's Impact on Manufacturing in Georgia

Georgia General Assembly published this content on 13 Sep 2023 and is solely responsible for the information contained herein. Distributed by PUBT, unedited and unaltered, on 13 Sep 2023 20:39:46 UTC.
432 words
13 September 2023
U.S. Local Government News via PUBT
USLGN
English

Access the original document here[https://house-press.com/rep-doreen-carter-to-participate-in-community-engagement-panel-session-on-artificial-intelligences-impact-on-manufacturing-in-georgia/]

Rep. Doreen Carter to Participate in Community Engagement Panel Session on Artificial Intelligence's Impact on Manufacturing in Georgia

ATLANTA - State Representative Doreen Carter (D-Lithonia) will participate in a community engagement panel and listening session to discuss advanced technologies and artificial intelligence (AI) for manufacturing sectors on Tuesday, September 19, 2023, from 5:30 - 7:30 p.m. at the Rockdale Career Academy in Conyers.

The purpose of the panel discussion is to help demystify advanced technologies, such as AI, by providing access and exposure to the Georgia-Artificial Intelligence Manufacturing (GA-AIM) Project and technology modules. The discussion also seeks to generate awareness around educational pathways that exist in the manufacturing industry, create energy for opportunities and careers in advanced manufacturing and technology and demonstrate how learning this technology gives job seekers an advantage in this evolving industry.

Other panelists include: local stakeholders with expertise in community assets and challenges; local leaders in workforce development; local leaders in educational programs and pathways; leaders in advanced manufacturing industry; and leaders in advanced technology.

The goal of this event is to create a space for a community conversation around advanced technology and connect with stakeholders to advance the manufacturing industry and industrial economy of Georgia. The event seeks to grow an equitable and diverse manufacturing workforce with a focus on reaching, supporting and engaging in predominantly Black, rural and distressed communities.

This community engagement panel session is hosted by the Russell Innovation Center for Entrepreneurs and UGA College of Engineering coalition of members working on the Georgia- Artificial Intelligence Manufacturing (GA-AIM) Federal grant awarded by the EDA under the Build Back Better Regional Challenge. GA-AIM is working to leverage evolving technology to create jobs in the AI, technology and manufacturing communities.

WHO: Rep. Doreen Carter (D-Lithonia)

WHAT: Community Engagement Panel and Listening Session on AI's Impact on Manufacturing

WHEN: Tuesday, September 19, 2023

5:30 - 7:30 p.m.

WHERE: Rockdale Career Academy

1064 Culpepper Dr SW

Conyers, GA 30094

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* This content was originally posted here[https://house-press.com/rep-doreen-carter-to-participate-in-community-engagement-panel-session-on-artificial-intelligences-impact-on-manufacturing-in-georgia/]

PUBT Inc

Document USLGN00020230913ej9d0059k

Generative AI in Manufacturing : A transformational alliance

1149 words
13 September 2023
Business Standard
BSTN
English

Artificial intelligence (AI), in particular, Generative AI is emerging in various applications in retail and customer-facing businesses. Wherever extensive data is already available in the form of text, speech or images, Large Language Model (LLM) open-source software resources are propelling newer applications on a daily basis to enhance customer experience, thereby providing a competitive edge to businesses. We see more Generative AI applications - using ChatGPT/BARD - in content writing, contextual translation, code refactoring, and customer service applications in retail, e-commerce, IT/ITES service, edtech and fintech industries.

The manufacturing industry in Bharat can attempt to deploy basic AI / ML techniques far more creatively than it does today. AI / ML is generally considered as a 'black box' for two specific reasons:

1. Tacit data dominates, i.e. the people on the shop floor somehow still fear data transparency and automation will lead to job losses

2. Data collection and integration is complex owing to the existence of a multi-product, process, and equipment architecture with multilevel silos of 'protected architecture' of several 'proprietary brands'.

However, Gen AI can be a transformational partner for the manufacturing industry. And give it the cutting-edge it needs.

Also Read: Building AGI stack to shield against potential frauds, says Paytm CEO

As an example, in an electronic manufacturing company, in order to debug a malfunctioning Programmable Logic Control (PLC), in a Made in China equipment, the shop floor maintenance engineers needed the equipment manual to be translated to English as it was written in Mandarin. In addition, they were also required to take the assistance of a Chinese engineer through a video call. It was a tedious process, and valuable time was lost. The issue could have been addressed instantaneously with the deployment of Generative AI, at least for all critical machines in the company, along with augmented reality & virtual reality (AR / VR) technology. 'Experts' for 'black boxes', currently needed for firefighting, can be far more effectively utilised for preventing fires and many other predictive and process optimisation opportunities.

Potential application areas of Generative AI in the manufacturing industry could be:

1. Product design and development

2. Predictive maintenance

3. Quality control and assurance

4. Production planning and inventory management

5. Supply chain management

These applications help not only to bring innovative products based on cutting-edge technology to the market but also provide significant opportunities in improving cost, quality, efficiency and overall competitiveness.

As an example, 'Art to Part' in product design and 'Part to Art' when reverse engineered. In both scenarios, the manufacturing industry can use Generative AI. A couple of examples of product design with Generative AI applications are : (i) the Bionic Eye i.e. assisting the visually challenged to 'see'; and (ii) new generation compact PCB architecture with flawless embedded design and software for Electric Vehicle battery optimisation.

Another interesting example is using CCTV video analytics in real-time for safety, health & ergonomics on the shop floor. Further, machine vision and camera inspection techniques remove subjective inferences and conclusions from quality control inspections on the shop floor, thereby providing greater quality assurance. Also, real-time algorithms from retail success stories on demand pattern analysis can help in production planning and inventory management methodologies. The same is the case with opportunities for Generative AI applications in supply chain management, the smooth functioning of which is more critical today than ever before for the manufacturing industry.

Apart from the shop floor, all the other functions like sales & and marketing - new proposal submission for complex customer deals; finance - multiple fintech case studies can be replicated; HR - recruitment and talent management, especially the induction training for new entrants, can effectively apply Generative AI. In addition, B2B clusters in the MSME sector, such as foundry or, machining or injection moulding, can leverage many improvement opportunities together. Examples like milk run transportation and logistics, non-moving inventory liquidation, collective purchase of raw material, yield improvement, working capital financing, etc come to mind immediately.

Also Read: AI detects gallbladder cancer as accurately as radiologists in India: Study

Fortunately, almost all the tech giants - like Microsoft, IBM, SAP, AWS and Google - whose software products are already in some way or another in use in the manufacturing industry, have made massive investments in Generative AI. What the industry needs to do is to train and re-skill its employees in AI / ML concepts and applications. In fact, most software products are now in 'No Code' mode and bring the necessary 'glamour quotient' for attracting graduate engineers. The traditional statistical experts in TQM, TPM, TCM, Lean, Six Sigma should now move rapidly to embrace emerging technologies to accelerate the growth and profitability of the manufacturing industry.

The existing data on the manufacturing shop floor, in whichever form it is - text, image or speech or from whatever source - ERP, MES, HRMS, CCTV footage, Quality Management, Occupational Health & Safety systems etc, can be resourcefully leveraged to derive patterns, create new set of futuristic information and improvements through Generative AI. This will change the perspective we mentioned in this article's opening statement about the 'black box' nature of data transparency and interoperability of rigid architecture in the manufacturing industry. The latest Industrial IoT hardware and software architecture is

predominantly 'brand' agnostic and can, therefore, greatly assist in breaking down the silos created by proprietary products in data collection.

Further, we quote from Prof C K Prahlad's book, "The New Age of Innovation," where he proposes an empirical formula, 'N=1' and 'R=G' emphasising that there are new managerial demands in business, requiring new sources of value creation. He argues that these demands have created an N=1 and R=G environment, where companies need to customise their product for each unique customer by gaining access to a new array of global resources. Generative AI brings ample opportunities of open resources for deploying hyper-personalised concepts for new technology products and processes in the manufacturing industry.

There is a great opportunity for manufacturing companies individually and the manufacturing industry as a whole in Bharat in its growth aspirations to reach a global scale, taken together with Government support through the PLI schemes and the geo-political situation leading to a China+1 strategy of global corporations. In fact, AI in general and Generative AI in particular, have the capability to form a transformative alliance with the manufacturing industry to provide it with the cutting-edge it needs. This adoption of state-of-the-art technology will also attract new-age talent from schools, colleges and universities towards the manufacturing industry, which has been under the shadow of the service industry for the last few decades. Our manufacturing industry would do well to consider exploring the opportunity that AI and Generative AI provide.

Vipin Sondhi, Former MD & CEO of Ashok Leyland and JCB India and G. Sundararaman, Co-CEO Wipro Pari

Business Standard Limited (India)

Document BSTN000020230913ej9d0015p

Business

How analytics and AI are empowering smart manufacturing

892 words
10 September 2023
Financial Express Online
FIEXON
English

By Vikram Jain

Industries constantly seek innovative ways to improve their efficiency and productivity. To improve performance and efficiency and reduce downtime, it is necessary to automate data collection. One of the most game-changing approaches in recent times is the advent of integrating data from various sources through peripheral automation and putting that into insights to make informed decisions that optimize manufacturing processes.

Analytics and Artificial Intelligence (AI) play a crucial role in empowering smart manufacturing by enabling data-driven decision-making, optimizing processes, enhancing productivity, and facilitating predictive maintenance. Peripheral automation refers to the use of automated systems and sensors at the periphery of manufacturing operations, such as machines, production lines, and equipment.

How IoT, connected equipment, and SCADA looped in business applications, data platforms and data infrastructure

At the forefront of this revolution is the integration of IoT (Internet of Things) technologies with connected equipment and Supervisory Control and Data Acquisition (SCADA) systems. This harmonious blend enables businesses to optimize their operations by collecting real-time data, analyzing it, and making informed decisions based on the insights gained.

With the IoT, devices can now communicate with each other and share vital information autonomously. From sensors that monitor temperature and pressure to machines that control manufacturing processes, the possibilities are endless. This interconnectedness allows businesses to respond quickly to changing market demands and make data-driven decisions that drive efficiency and competitiveness.

Imagine a manufacturing plant where every machine is equipped with IoT sensors that constantly monitor their performance. These sensors collect data on various parameters such as temperature, pressure, and energy consumption. This real-time data is then transmitted to a line of business applications, which acts as the central hub for monitoring and analyzing the entire operation. Thus, with sensor data intelligence, businesses can improve uptime, throughput, and production quality by proactively managing shop floor and equipment operations with a real-time view of your entire production and stock.

Data platforms allow businesses to store, process, and analyze massive amounts of data in real time. This data can reveal patterns, identify bottlenecks, and offer insights that can significantly improve operational efficiency. It enables predictive maintenance, reducing downtime and maximizing productivity. It empowers businesses to make data-driven decisions that drive growth and innovation.

Furthermore, the integration with data infrastructure ensures the security and integrity of the data. As industries become increasingly reliant on data, protecting it from cyber threats becomes paramount. Robust data infrastructure ensures that data remains secure and accessible, even in the face of malicious attacks or system failures. Here’s how they contribute to the transformation of manufacturing into a smarter and more efficient

industry:

1. Data Collection and Integration: Smart manufacturing relies on the collection of vast amounts of data from various sources, including sensors, IoT devices, machines, and production lines. Analytics and AI help integrate and process this data to create a comprehensive overview of the manufacturing process.

2. Predictive Analytics: AI algorithms can analyze historical and real-time data to predict potential issues or failures in machinery and equipment. This enables proactive maintenance, reducing downtime and minimizing production disruptions.

3. Process Optimization: By analyzing data on production processes, AI can identify bottlenecks, inefficiencies, and opportunities for optimization. This leads to more streamlined and efficient manufacturing operations.

4. Quality Control: Analytics and AI can monitor product quality in real-time. They can identify defects or variations that are not easily detectable by human inspection, ensuring that only high-quality products are shipped to customers.

5. Supply Chain Management: AI-powered analytics can enhance supply chain visibility by predicting demand patterns, optimizing inventory levels, and even suggesting the best routes for shipping and distribution.

6. Energy Efficiency: Smart manufacturing places an emphasis on sustainability. AI can analyze energy consumption data and suggest ways to reduce energy waste, leading to cost savings and a smaller environmental footprint.

7. Customization and Personalization: AI enables the customization of products to meet individual customer needs. By analyzing customer data and preferences, manufacturers can tailor their products more effectively.

8. Real-time Monitoring and Control: With AI, manufacturers can monitor operations in real-time and make adjustments on the fly. This agility is especially important in dynamic manufacturing environments.

9. Worker Safety: Analytics and AI can be used to monitor worker behavior and environmental conditions, helping to identify potential safety hazards and prevent accidents.

10. Demand Forecasting: AI can analyze market trends, historical data, and external factors to provide accurate demand forecasts. This helps manufacturers adjust production levels to meet anticipated demand and avoid overproduction.

11. Collaborative Robots (Cobots): AI-powered cobots can work alongside human workers, assisting with repetitive tasks, improving precision, and enhancing overall productivity.

12. Continuous Improvement: By continuously analyzing data and performance metrics, manufacturers can identify areas for improvement and iterate their processes to achieve higher levels of efficiency and quality.

If we summarize all these aspects, it comes out to be a digital feedback loop where raw data is collected at each stage. This data is synthesized to convert into insights and analytics on which informed decisions are made, which again improves the overall process, and this cycle continues.

The author is practice director, business analytics, Advaiya

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Data platforms allow businesses to store, process, and analyze massive amounts of

data[https://www.financialexpress.com/wp-content/uploads/2023/09/Untitled-design220.jpg?w=1024]

Indian Express Group

Document FIEXON0020230911ej9a00001

Artificial Intelligence; Investigators from Harbin University Report New Data on Artificial Intelligence (Can Enterprise Green Technology Innovation Performance Achieve "corner Overtaking" By Using Artificial Intelligence?-evidence From Chinese Manufacturing Enterprise

428 words
8 September 2023
Ecology, Environment & Conservation
ECECON
258
English

2023 SEP 15 (VerticalNews) -- By a News Reporter-Staff News Editor at Ecology, Environment & Conservation -- Research findings on Artificial Intelligence are discussed in a new report. According to news originating from Harbin, People's Republic of China, by VerticalNews correspondents, research stated, "To examine the impact of the application of artificial intelligence on the green technology innovation performance of enterprises, a multi-period difference-in-differences model was constructed. Panel data of Chinese listed manufacturing companies over the period of 2014-2020 were used."

Funders for this research include China National Social Science Foundation Project, Natural Science Foundation of Heilongjiang Province, Philosophy and Social Sciences Research Program of Heilongjiang Province, Shandong Province Key Research and Development Plan (Soft Science) Project.

Our news journalists obtained a quote from the research from Harbin University, "According to Stimulus-OrganismResponse theory, the impact of artificial intelligence on the green technology innovation performance of enterprises is not direct. The mediating effects of basic knowledge coupling, complementary knowledge coupling, and extended knowledge coupling are verified through empirical tests. The results show that artificial intelligence significantly positively impacts the innovation performance of enterprises in relation to the development of green technology and its decomposition variables (efficiency and progress of green technology)."

According to the news editors, the research concluded: "The mediation effect indicates that artificial intelligence mainly promotes the green technology innovation performance of enterprises by affecting their knowledge coupling."

This research has been peer-reviewed.

For more information on this research see: Can Enterprise Green Technology Innovation Performance Achieve "corner Overtaking" By Using Artificial Intelligence?-evidence From Chinese Manufacturing Enterprises. Technological Forecasting and Social Change, 2023;194. Technological Forecasting and Social Change can be contacted at: Elsevier Science Inc, Ste 800, 230 Park Ave, New York, NY 10169, USA. (Elsevier - www.elsevier.com[http://www.elsevier.com]; Technological Forecasting and Social Change - www.journals.elsevier.com/technological-forecasting-and-social-change/[http://www.journals.elsevier.com/technological-forecasting-and-social-change/])

The news correspondents report that additional information may be obtained from Hongna Tian, Harbin University, School of Economics and Management, Dept. of Management, Harbin, People's Republic of China. Additional authors for this research include Liyan Zhao, Yunfang Li and Wei Wang.

Keywords for this news article include: Harbin, People's Republic of China, Asia, Artificial Intelligence, Asia, China, Ecology, Emerging Technologies, Green Technology, Machine Learning, Manufacturing, Harbin University.

NewsRX, LLC

Document ECECON0020230908ej980003h

Case Studies

AI, New Mega Trends to Stir Manufacturing Investments

762 words
5 September 2023
Asia Electronics Industry
ASELEC
English

Since its establishment in 1940, TOKYO OHKA KOGYO CO., LTD. (TOK)[https://www.tok.co.jp/] has consistently pursued research and development programs and new technical methodologies. Particularly, the company makes use of its four management principles. These principles are “continue efforts to enhance technology,” “raise the quality levels of products,” “contribute to society” and “create a frank and open-minded business culture”.

Most importantly, the company focuses on developing highly functional and high-performance products, which are not only cost-effective but also employ efficient manufacturing process technologies.

AEI recently interviewed Noriaki Taneichi, President and Chief Executive Officer of TOKYO OHKA KOGYO and shared his views on the prevailing market trends and strategies the company will employ in the future.

Noriaki Taneichi, President and Chief Executive Officer, TOKYO OHKA KOGYO CO., LTD.
[https://aei.dempa.net/wp-content/uploads/2023/09/AW2308-25-pix_taneichi.jpg]

AEI:Can you share your thoughts on the prevailing semiconductor market and semiconductor materials market?

Taneichi: Recently, since 2023, the markets have been slowing down. At the same time, the recent semiconductor[https://aei.dempa.net/archives/tag/semiconductor] market trend shows a recovery in demand for memories. In addition, we have been seeing the same with logic devices, such as in the generative artificial intelligence (AI)-related sector. As this sector requires advanced package technologies as well, I expect that it will become a trigger for the demand recovery for semiconductors.

Pertaining to the semiconductor materials market, the timing of bottoming out is not yet in sight. Nonetheless, I don’t think a situation like a bottom in boom-and-bust cycles of the semiconductor industry at one time will occur.

Previously, at the bottom of chip cycles, demand significantly dropped. Presently though, the demand is not falling. Demand for legacy semiconductors and power devices remains strong. I don’t think the volatility of today’s chip cycle is as bad as in the past. Although the demand for chips for smartphones is sluggish, we can expect the demand for repurchases to increase sooner or later.

In the coming five years, we can expect many new and additional semiconductor plants to rise again. When these plans start off, the semiconductor industry will become very busy again.

Strategies, Manufacturing Investments

AEI: With these circumstances, how are you drawing out your strategies for the future?

Taneichi: Firmly meeting the demand from these plants is the basis of our business strategies. Particularly, we focus on four main fields for our company’s semiconductor-related materials business. These are information terminals, cloud computing, sensing & IoT, and green energy. We will establish a system that will enable us to firmly grow in these four fields.

AEI: How are investments in plants and equipment progressing? What investment[https://aei.dempa.net/archives/tag/manufacturing-investments] plans do you have for the future?

Taneichi: At the Koriyama Plant in Fukushima Prefecture, the company completed last year a new inspection building. Now, we are installing equipment in stages. The new inspection building boosts our inspection capacity, which has been a bottleneck in production. Also in Koriyama, we started operating a new warehouse this June. Furthermore, we are also investing to boost the production capacity of the Koriyama Plant.

This May, we also commenced construction of a new plant for high-purity chemical agents in Kumamoto Prefecture. We will proceed with construction targeting the commencement of operations in the first half of 2025.

Also in Korea, we plan to build and put into operation an additional inspection building within two to three years in order to increase inspection capacity. Furthermore, we will secure a new site for the plant.

Reaps Benefits of Medium-Term Plan

AEI: Can you tell us the progress of your medium term plan you started recently? “tok Medium-Term Plan 2024,” a three-year plan started in FY2022 ending in December, progressing?

Taneichi: It has been progressing successfully. We will endeavor to develop physical strength and resilience to catch up with the semiconductor industry. Most importantly, to grow further in the coming years.

We set forth five strategies in the medium-term plan. Namely, (1) increasing the global market share of cutting-edge photoresists; (2) acquiring and creating core technologies in electronic materials and new fields; (3) securing a stable supply of high-quality products and establishing an optimal production system for the Group; (4) improving employee engagement and promoting people-oriented management; and (5) building sound and efficient management foundation. All the five strategies have been progressing well. Moving forward, we will endeavor to expand businesses with the marketing department and the development department working together closely. We will solidly promote the present medium-term plan and achieve our vision toward 2030.

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Ai Group - Titans strengthen opportunities for women in manufacturing

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Titans strengthen opportunities for women in manufacturing

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The Gold Coast Titans NRL Women's team has thrown its support behind a mentoring program run by Ai Group to support women in the manufacturing industry.

The Women in Manufacturing Mentoring Program, a joint initiative with the Queensland Government, helps young women in school and new entrants to manufacturing build confidence, develop their careers and expand their networks.

Eligible applicants are matched with an industry mentor who will support and guide them towards achieving their career goals.

The program was established as part of the Government's Women in Manufacturing Strategy, launched in March to attract and retain women in the industry.

Ai Group Acting Queensland Head Dean Deighton said it was important women knew t here was support available to help them find their path into manufacturing.

"Mentoring is a proven strategy to improve attraction and retention rates," Mr Deighton said.

"A career in manufacturing doesn't necessarily mean you need to be a welder on the factory floor, although that is one option open to women.

"It could be anything in a vast array of careers that include jobs such as a logistics coordinator, a production supervisor, a CNC machinist, a supply chain manager - the list is almost endless."

Just 11 per cent of workers on the tools in Queensland are women.

"We can do better than this," Minister for Regional Development and Manufacturing Glenn Butcher, pictured with Titans teammates, said.

"A partnership with the Titans Women's rugby league team makes sense.

"This is a fantastic opportunity to share lessons from succeeding in traditionally male-dominated fields."

Titans player and apprenticeship advocate Emily Bass said it was a privilege to use her role to support Queensland women looking to progress their careers through apprenticeships.

"Women's professional sport is rapidly growing and it's exciting that we're able to use our story and platform to inspire others to tackle the many opportunities available through manufacturing," she added.

Queensland's manufacturing sector contributes $20 billion a year to the economy and employs about 180,000 Queenslanders.

Click here[https://www.aigroup.com.au/link/cbab882d6e5340a6a89180cb73208802.aspx] to find out more about the Queensland Women in Manufacturing Mentoring Program.

Many mentors say the satisfaction they get from 'paying it forward' is highly rewarding and they often report higher job satisfaction, improved coaching skills and increased performance.

* This content was originally posted here[https://www.aigroup.com.au/news/blogs/2023/titans-strengthen-opportunities-for-women-in-manufacturing/]

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AI in Manufacturing

Schneider Electric Taps AI in New Platform Innovation

492 words
4 September 2023
Asia Electronics Industry
ASELEC
English

Schneider Electric[https://www.se.com/ww/en/] has announced its plans to launch EcoStruxure Resource Advisor Copilot. Accordingly, the platform comes with a conversational AI tool designed to help business leaders interact with their enterprise energy and sustainability data at even greater speed.

Using Large Language Model technology, Schneider Electric has securely built Copilot as a convenient digital companion embedded inside Resource Advisor[https://www.resourceadvisor.com/]. Moreover, Copilot will equip energy and sustainability teams with enhanced data analysis, visualization, decision support, and performance optimization. Furthermore, it will reinforce the ability to seamlessly process intricate industry knowledge and Resource Advisor system information. A private beta is launching over the next month, and general availability of the solution will occur in late 2023 early 2024.

Schneider Electric's new EcoStruxure platform improves IT and OT integration across wide industries, from consumer-packaged goods, logistics, and manufacturing plants. (File Photo)[https://aei.dempa.net/wp-content/uploads/2023/06/GettyImages-1171902434_EcoStruxure_Automation_Expert_SDL-Content_-_Full_Width_Image-1024x512.jpg]

Collaborative Intelligence for Sustainable Future

The confluence of the digital age and the impact economy is creating a new set of challenges for organizations. Thus, making it more important for leaders to turn to digital solutions to manage their environmental and social impacts[https://aei.dempa.net/archives/tag/sustainability]. By using the new Copilot, Resource Advisor users will be able to retrieve data, generate visuals, and gain valuable insights effortlessly.

Accordingly, this streamlined approach reduces the need for manual navigation and data analysis, allowing users to focus on strategic resource decisions.

“Building a sustainable, digital future means developing innovative, responsible tools to address today’s evolving decarbonization challenges head-on. That means bringing ‘collaborative intelligence’ to life for the world’s biggest companies – simultaneously pairing cutting-edge technology with human expertise to deliver measurable outcomes,” said Steve Wilhite, President, Schneider Electric Sustainability Business. “Resource Advisor Copilot will allow our clients to work more quickly, responsibly, and confidently as they tackle resource management initiatives for their businesses, backed by the expertise from our leading global team of consultants.”

The new tool is the latest AI-enabled[https://aei.dempa.net/archives/tag/ai] enhancement that Schneider Electric’s Sustainability Business division has made in recent years. Others include AI-enabled risk optimization, invoice validation services, and peak alert notifications. In addition, every software solution in the Sustainability Business portfolio comes supported by data science, machine learning, and AI automation. These include Zeigo Network, Zeigo Activate and Zeigo Power[https://www.se.com/ww/en/about-us/newsroom/news/press-releases/meet-zeigo%E2%84%A2-schneider-electric%E2%80%99s-innovative-suite-of-saas-sustainability-solutions-to-drive-decarbonization-643507bf3199dde99407c91a].

Scalable Impact for Sustainability

Amy Cravens, Research Manager at International Data Corporation commented that, “The launch of Resource Advisor Copilot represents a new wave of digital leadership from Schneider Electric.”

In addition, Cravens said, “The unique ability to interact with global data and expedite insights in real time will take their clients further, faster. With a strong history of integrating artificial intelligence into theirproducts and services, Resource Advisor Copilot is for responsible and scalable impact for corporate sustainability strategies.” Resource Advisor helps clients observe and steer all aspects of their resource management journey through an elevated AI lens, including emissions, energy management, resource consumption reduction, ESG reporting, and carbon accounting.

Dempa Publications, Inc.

Document ASELEC0020230904ej9400001

Business

Understanding Generative AI's applications in manufacturing

1030 words
2 September 2023
Financial Express Online
FIEXON
English

By Amit Agnihotri

Generative AI applications like OpenAI's ChatGPT and Google's Bard have been making headlines thanks to their ability to automate and generate complex and creative outputs. But while mainstream conversations have revolved around applying this new technology to creating video, music, text, and programming code, Generative AI is also poised to revolutionise and accelerate efficiency in the manufacturing industry.

To understand Generative AI's potential to transform manufacturing, it's important to distinguish its use cases from existing AI technologies employed by the industry today. And while the potential benefits are multifold, the relative novelty of this technology also presents challenges that must be navigated carefully to ensure its successful integration into manufacturing operations.

What makes Generative AI different?

AI technologies have been implemented by the manufacturing sector for decades now. One of the earliest examples was in the 1970s when rudimentary forms of AI were used to control and coordinate machining operations, enabling greater precision and efficiency in the manufacturing processes. Since then, AI has been used by the industry for applications ranging from analysis to automation and forecasting, often in combination with machine learning (ML) and internet of things (IoT) technologies.

For example, AI algorithms have been used for quality control and predictive maintenance, analysing sensor data, images, and other relevant parameters to predict and detect defects or anomalies. AI technologies have also been integral to robotics and automation in manufacturing, enhancing productivity and reducing human error. AI models are also utilised for demand forecasting, analysing historical sales data, market trends and external factors to predict demand and enable better inventory management and production planning for manufacturing businesses.

In contrast, Generative AI is a subset of AI that utilises unsupervised machine learning algorithms to create new content from vast amounts of data. Unlike traditional AI and ML applications that are primarily focused on pattern recognition and prediction based on historical data, Generative AI has the ability to generate entirely new outputs based on learned patterns and rules. These unique features are opening new possibilities for optimising and driving efficiencies in existing manufacturing processes.

How Generative AI can unlock efficiencies in manufacturing

Today, industries such as supply chain management, transportation and logistics, retail, and manufacturing are embracing generative AI due to its ability to automate tasks, enhance efficiency, and provide valuable insights. While applications of this technology in manufacturing are still nascent, the possibilities could be game-changing. Some use cases include:

Product development: Given its ability to generate designs based on specific requirements and constraints,

Generative AI can fuel innovation and accelerate the product development cycle. Manufacturers can provide parameters such as desired specifications, materials, and manufacturing constraints, for instance, and let the AI system generate new design options, iterate on existing designs, or even propose entirely novel solutions in a short period of time, reducing operational costs and improving efficiency.Supply chain optimisation: Generative AI has the potential to accelerate supply chain processes while making them more efficient, cost-effective and responsive. Markets like Asia, for example, have intricate and extensive supply chains, involving multiple countries and stakeholders. Generative AI can not only analyse diverse data sources like market trends, customer demand, and logistics information but generate optimised plans for demand forecasting, inventory management, and logistics planning. Process optimisation: Generative AI has the ability to simulate and explore various scenarios to identify the most efficient configurations – leading to more optimised processes across manufacturing. It can assist in predictive maintenance, for example, by generating synthetic data to train models for anomaly detection or failure prediction. It can also help manufacturing companies identify opportunities for sustainable practices and optimise manufacturing processes to reduce waste, energy consumption, and emissions. Labour optimisation: Many Asian countries face workforce shortages and ageing populations. Generative AI can address these challenges by automating labour-intensive tasks and augmenting workers' capabilities, particularly as skilled labour remains in short supply. Generative AI can also help provide immersive and interactive training, maintenance, and simulation environments for workers, facilitating remote collaboration, reducing training costs, and improving operational efficiency.

Anticipating Challenges in Generative AI

Despite the opportunities generative AI offers, it's important for manufacturing businesses to address challenges that come with its adoption.

For example, Generative AI models are only as good as the data they are trained on. If the data is incomplete or biased, the generated outputs will inherit the same traits. It is also possible for AI generated outputs to be unexpected, complex and flawed in their design – which can hamper productivity instead of improving it. This lack of control can be problematic in manufacturing, where precision, consistency, and quality are crucial. As a worst case, Generative AI can also unintentionally generate designs or products that are unethical or pose safety risks.

A generated design may also inadvertently lead to plagiarism or copyright infringement due to the nature of it being trained on large data sets that are publicly available. Without clear guidelines and policies, it may be risky to use Generative AI in situations that involve proprietary information or innovation.

The Integration of Generative AI into manufacturing processes also often requires significant investments in technology, infrastructure, and skilled personnel. Over-reliance on such technologies without proper backup plans or manual interventions can make the manufacturing process vulnerable to disruptions, system failures, or cybersecurity threats that could result in costly downtime, technical issues and production delays.Ushering in a new era of Manufacturing

Regardless of challenges, the current rate of Generative AI innovation has the potential to accelerate transformation in manufacturing – whether that's improving productivity, optimising processes, or fostering sustainable practices. While the full realisation of these applications is an ongoing process, several industry players are already enabling broader access to Generative AI technologies – a trend that is likely to continue.

Transformation is imminent, and manufacturing companies have everything to gain. With its creative and adaptive capabilities, Generative AI is posed to be a powerful tool for innovation and pushing the boundaries of traditional manufacturing practices.

The author is vice-president – marketing, strategy and compliance, RS India

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Generative AI has the potential to accelerate transformation in manufacturing[https://www.financialexpress.com/wp-content/uploads/2023/09/Untitled-design-2023-09-01T173313.729.jpg?w=1024]

Indian Express Group

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Science

IIT Madras' AMTDC partners with Fifth Generation Technologies to develop AI-based manufacturing solutions for small industries

253 words
2 September 2023
The Economic Times
ECTIM
English

The Indian Institute of Technology Madras' (IIT Madras) Advanced Manufacturing Technology Development Centre (AMDTC), a Centre of Excellence on Machine Tools and Production Technology is partnering with Fifth Generation Technologies India to develop smart manufacturing solutions for small and medium manufacturers (SMM).“Many SMMs have old machines which do not have controllers. By connecting such machines using IoT sensors and collecting real-time operational data we shall also convert them into smart machines,” Prof. N. Ramesh Babu, Secretary, AMTDC said in a statement.Fifth Generation Technologies India is the Indian arm of Canadian-headquartered 5G Group of Companies who specializes in Smart Manufacturing solutions for small, medium, and large-scale manufacturers.Dr.

Ananth Seshan, Chairman of Fifth Generation Technologies stated that the main objective was to deliver affordable AI-based digital tools and techniques that will enhance the competitiveness of the Small and Medium Manufacturers.“These techniques shall continuously and dynamically improve the efficiencies of the machining processes involved in the manufacturing of the products,” he added.IIT-M said the collaboration is also aimed at using student interns for the development and implementation of the solution at the SMM shops, thereby facilitating the development of a well-trained workforce.The AMTDC was established by IIT Madras as a not-for-profit registered society in 2016 under the Ministry of Heavy Industries' Scheme called ‘Enhancement of Competitiveness of Indian Capital Goods Sector.’

Bennett, Coleman & Co., Ltd.

Document ECTIM00020230901ej9100031

IIT Madras teams up with Fifth Generation Technology for AI-powered smart manufacturing solutions

FE Education

321 words
1 September 2023
Financial Express Online
FIEXON
English

IIT Madras' Advanced Manufacturing Technology Development Centre (AMDTC), a Center of Excellence, has joined forces with Fifth Generation Technologies India to create intelligent manufacturing solutions tailored to small and medium-sized manufacturers (SMMs). This partnership will primarily concentrate on pioneering research and development in smart manufacturing technologies geared towards SMMs, according to an official release.

The AMDTC, a Centre of Excellence dedicated to Machine Tools and Production Technology at IIT Madras, will collaborate with Fifth Generation Technologies India (P) Ltd. The Indian branch of the Canadian-based 5G Group of Companies. Their expertise lies in providing smart manufacturing solutions tailored to the needs of small, medium and large-scale manufacturers, the release mentioned.

"Many SMMs have old machines which do not have controllers. By connecting such machines using IoT sensors and collecting real-time operational data we shall also convert them into smart machines. " N. Ramesh Babu, Secretary, AMTDC, IIT Madras, said.

The primary objective of this partnership is to harness the power of AI and Machine Learning to enable real-time optimisation of various machining processes within small and medium-sized manufacturing (SMM) facilities. This endeavour holds the promise of reducing operational expenses and enhancing overall efficiency. The models created through this collaboration will serve as the foundation for the further advancement of 'Digital Twins,' which will be both feasible and cost-effective for SMMs to adopt, as per the release.

Also ReadAICTE partners with EMBIBE for innovative school education

Furthermore, the collaboration intends to engage student interns in the development and implementation of these solutions within SMM workshops. This approach not only fosters the creation of a highly skilled and well-prepared next-generation workforce for the manufacturing sector but also contributes to the practical implementation of the solutions, it added.

IIT Madras teams up with Fifth Generation Technology for AI-powered smart manufacturing solutions. [https://www.financialexpress.com/wp-content/uploads/2023/09/image-2023-09-01T145549.776.jpg?w=1024]

Indian Express Group

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AI in Manufacturing

Emerson’s New Software Taps AI to Propel Automation

373 words
1 September 2023
Asia Electronics Industry
ASELEC
English

Emerson[http://www.emerson.com/] is helping customers more quickly and efficiently transition legacy technology to modern DeltaV

Click to view image[https://s.w.org/images/core/emoji/14.0.0/72x72/2122.png]

automation architecture. Accordingly, this promotes modernization and digitalization of operations.

Emerson’s REVAMP advanced software solution[https://www.emerson.com/en-us/automation/services-consulting/project-services/systems-project-services/feed/modernization-and-migration-services/deltav-revamp] uses cloud computing and artificial intelligence (AI)[https://aei.dempa.net/archives/tag/ai] to automate up to 70% of system configuration. Thus, reducing errors and manual conversion work, and slashes capital costs by up to 15%.

“Modernization projects too often surprise teams late in the process with cumbersome, unanticipated work and errors from manual conversion,” said Claudio Fayad, vice president of technology for Emerson’s process systems and solutions business. “Emerson's REVAMP[https://www.emerson.com/en-us/automation/services-consulting/project-services/systems-project-services/feed/modernization-and-migration-services/deltav-revamp] helps project engineering teams modernize their systems more easily, on time and within budget, while also minimizing errors and disruptions to production.”

REVAMP is a groundbreaking, cloud-based, advanced software solution that manages the transition of legacy applications to optimal control.[https://aei.dempa.net/wp-content/uploads/2023/08/ai-plant-modern-1024x683.jpg]

Simplifies, Speeds Transitions

Organizations seeking to modernize control and safety systems often start with decades-old code, which is necessary to transition to current software. Manually converting and documenting this code is an arduous process. Hence, dramatically increases the time and capital requirements for these projects.

Emerson’s REVAMP advanced software combines an extensive knowledge base from similar modernization projects with Emerson’s experience library to develop continuously updating AI models. Each modernized control system feeds back into the REVAMP software, creating learning algorithms that perpetually get smarter and faster at converting legacy code.

The applied AI in REVAMP informs project teams of the engineering requirements before migration projects even begin, making planning easy. The AI engine analyzes native files from the existing distributed control systems, safety instrumented systems, or programmable logic controller backups. At the same time, using a global library of thousands of successful projects to sort, select, and automate engineering tasks.

For that reason, the DeltaV control system can fully document and generate significant portions of the modernization project. Thus, enabling the latest capabilities, and using modern standards.

Emerson project teams around the world have access to the most recent functionalities and libraries of this secure, cloud-native tool. Furthermore, with embedded machine learning, the libraries grow and improve as projects become more efficient over time.

Dempa Publications, Inc.

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China Explores Strategies For Manufacturing AI Memory Chips Despite US Sanctions: Report

Benzinga Neuro

334 words
30 August 2023
01:11
Benzinga.com
BNZNGA
English

China is looking into ways to independently manufacture high-bandwidth memory (HBM), a new generation of AI-specific memory chips, to achieve semiconductor self-sufficiency amid sanctions from the U.S., South China Morning Post reported.

Industry insiders reveal that it may be a challenging endeavor to compete with global leaders likeSK Hynix,Samsung Electronics (OTC:SSNLF[https://www.benzinga.com/stock/SSNLF#OTC])andMicron Technology (NASDAQ:MU[https://www.benzinga.com/stock/MU#NASDAQ]) but the Chinese government is committed to becoming self-reliant in HBMs, regardless of the time it takes.

ChangXin Memory Technologies (CXMT), China's leadingdynamic random access memory (DRAM)manufacturer, is poised to lead the HBM initiative, thoughit may take up tofour years to market the products.

See Also:Will Chinas Recent Financial Policy Patchwork Mend Alibaba And Tencent? [https://www.benzinga.com/markets/asia/23/08/34072544/will-chinas-recent-financial-policy-patchwork-mend-alibaba-and-tencent?itm_source=parsely-api]

If Chinese chip makers proceed, they will have to resortto using less advanced technologiesto fabricate powerful DRAM chips, which are in high demand globally.

SK Hynix, a global market leader with a 50% share, began mass production of HBM3 in June 2022. The demand for HBM chips is predicted to increase by nearly 60% in 2023,according to a report bytech consultancy TrendForce.

HBM chips are the favoredsolution for overcoming memory transferspeed limitations due to bandwidth constraints.

Hefei-based CXMT, valued at US$14.5 billion and reportedly planning an IPO this year, did not respondto a request for comment.

Read Next: Invest in top US properties and earn rental income, benefiting from property appreciation and the booming real estate market thanks to this Bezos-backed startup that let's you becomea landlord with just $100. [https://www.benzinga.com/real-estate/22/10/29268850/bezos-backed-startup-lets-you-become-a-landlord-with-100-dollars]

Picture by blickpixel on Pixabay, Karolina Grabowska on Pexels and Osman Bugra Nuvasil on Shutterstock

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AI in Manufacturing

NVIDIA-Powered Servers to Supercharge Generative AI

691 words
23 August 2023
Asia Electronics Industry
ASELEC
English

NVIDIA said the world's leading system manufacturers will deliver AI-ready servers that support VMware Private AI Foundation with NVIDIA[https://nvidianews.nvidia.com/news/vmware-and-nvidia-unlock-generative-ai-for-enterprises]. Accordingly, help companies customize and deploy generative AI applications using their proprietary business data.

NVIDIA AI-ready servers will include NVIDIA® L40S GPUs[https://www.nvidia.com/en-us/data-center/l40s/], NVIDIA BlueField®-3 DPUs[https://www.nvidia.com/en-us/networking/products/data-processing-unit/], and NVIDIA AI Enterprise software[https://www.nvidia.com/en-us/data-center/products/ai-enterprise/] to enable enterprises to fine-tune generative AI foundation models. In addition, deploy generative AI applications[https://aei.dempa.net/archives/tag/AI] like intelligent chatbots, search, and summarization tools. These servers also provide NVIDIA-accelerated infrastructure and software to power VMware Private AI Foundation with NVIDIA.

NVIDIA L40S-powered servers from leading global system manufacturers — Dell Technologies, Hewlett Packard Enterprise, and Lenovo — will be available by year-end to accelerate enterprise AI.

"A new computing era has begun," said Jensen Huang, founder and CEO of NVIDIA. "Companies in every industry are racing to adopt generative AI. With our ecosystem of world-leading software and system partners, we are bringing generative AI to the world's enterprises."

The world's leading system manufacturers will deliver NVIDIA AI-ready servers to help companies customize and deploy generative AI applications using their proprietary business data. (Image Credit: NVIDIA) [https://aei.dempa.net/wp-content/uploads/2023/08/AI-Digital-1024x576.png]

NVIDIA AI-ready servers are an ideal platform for businesses that will deploy VMware Private AI Foundation with NVIDIA.

"Generative AI is supercharging digital transformation, and enterprises need a fully integrated solution to more securely build applications that enable them to advance their business," said Raghu Raghuram, CEO of VMware. "Through the combined expertise of VMware, NVIDIA and our server manufacturer partners, businesses will be able to develop and deploy AI with data privacy, security, and control."

Powering Generative AI Transformation in the Enterprise

NVIDIA[https://aei.dempa.net/archives/tag/NVIDIA] AI-ready servers can provide full-stack accelerated infrastructure and software for industries racing to adopt generative AI for a broad range of applications. Particularly, these industries range from drug discovery, retail product descriptions, intelligent virtual assistants, manufacturing simulation[https://aei.dempa.net/archives/tag/digital-twin], and fraud detection.

The servers feature NVIDIA AI Enterprise[https://www.nvidia.com/en-us/data-center/products/ai-enterprise/], the

operating system of the NVIDIA AI platform. Moreover, the software provides production-ready enterprise support and security for over 100 frameworks, pre-trained models, toolkits, and software. This include NVIDIA NeMo[https://www.nvidia.com/en-us/ai-data-science/generative-ai/nemo-framework/]

Click to view image[https://s.w.org/images/core/emoji/14.0.0/72x72/2122.png]

for LLMs, NVIDIA Modulus[https://developer.nvidia.com/modulus] for simulations, NVIDIA RAPIDS[https://www.nvidia.com/en-us/deep-learning-ai/software/rapids/]

for data science, and NVIDIA Triton Inference Server[https://developer.nvidia.com/triton-inference-server]

for production AI.

Built to handle complex AI workloads with billions of parameters, L40S GPUs include fourth-generation Tensor Cores and an FP8 Transformer Engine, delivering over 1.45 petaflops of tensor processing power and up to 1.7x training performance compared with the NVIDIA A100 Tensor Core GPU.

For generative AI applications, the NVIDIA L40S enables up to 1.2x more generative AI inference performance than the NVIDIA A100 GPU. Integrating NVIDIA BlueField DPUs drives further speedups by accelerating, offloading, and isolating the tremendous compute load of virtualization, networking, storage, security, and other cloud-native AI services.

NVIDIA ConnectX®-7 SmartNICs offer advanced hardware offloads and ultra-low latency. Thus, delivering best-in-class, scalable performance for data-intensive generative AI workloads.

Broad Ecosystem to Speed Enterprise Generative AI Deployments

The world’s leading computer makers are building NVIDIA AI-ready servers. These include the Dell PowerEdge R760xa, HPE ProLiant Gen11 servers for VMware Private AI Foundation with NVIDIA, and Lenovo ThinkSystem SR675 V3.

“Generative AI is a catalyst for innovation, helping to solve some of the world’s most pressing challenges,” said Michael Dell, chairman and chief executive officer, Dell Technologies. “Dell Generative AI Solutions with NVIDIA AI-ready servers will play a critical role in advancing human progress by driving unprecedented levels of productivity and revolutionizing the way industries operate.”

“Generative AI will usher in a new scale of productivity for enterprises, from powering chatbots and digital assistants to helping with the design and development of new solutions,” said Antonio Neri, president and CEO of HPE.

“Businesses are eager to adopt generative AI to power intelligent transformation,” said Yang Yuanqing, chairman and CEO of Lenovo. “In collaboration with NVIDIA and VMware, Lenovo is further extending our leadership in generative AI and solidifying our unique position in helping customers in their AI journey.”

Dempa Publications, Inc.

Document ASELEC0020230823ej8n00001

BRIEF-Shapeways Advances Digital Manufacturing Through Generative Ai

31 words
23 August 2023
08:09
Reuters News
LBA
English

Aug 23 (Reuters) -

* SHAPEWAYS ADVANCES DIGITAL MANUFACTURING THROUGH GENERATIVE AI Source text for Eikon: Further company coverage:

Released: 2023-8-23T13:09:11.000Z

Reuters News & Media Inc.

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AI in Manufacturing

Panasonic’s New Technology Streamlines Motion Teaching for Robots

1064 words
22 August 2023
Asia Electronics Industry
ASELEC
English

Panasonic Holdings Corporation[https://holdings.panasonic/global/] has developed a new technology that can teach robot motions that include contact with the surrounding environment (doors, tables, and more). Also, it developed control parameters that achieve both performance that correctly completes the taught motion and safety during contact.

As the use of industrial robots[https://aei.dempa.net/archives/1262]advances, technology for efficiently programming robot movements is becoming more and more important. Particularly, in environments involving contact with people and objects, movements that reduce the risk of contact while performing tasks accurately are required. However, robot control that achieves both are known to be extremely difficult. Therefore, we have developed a method to efficiently program a robot assuming it behaves flexibly like a spring. Also, we developed a novel method to learn stiffness parameters of impedance control to satisfy both task performance and safety requirements. To this end, we segmented the motions taught to robots demonstrated by humans and multi-objective Bayesian optimization.

This advanced technology has received international recognition. Moreover, the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2023, a top conference for AI and robotics technology (having an acceptance rate of 43%), has accepted the technology. It will be presented at the plenary session to be held in Detroit, Michigan in the USA from October 1 to October 5, 2023.

Overview

Direct teaching, in which humans directly teach robots movements, is widely used as a method of programming robot movements because of its simplicity. However, when a robot reproduces a taught action in an environment where there is contact with objects or where people or other robots cooperate or divide labor, it becomes necessary to deal with the risk of unforeseen contact in order to avoid damage to people, objects, or the robot itself, making it difficult to utilize robots for certain tasks.

In the field of control technology for flexibly moving robots, there is impedance control*1. It mimics a virtual spring system and gives the robot flexibility like a spring. If an appropriate spring system parameter (impedance gain) is set, it is possible to reduce the risk of contact while having the instructed operation performed accurately.*2. However, with impedance control, there is generally a trade-off between safety and motion accuracy. Also, it is difficult to set an impedance gain that optimizes both at the same time.

To achieve the desired task, it is necessary to accurately perform multiple consecutive actions. For example, in the case of opening a door, the robot must 1) approach the knob, 2) turn the knob, and 3) open the door. However, optimum impedance gain differs for each operation.

Therefore, as shown in Figure 1, we developed a method that first segments a series of motions being taught to facilitate parameter optimization. Then, it finds the optimal impedance gain for each segment using multi-objective Bayesian optimization.

Figure 1: Flow of learning impedance control parameters with the newly developed method. Photographs and segmentations illustrate the table wiping task done by an actual robot. Quoted from Fig. 1 of the accepted paper. [https://aei.dempa.net/wp-content/uploads/2023/08/Panasonic-figure-1.jpg]

First, the newly developed task segmentation method IC-SLD (Impedance Control-aware Switching Linear Dynamics) assumes that a series of demonstrated motions are generated by multiple combinations of spring system motion equations assumed by impedance control. The series defines this as the problem of inferring the unknown impedance gain and the switching time of the equation. IC-SLD solves this problem by minimizing the error between the predicted trajectory and the actual taught trajectory. Compared with conventional methods (e.g. GMM*3 or SLD*4), IC-SLD realized segmentation suitable for optimization (Fig. 2).

Figure 2: Segmentation results for the door opening task performed using IC-SLD and the conventional method. Quoted from Fig. 4 of the accepted paper.[https://aei.dempa.net/wp-content/uploads/2023/08/Panasonic-figure-2.jpg]

Subsequently, the impedance gain is explored through Bayesian optimization*5 using prior knowledge. Since IC-SLD also outputs an estimated value of the impedance gain, using this as a solution candidate makes optimization more efficient. Bayesian optimization π-BO [Hvarfner+,ICLR2022], which is able to make use of prior knowledge is applied. Thus, optimal impedance gains that simultaneously optimize task performance (the cumulative sum of reward functions) and safety indices (the cumulative sum of stiffness parameters) are searched while repeating robot motion trials.

Experiments on simulated tasks and a real robot demonstrated that our method allows for learning the impedance gain in a shorter time than the conventional method (Figure 3).

Figure 3: Learning results of impedance gain in simulation and actual equipment using the newly developed method. The horizontal axis is the number of trials, and the vertical axis is an index that combines task performance and safety. Quoted and processed from Fig. 3 and Fig. 8 of the accepted paper. [https://aei.dempa.net/wp-content/uploads/2023/08/Panasonic-figure-3.jpg]

Notes:

*1: Impedance control is a control method that adjusts the apparent mechanical impedance (inertia, damper, stiffness) against external forces by assuming that the robot follows a virtual spring system.

*2: As an example, in the door opening task shown in Figure 2, there is a risk of damage being done to the door as the robot positions its arm, such as the handle may be rotated excessively due to positional deviation due to control errors, or the handle may be pulled in a different direction due to the robot being misaligned with respect to the door. On the other hand, with impedance control, the flexibility of the spring can reduce the above risks.

*3: Segmentation based on clustering by GMM (Gaussian Mixture Model).

*4: SLD (Switching Linear Dynamics) Segmentation assuming that the motion being taught is generated by a combination of simple linear equations.

*5: Bayesian optimization: A method of learning the shape of an unknown function from data and trying to estimate the optimal solution for that function with as little data as possible.

Related Information:

“Learning Compliant Stiffness by Impedance Control-Aware Task Segmentation and Multi-Objective Bayesian

Optimization with Priors", to appear in IROS 2023
https://arxiv.org/abs/2307.15345[https://arxiv.org/abs/2307.15345]

This research is a result of a collaboration between Masashi Okada, Ryo Okumura of Panasonic HD Technology Division, Mayumi Komatsu of Panasonic HD Manufacturing Innovation Division, and Professor Tadahiro Taniguchi of Ritsumeikan University/Panasonic HD Technology Division.

– IROS 2023 official website https://ieee-iros.org/[https://ieee-iros.org/]

– Panasonic×AI website https://tech-ai.panasonic.com/en/[https://tech-ai.panasonic.com/en/]

– Robotics Hub website https://tech.panasonic.com/global/robot/[https://tech.panasonic.com/global/robot/]

Dempa Publications, Inc.

Document ASELEC0020230822ej8m00003

AI in Manufacturing

Siemens Unique Portfolio Boosts Production Efficiency

290 words
22 August 2023
Asia Electronics Industry
ASELEC
English

Siemens[http://www.siemens.com/] will be presenting at this year's EMO[https://www.siemens.com/emo] how companies in the machine tool industry can meet energy efficiency and sustainability requirements. Notwithstanding, meeting the demand for high-quality, affordable, and individualized products.

Siemens will take part in the event with the motto “Accelerate transformation for a sustainable tomorrow”.

Based on automation, the key to meeting these challenges lies in digitalizatio[https://aei.dempa.net/archives/tag/digital-transformation]n and the associated data transparency. Perhaps, only a digital enterprise can combine the real and digital worlds. On top of this, make the right decisions using smart software tools to produce flexibly, quickly, and sustainably.

With Machinum, machine tools and manufacturing areas can be analyzed and optimized, both virtually and in real life.[https://aei.dempa.net/wp-content/uploads/2023/08/Siemens-Machinum.png]

CNC digitalization portfolio for the machine tool industry

For this purpose, Siemens[https://aei.dempa.net/archives/tag/siemens] is presenting Machinum at EMO. Machinum comprises the entire CNC[https://aei.dempa.net/archives/tag/cnc] digitalization portfolio for increasing productivity and sustainability in parts manufacturing. In addition, because of Machinum, machine tools, and manufacturing areas can be analyzed and optimized, both virtually and in real life.

Furthermore, Machinum combines modern IT (information technology) with modern OT (operations technology). Thus, based on Siemens' industrial expertise, Machinum creates productivity gains in many industrial use cases.

Most importantly, Machinum is an integral part of Siemens Xcelerator, the open digital business platform that includes a portfolio of software and IoT-enabled hardware, an ecosystem of partners, and a marketplace. With Machinum, companies in the machine tool industry can make digital transformation easier, faster, and scalable in both manufacturing and design. Combined with Sinumerik One, the Digital Native CNC control, which is also part of the Siemens Xcelerator portfolio, a transformation towards the Digital Enterprise succeeds – for future-proof and sustainable manufacturing with machine tools.

Dempa Publications, Inc.

Document ASELEC0020230822ej8m00007

AI in Manufacturing

New Study Taps AI Methods to Improve Robot Picking

603 words
15 August 2023
Asia Electronics Industry
ASELEC
English

The FLAIROP (Federated Learning for Robot Picking) research project was concluded at Festo[https://www.festo.com/us/en/]in Esslingen-Berkheim. Specifically, the German Federal Ministry for Economic Affairs and Climate Action serves as the sponsor for the said project. At the event, all project participants – as well as interested public – were onsite or online presenting their results live from Canada.

Over the past two years, Festo has been conducting joint research with the "Karlsruher Institut für Technologie" (KIT) and partners from Canada (University of Waterloo, Darwin AI). Specifically, the research aims to make picking robots more intelligent using distributed AI methods[https://aei.dempa.net/archives/15330]. To do this, the partners investigated how robots can learn from each other without sharing their training data. This approach is called Federated Learning. Specifically, it allows the development of more robust and efficient AI than would be possible with data from just one robot without handing out sensitive company data.

Research team presents the FLAIROP research project.[https://aei.dempa.net/wp-content/uploads/2023/08/Festo-1024x739.jpg]

"We are proud of our success in showing that robots can learn from each other without sharing sensitive data and company secrets. This protects our customers' data. Also, we gain speed because the robots can take over many tasks faster this way. For example, the collaborative robots can help production workers with repetitive, heavy, and tiring tasks," says Jan Seyler, Head of Advanced Development Analytics and Control.

"We have developed a universal, simulation-based data set that we can use to train autonomous gripping robots in such a way that they are able to reliably grasp items that they have not seen before," explains Maximilian Gilles from KIT. The group plans further development of the Federated Learning System in the future. Accordingly, the platform enables different companies to train robot systems together without having to share data among themselves. This increases the acceptance of such systems in practice.

Federated Learning Revolutionizes Picking Through Robotics

Federated Learning is a machine learning technique to create privacy-preserving AI applications. Instead of sending the training data of the robotic arms in the picking cells to a central server to train the model there, the training takes place at many different locations. Subsequently, the locally trained models are sent to the central machine learning server. This way, the sensitive training data does not leave the data provider. Nevertheless, Federated Learning enables learning across data silos by aggregating distributed models. Ultimately, it enables highly accurate and data-driven prediction of object recognition and grasps point detection.

The robot arms in the picking cells have cameras to visually detect the items in front of them. Based on the camera image, the robot arms automatically recognize the different items and select a suitable gripping method. Due to the variety of items in a warehouse, this is a complicated task. Thus, it needs large amounts of data to achieve reasonable results. Creating such large amounts of data is time consuming. With data collected from picking cells in different organizations, it was possible to improve the grasping point detection of the cells.

During the project, a total of five autonomous picking stations were set up for training the robots. Two robots are at the KIT Institute for Materials Handling and Logistics Systems (IFL) and three at Festo SE & Co. KG based in Esslingen am Neckar.

Project Completion: Now It's Time for Practice

At the final event, Festo focused on the usability of the results. Jan Seyler, “We are showing which Festo products it can be incorporated into.” The group reading the publishing of research results for use by all interested parties in initial pilot projects.”

Dempa Publications, Inc.

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NEWS

Industrial products and manufacturing sector see maximum AI adoption rates: PwC report

387 words
9 August 2023
BusinessLine (The Hindu)
BSNLNE
English

NEWS

The report titled, “Towards a smarter tomorrow: Impact of AI in the post-Covid era” notes thatthe industrial products and manufacturing sector has seen a maximum increase of 20 per cent in the adoption/implementation of AI/ML solutions in the past two years

Following the Covid-19 pandemic, Indian enterprises have begun to adopt advanced analytics and data-driven decision making. The industrial products and manufacturing sector has seen the maximum adoption of Artificial Intelligence and Machine Learning(AI/ML) over the last two years, according to a report by PwC.

The report titled “Towards a smarter tomorrow: Impact of AI in the post-Covid era” notes that industrial products and manufacturing sector has seen a maximum increase of 20 per cent in the adoption/implementation of AI/ML solutions in the past two years — from mid-2020 to 2022-23 .In the 12–18-month period following the pandemic, these segments reaped maximum benefits from AI in three business functions — manufacturing and operations, supply chain and logistics, and IT and cybersecurity.

Early days

Almost 64 per cent of the organisations surveyed in the industrial products and manufacturing sector say they are currently at an early stage of their AI-based transformation journey reflecting the opportunities for further investments and growth led by AI/ML solutions, the report said.

Sudipta Ghosh, Partner and Leader — Data & Analytics, PwC India, said, “As organisations mature in their journey towards using AI for driving business outcomes, a three-pronged approach around identification of appropriate use cases, rigor of measuring and communicating the RoI along with driving adoption and scale at the enterprise level using the framework of responsible and explainable AI will be critical.”

While there has been a significant increase in AI adoption with scalable impact in terms of returns, trends indicate that the travel and hospitality industry has reached a degree of saturation. Though sectors such as technology, media, telecom, as well as healthcare, and pharmaceuticals have seen steady progress, they are facing certain challenges around measuring the return on investments.

The retail and consumer market has seen a decline in AI adoption due to a gap in the identification of potential use cases amidst changing market forces and consumer behaviour, the report noted.

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CHINA'S PONY.AI: DEEPENS STRATEGIC COOPERATION WITH TOYOTA, SETS UP JOINT VENTURE ON MANUFACTURING AND SCALED OPERATION OF ROBOTAXIS

47 words
4 August 2023
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Reuters News
LBA
English

CHINA'S PONY.AI: DEEPENS STRATEGIC COOPERATION WITH TOYOTA, SETS UP JOINT VENTURE ON MANUFACTURING AND SCALED OPERATION OF ROBOTAXIS

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Business

AI-driven quality control: Enhancing product quality and compliance in manufacturing

774 words
29 July 2023
Financial Express Online
FIEXON
English

By Subramanian M S

With the advent of Industry 4.0, the rapidly evolving manufacturing and automotive industry is experiencing a new era of quality control through AI-driven systems, ensuring high product quality and compliance with strict regulations is essential for success. Artificial intelligence is playing an essential role in empowering manufacturers and automotive industries to harness AI-driven systems, which in turn optimize workflows and elevate the overall quality of their products. According to McKinsey, businesses globally invested over $26 billion in AI in 2016, and the trend has been prevalent in the automotive sector. The report further highlights that by 2035, AI technologies may increase productivity by 40% while boosting the economy by $14 trillion across 16 sectors, including automotive manufacturing. For instance, these cutting-edge solutions are revolutionizing how automobile manufacturers monitor and ensure compliance, leading to cost optimization, improved productivity, and increased customer satisfaction. AI integration in the automotive industry could greatly enhance manufacturing procedures and overall product quality.

Here's a look at the role of AI-driven quality control in manufacturing, highlighting its benefits:

Strengthening Quality Control Efforts with AI

AI-driven quality control solutions are enabling modern-day firms to break away from archaic practices in the realm of data-driven manufacturing. These AI-led systems can analyze a huge amount of data, identify patterns, and anomalies, and produce accurate predictions. This eradicates the requirement for labour-intensive and error-prone manual inspections. With real-time data analysis from sensors and IoT devices, operational processes can be continuously monitored, enabling manufacturers to address variations from normal operating conditions and ensure consistent product quality. Also, AI makes predictive analytics possible by leveraging historical data to predict maintenance needs and optimize equipment performance.

Real-Time Monitoring and Predictive Analytics to Gain Valuable Insights

Predictive analytics plays a crucial role in real-time monitoring and quality control throughout the supply chain in the manufacturing industry. By harnessing AI-driven systems, manufacturers can constantly collect and analyze data from various sensors and IoT devices, capturing information on various factors but not limiting to temperature, pressure, and vibration. These data points are then processed using predictive analytics algorithms, enabling the detection of deviations from expected operational conditions. This proactive approach empowers manufacturers to mitigate the risk of product malfunctions, ensuring consistent quality, by implementing timely corrective actions based on the insights provided by supply chain predictive analytics.

Meeting Compliance

Manufacturers in the automotive industry place a high priority on complying with regulations and quality

requirements. AI-powered quality control systems have become crucial for ensuring adherence to these important requirements. These cutting-edge systems can effectively analyze large volumes of data like product specifications, manufacturing variables, and inspection results by utilizing advanced AI algorithms. Any violations of the established norms can be quickly found through this comprehensive analysis. As a result, manufacturers are better able to address problems quickly, reduce the risk of non-compliance, and uphold the highest levels of product quality.

Understanding Customer Preferences and Enhancing Experience

In today's competitive market, customer satisfaction is of utmost importance. Here, AI-led quality control solutions play an important role in ensuring that manufacturers produce high-quality products that meet or exceed customer expectations. By continuously monitoring and enhancing product quality, manufacturers can mitigate the risk of product recalls, warranty claims, and customer complaints. AI technology provides valuable insights by analyzing sentiment in online reviews and social media data, allowing manufacturers to gain a deeper understanding of customer preferences and feedback. This understanding enables manufacturers to tailor their products to better align with customer needs, fostering stronger customer loyalty and enhancing brand reputation in the process.

Conclusion

The integration of AI-driven quality control technology has resulted in significant advancements in operational performance, cost savings, compliance, and consumer satisfaction within the manufacturing and automotive industries during the era of Industry 4.0. Through the implementation of real-time monitoring, and predictive analytics, manufacturers can proactively identify and address quality issues, anticipate maintenance requirements, and ensure consistent product quality. This data-driven approach, complemented by the application of supply chain predictive analytics, enhances efficiency, reduces costs, and enables businesses to comply with industry standards and regulations. Moreover, AI-powered quality control systems and supply chain predictive analytics provide manufacturers with valuable insights into customer preferences, facilitating product customization and ultimately increasing customer satisfaction. These outcomes contribute to bolstering brand reputation and fostering customer loyalty.

The author is senior director – automotive, Expleo

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Predictive analytics can play a role in real-time monitoring and quality control[https://www.financialexpress.com/wp-content/uploads/2023/07/Image-credit-Freepik-2023-07-28T225423.163.jpg?w=1024]

Indian Express Group

Document FIEXON0020230730ej7t00015

Andhra Pradesh

G20 Summit Spotlight: India's tech talent, AI revolution in manufacturing

Hans News Service

378 words
29 July 2023
The Hans India
HANIND
English

Visakhapatnam: AI's versatility knows no bounds and has an immense potential for growth, CEO of Pulsus Group and co-convenor of the G20 Global Tech Summit series Dr.Srinubabu Gedela[https://www.thehansindia.com/tags/Dr-Srinubabu-Gedela] said.

Covering diverse topics such as revolutionising agriculture, streamlining public services and automating legal research in the recent G20 Summit[https://www.thehansindia.com/tags/G20-Summit] on the Sustainable Growth Agenda for the Global Economy held in New Delhi, he emphasised on the significance of investing in appropriate training to harness the potential, projecting the addition of 7 million AI engineers and data science professionals to tap into the $15 trillion global opportunity.

Organised by IDRC CRDI, NITI Aayog, and GDN, the summit saw prominent experts discussing the future of artificial intelligence (AI) and its impact on the global economy.

However, the technological advancement towards this direction also means AI and machine-learning robots could replace around 50 million jobs globally by 2030, indicating a pressing demand for AI engineers, data scientists, and ethicists, Dr.Srinubabu Gedela informed.

With AI as the driving force, India can ascend as the global epicentre of manufacturing, ushering in a new era of digital intelligence that surpasses past reliance on muscle power, the CEO emphasised.

Experts predict that India may claim the title of the world's third-largest economy by 2026, a testament to the power of AI-led growth.

In alignment with the government's initiatives, India's manufacturing capacity is rapidly expanding. The ease of manufacturing processes, coupled with incentives for foreign and domestic investments, has attracted major players like Apple, Daikin, and Mitsubishi Electric, alongside domestic giants Amber, Dixon, and Havells, the experts highlighted.

With AI continuing to drive improvements in manufacturing, India is poised to become an enticing choice for companies seeking to diversify their supply chains, they elaborated.

BVR Subrahmanyam, NITI Aayog's CEO, shared visionary tech, policy and job initiatives. Manjeev Singh Puri, former Indian ambassador to the European Union, focused on reshaping global finance for sustainable growth. Harvard University's Robert Stavins delved into energy, climate, and growth guidelines, while Paul Samson, President of the Centre for International Governance Innovation, explored the implications of fragmented trading systems on growth.

Click to view image[https://assets.thehansindia.com/h-upload/2023/07/29/500x300_1368506-g20-summit.jpg]

Document HANIND0020230729ej7t0003u

Education

SRTC hosts workshops on AI manufacturing in partnership with Georgia AIM

payton.fletcher@gaflnews.com

717 words
21 July 2023
Thomasville Times-Enterprise
THMSVLTE
English

THOMASVILLE- Last week, the Thomasville campus of Southern Regional Technical College held Innovation and Entrepreneurship for Educators workshops alongside the Georgia AIM grant team for K-12 educators from the surrounding area.

Danyelle Larkin, educational outreach manager at Georgia Tech, said that the workshop was just the first step in preparing Georgia for the AI manufacturing jobs coming to Georgia or the ones that are already here.

"Georgia Tech has received a grant called Georgia Artificial Intelligence Manufacturing Technology Corridor and through this grant, we were awarded $65 million that has been spread across Georgia to answer the AI and manufacturing needs of Georgia and to also fill in the workforce that is needed to handle the AI manufacturing jobs that are in Georgia or coming to Georgia," she said.

By working with educators, Larkin said, they hope to build a K-12 education pathway that will provide insights into the needs of the local community and the steps they can take today and in the future in their community and careers.

"The last few days, this week we've spent with educators in Thomasville, Ga, and Mitchell County and surrounding counties, to develop a K-12 education pathway to help students identify jobs that are in their local community that surround artificial intelligence and manufacturing," Larkin said. "It is our hope and goal that through this workshop that students and educators begin to identify things that they can do today and in the future to assist their community and their future careers."

While the workshops were dedicated to connecting local educators and discussing their concerns and fears about artificial intelligence, the group alos spent some time debunking common myths that are often reported.

"I know we hear a lot about that in the news, so we're trying to provide input as to how we can assist them as educators in building these skills of entrepreneurship and artificial intelligence and innovation for their students," said Willie Allen, Director of Innovation at Southern Regional Technical College.

The workshop, he said, gave educators insight into the relevance of artificial intelligence ingrained in people's lives, with participants gaining access to resources, from a local to national level, for their lessons.

Bhavika Singletary, 4th grade teacher at Cross Creek Elementary that teaches math, science and social studies, said that the workshops had focused a lot on getting their children ready for what the future workforce will require.

"We've had a lot of time to explore entrepreneurship and innovation, businesses and how to bring all that to the classroom," she said. "It really helps us get our kids ready to experience, work in the workforce, what do they need in this community to keep it going."

William Sherrard, K-5 STEM Teacher at Harper Elementary, said that they've also been discussing the ways to

connect schools to the community as well.

"Well, they've been asking us how to connect schools with the community and try to integrate the AI into the curriculum along with the innovation and entrepreneurship, which has been pretty interesting seeing what they're trying to get started," he said. "Build a better workforce for the future."

In regard to their fears or concerns about artificial intelligence, they both agreed that change due to technology was a constant thing.

"I think it will change things for us, technology always changes things for us," Singletary said. "I am not 100% how it looks in the classroom just yet, but I see a lot of potential for it."

Sherrard said that the biggest concern discussed seems to be the ethical use of the burgeoning technology and the impact it could have on creativity.

"Our biggest concern seems to be the ethical use of it," he said. "Just kind of squashing the creativity of the kids and them just relying on the AI to get things done instead of really thinking about what can they do to come up with."

Both said that of the possible uses of the technology within the classroom, examples included aiding with learning how to research complex topics and aiding proper citation, but concerns about the ramifications of students possibly abusing said technology still remain.

Document THMSVLTE20230722ej7l00001

Moore: Use of AI will determine success in manufacturing

139 words
20 July 2023
CIA - Daily News
CZPRDI
English

(CIANEWS) - In the manufacturing and distribution sector, companies that focus on disruptive technologies such as cloud technologies, digitisation, robotics, the Internet of Things, the use of augmented and virtual reality and, above all, artificial intelligence (AI) will succeed. Further, consulting group Moore Global predicts that investment in AI will grow to USD 100bn by 2024. Approximately 20% of spending in AI is on process automation. Czech companies are hampered by the lack of skilled workers in effective digitalization. Moore Technology CZ partner Miroslav Rut said that employee training and systematic preparation in schools will provide the solution. Experts from Moore Czech Republic add that Czech companies in manufacturing and distribution will continue to face shortages in supply chains, which have been exacerbated by the conflict in Ukraine.

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Document CZPRDI0020230720ej7k000m9

UNIDO and Huawei launch the Global alliance on artificial intelligence for industry and manufacturing at World AI Conference in Shanghai

541 words
20 July 2023
Al-Bawaba News
ALBAWA
English

At the sixth World Artificial Intelligence Conference (WAIC) recently concluded in Shanghai, UNIDO, Huawei, and other partners officially launched the “Global Alliance on Artificial Intelligence for Industry and Manufacturing” (AIM Global). Led by UNIDO, AIM Global will integrate public and private partners to foster the use of and innovation around AI in industry and manufacturing.

Addressing the WAIC audience during the opening ceremony, Mr. Gerd Müller UNIDO Director General, said: “It is our shared responsibility to ensure that advancements in the field of AI are made in a manner that is safe, ethical, sustainable and inclusive. AIM Global recognizes the importance of bridging the digital divide between nations and industries, and ensuring that no one is left behind in the AI revolution. AIM Global will be at the forefront of shaping the AI landscape. Let us work collaboratively to build a future where AI is a force for good, where its benefits are accessible to all, and where innovation thrives in harmony with our shared values.”

Mr. Gerd Müller UNIDO Director General highlights the importance of working collaboratively to build a future where AI is a force for good

“We are proud to be a strategic partner of AIM Global. Working closely with UNIDO and other Alliance partners, Huawei will use AI to bring new momentum to industry development,” said Vicky Zhang, Vice President Corporate Communications at Huawei. She added: “Huawei is building a strong foundation in computing capabilities and is launching multiple large models designed for specific industries. Our goal is to develop AI solutions that more effectively serve all industries – and that better support scientific research.”

The Alliance will benefit from the local networks and insights of UNIDO’s investment and technology promotion offices that offer support to SMEs globally. The resulting deep understanding of actual SME challenges across sectors will inform the strategy of AIM Global in order to maximize its impact. UNIDO is committed to supporting pioneering efforts to enhance industrial competitiveness and sustainable development through AI.

Mr. Ciyong Zou, Deputy to the Director General and Managing Director of UNIDO, Vicky Zhang, Vice President of Corporate Communications at Huawei, and other partners during the official launch of AIM Global

AIM Global will serve as a platform for collaboration, knowledge sharing, and the development of best practices. It will focus on four key areas. First, AIM Global will facilitate research and development of AI technologies specific to industry and manufacturing. Second, the Alliance and its partners will engage to develop and promote ethical guidelines for the use of AI in industry and manufacturing. Those will include environmental as well as societal criteria. Third, with the help of the Alliance UNIDO seeks to convey policy recommendations to governments and international organizations on the use of AI in industry and manufacturing. This shall drive the development of national AI strategies. Finally, AIM Global will promote the adoption of best practices for the use of AI in industry and manufacturing.

Huawei will actively support AIM Global with case studies on industrial AI implementation, insights from its

intensive research and development as well as making its global network of experts available.

During the event[https://www.albawaba.net/sites/default/files/2023-07/UNIDO%20and%20Huawei%20launch%20the%20Global%20alliance%20on%20artificial%20intelligence%20for%20industry%20and%20manufacturing%20nghai.jpg]

Al Bawaba.com, Inc.

Document ALBAWA0020230720ej7k000ru

Mumbai

AI & manufacturing can drive Maharashtra to $ 1 trillion giant with 15 million plus jobs: EAC Report

Chittaranjan Tembhekar

678 words
16 July 2023
The Times of India
TOI
English

MUMBAI: Within six months of setting up an economic advisory council (EAC) led by Tata Sons chairman N Chandrasekaran and 20 other industry giants, government, social and economic experts, to suggest measures to make Maharashtra a $1 trillion economy by 2028, it recommends a strong focus on making state an AI capital besides creating large manufacturing hubs to add over 15 million jobs. It further suggests agriculture, tourism and energy as prominent growth engines to accelerate the economy. It said the $1trillion economy is an achievable target given an average 9% growth rate exhibited by the state in the past over five years.

The report however also shows the regional imbalance and hence wants all areas of Maharashtra to be brought into the main economic cycle.Along with GDP-multiplier tourism, the focus of agriculture will have to be on sustainability, moisture security and farmers' income and we will implement these recommendations, said DCM Devendra Fadnavis while accepting the report recently. Hitting a $1 Trillion mark should become a movement across the State and we will think about setting up a GDP value clock outside Mantralaya to track and get citizens involved in the process, he added. The report includes initiatives to strengthen skill development to support job growth. I am confident that Maharashtra is well-positioned to achieve its $1Tn economic aspiration, said Chandrasekaran. The Government of Maharashtra is in the process of reviewing the report and will constitute an Empowered Team for its execution. The Government may include a few members of the existing EAC as guides, he suggested.The EAC members were assigned to 8 sectoral groups viz. Manufacturing, Services, Energy/Renewables and Sustainability, Infra Real Estate and Logistics, Ease of Doing Business, MSME Enablement, Skill Development, Agriculture and allied services. The Team travelled to more than 20 districts, met with 500 plus stakeholders across sectors, interacted with district level government officials, did extensive consultation workshops to get on ground sense and even interviewed 75+ renowned experts in various fields to draw out a very detailed plan. Chandrasekaran made the presentation to CM Eknath Shinde and DCM Fadnavis recently.Chief minister Eknath Shinde said, "The consultation from EAC has been sought to realize the Prime Minister's dream of a 5 Trillion US $ economy. I am very glad that the council has come out with enablers in each segment including Agriculture. These enablers will be an operational blueprint to be followed while making new policies. We will setup an empowered execution team with sector wise responsibilities and both DCMs and I will ensure it is properly monitored"Deputy CM Devendra Fadnavis said, "Considering CAGR for the last 7 years, we feel a great sense of confidence that we will be able to accelerate to hit the $1 Trillion mark. Report throws light on the regional imbalance and hence it is crucial to bring all areas of Maharashtra into the main economic cycle. Manufacturing especially in emerging sectors will be a major focus area. Tourism is a huge GDP multiplier and you will see transformational work happening here. Hitting a $1 Trillion mark should become a movement across the state and we will think about setting up a GDP value clock outside Mantralaya to track and get citizens involved in the process."Thanking CM, DCMs, government officials, experts and stakeholders for giving valuable inputs to create an economic roadmap for Maharashtra, Chandrasekaran, Chair of Maharashtra Economic Advisory Council, said, "We have focussed on inclusive and sustainable growth across sectors and districts. Given our talent pool, we should aim to be the AI capital of India. The growth plan would help create 15mn+ jobs and double the per

capita income for all sections of society, including farmers. The report includes initiatives to strengthen skill development to support job growth. We will also accelerate the green energy transition. I am confident that Maharashtra is well-positioned to achieve its $1Tn economic aspiration,”

Bennett, Coleman & Co., Ltd.

Document TOI0000020230715ej7f000dt

AI in Manufacturing

UNIDO Lead in Promoting AI for Industry, Manufacturing

519 words
12 July 2023
Asia Electronics Industry
ASELEC
English

At the sixth World Artificial Intelligence Conference (WAIC), the United Nations Industrial Development Organization (UNIDO)[https://www.unido.org/], Huawei[https://www.huawei.com/], and other partners officially launched the “Global Alliance on Artificial Intelligence for Industry and Manufacturing” (AIM Global). Accordingly, AIM Global will integrate public and private partners to foster the use of and innovation around AI in industry and manufacturing.

Addressing the WAIC audience during the opening ceremony, Mr. Gerd Müller UNIDO Director General, said: “It is our shared responsibility to ensure that advancements in the field of AI are made in a manner that is safe, ethical, sustainable, and inclusive. AIM Global recognizes the importance of bridging the digital divide between nations and industries, and ensuring that no one is left behind in the AI revolution[https://aei.dempa.net/archives/tag/ai]. AIM Global will be at the forefront of shaping the AI landscape[https://aei.dempa.net/archives/tag/ai]. Let us work collaboratively to build a future where AI is a force for good, where its benefits are accessible to all, and where innovation thrives in harmony with our shared values.”

Mr. Ciyong Zou, Deputy to the Director General and Managing Director of UNIDO, Vicky Zhang, Vice President of Corporate Communications at Huawei, and other partners during the official launch of AIM Global (Photo: Huawei) [https://aei.dempa.net/wp-content/uploads/2023/07/Ciyong-Zou-Vicky-Zhang-1024x671.jpg]

On the other hand, Vicky Zhang, Vice President Corporate Communications at Huawei, said, “We are proud to be a strategic partner of AIM Global. Working closely with UNIDO and other Alliance partners, Huawei will use AI to bring new momentum to industry development.”

In addition, Zhang said, “Huawei is building a strong foundation in computing capabilities and is launching multiple large models designed for specific industries. Our goal is to develop AI solutions that more effectively serve all industries – and that better support scientific research.”

Foster Industrial Competitiveness

The Alliance will benefit from the local networks and insights of UNIDO’s investment and technology promotion offices that offer support to SMEs globally. The resulting deep understanding of actual SME challenges across sectors will inform the strategy of AIM Global in order to maximize its impact. UNIDO remains committed in supporting pioneering efforts to enhance industrial competitiveness[https://aei.dempa.net/archives/tag/industry-4-0] and sustainable development through AI.

AIM Global will serve as a platform for collaboration, knowledge sharing, and the development of best practices.

It will focus on four key areas. First, AIM Global will facilitate research and development of AI technologies specific to industry and manufacturing. Second, the Alliance and its partners will engage to develop and promote ethical guidelines for the use of AI in industry and manufacturing. Those will include environmental as well as societal criteria.

Third, with the help of the Alliance UNIDO seeks to convey policy recommendations to governments and international organizations on the use of AI in industry and manufacturing. This shall drive the development of national AI strategies. Finally, AIM Global will promote the adoption of best practices for the use of AI in industry and manufacturing.

Meanwhile, Huawei will actively support AIM Global with case studies on industrial AI implementation, insights from its intensive research and development[https://aei.dempa.net/archives/tag/R&D] as well as making its global network of experts available.

Dempa Publications, Inc.

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Epazz Holdings' ZenaDrone Predictive Artificial Intelligence Secured Funding for the Initial Manufacturing and Deployment of 20

Globenewswire
794 words
12 July 2023
05:00
The Canadian Press
CPR
English

CHICAGO, IL, July 12, 2023 (GLOBE NEWSWIRE) -- via NewMediaWire[https://www.globenewswire.com/Tracker?data=C31m-a-7Wj2Etun3gpUN_wD1EY7fdNVQ-DJnzlJ28axFU7EO1II5OGGQ2xsPQKExsyKlrIGhQc36PogrHDNU_swSQmloE_HXnDmsXDwoDPg=] – Epazz Inc. [https://www.globenewswire.com/Tracker?data=IxC0yLxUy27V8cmnXQ-Ue8ccQyOw7vwg-sLcp1iFVGS8Fetd_U8HWl7GTrNLwo0pw6pSq-HaFHaJ4Qdx5GrYUt5YPNFqhpM5j4cen50MgCGB6lfLdmXCU_HD_lx4MzGm] (OTC Pink: EPAZ), a mission-critical provider of drone technologies, blockchain mobile apps and cloud-based business software solutions, announced today that ZenaDrone has secured asset-based funding for the initial manufacturing and deployment of 20 ZenaDrone 1000s for services in Ireland to establish Drone as a Service[https://www.globenewswire.com/Tracker?data=7GEje7yyAf8yn3_mXYqWwn9W6SI4uxKJIYdenkuhAHQasb0BeDZCrfXYrdGsTdTKleS5WsCfIeIhaZbmPYtBTCr2IbUFgvm_waFxdZYY5sc=]

(DaaS[https://www.globenewswire.com/Tracker?data=ghwhejaGEo_DuK-M86nsmlKY3oYeAXpZJbzfWOx64nhnuHkhqDLTAvy3czzTOMv8FLxPhAgtg_VfRwqdLnzCIg==]) operations. The company estimates that each deployed drone can generate over $100,000 per year.

ZenaDrone will manage and service the 20 drones for any early adopters, which is expected to include Irish farmers, businesses, and government agencies. Irish farmers have a special use case, and their farms will have access to an advanced-precision agriculture drone for monitoring plant health and spraying weeds. Furthermore, the police force and fire departments will be able to quickly mobilize the drones as an integrated part of the first-responder system in times of emergencies.

According to Fortune Business Insights,[https://www.globenewswire.com/Tracker?data=EMEnDCKLbJ0ZdaBuoQsNaRAVXxMUB7ORm7BHYm--KMCGBDlE90u5k5mI7dbslFqKU_gej546kBh3txEqIXO5zUnfu3cEIAokIk5GQPw51RDUsR9IHoGW6fXAW1tLeXmfjZubOq1od9YhsbyVVL4VSRL6YqWPjuvRXbdTIGC4SgMEQdMNaRuKslV3QELSX9FM] "The global drone services market size was valued at USD 13.9 billion in 2022, and the market is projected to grow from USD 18.9 billion in 2023 to USD 189.4 billion by 2030, exhibiting a CAGR of 38.9% during the forecast period."

In May, Ossian Smyth, minister of state at the Department of Public Expenditure, National Development Plan Delivery and Reform and at the Department of Environment, Climate and Communications, visited ZenaDrone's offices in Dublin, Ireland. ZenaDrone's Irish team has been lining up customers throughout Europe, and once the units start getting deployed, they will be an ongoing source of revenue in this region. ZenaDrone also expects to expand the DaaS into Germany.

"We are excited to be sending 20 drones to Ireland. We first visited Ireland in 2019, and we are pleased to be

working with Irish farmers to upgrade their farms to the latest technologies. ZenaDrone 1000 is a green solution which will disrupt the agriculture industry by reducing labor and reducing greenhouse gases," said Shaun Passley, Ph.D., CEO and director of Epazz Inc. and ZenaDrone Inc.

The ZenaDrone 1000 has a high-quality camera, allowing users to take stunning aerial photographs and videos that capture the world's beauty from new heights. It also has autonomous flight capabilities, preventing it from crashing even in challenging weather conditions or with sudden obstacles. The drone's multi-sensor system can measure height, depth and vegetation and establish a GPS location to track people, objects and animals in the frame of its camera with unprecedented accuracy and control.

About ZenaDrone Inc. (https://www.ZenaDrone.com/[https://www.globenewswire.com/Tracker?data=PxyjrWanflLmQTBgixXsgs0YF1RZzPNdTu-NfpLoVRIzou74JryCSaL_TEviANECbiv9UdXhJ8MqNJlqCNZWRlK5Em7X9TKj1Ru8AYKlpXNhLp9ljj7EFQtkI_EqLNCWFH8o13IZilo9gZuUzsjl2cbjWCYbsRPe7LdQDEFSzO394VboulyOl-agyanWWm29haxqeFB1OQ6JwbT9HssQ0HFpFlG6SsiNc2OcddAj_1tpuPYpMrkEasdTgT0CRbueZELeGny2smtyuhUZGfTsGg==])

ZenaDrone is dedicated to improving intelligent, unmanned aerial vehicle technology and incorporating machine-learning software and AI. It was created to revolutionize the hemp-farming sector, later evolving into a smart multifunctional industrial surveillance, inspection and monitoring solution.

About Epazz Inc.[https://www.globenewswire.com/Tracker?data=IxC0yLxUy27V8cmnXQ-UewdnQ05fc5NWcoGsYnUaGS4sAd4cZS_iHPQnik8ndlDgjE1y1xc1gYttqcpAOdCWDw==]

Epazz Inc. is a mission-critical provider of metaverse solutions, blockchain cryptocurrency, mobile apps and cloud-based software. It specializes in providing customized cloud applications to corporate firms, higher-education institutions and the public sector. Epazz develops metaverse business solutions that enable people to collaborate in real time through VR. Epazz is upgrading its business solutions to be fully integrated into the metaverse. Epazz will manufacture low-cost smart glasses for the metaverse.

Safe Harbor

Certain statements contained in this press release are "forward-looking statements," as defined by the "Safe Harbor" statement in the Private Securities Litigation Reform Act of 1995. Forward-looking statements generally can be identified by their use of forward-looking terms such as "may," "expect," "intend," "estimate," "anticipate," "believe" and "continue" (or the negative variations thereof). Such forward-looking statements are subject to risk, uncertainties and other factors that could cause actual results to differ materially from those the statements imply. Investors are cautioned that any forward-looking statements are not guarantees of future performance and that actual results may differ materially from those such forward-looking statements contemplate. Epazz assumes no obligation, does not intend to update these forward-looking statements and has no duty to update or correct information that third parties not paid for by Epazz prepare.

Investors are encouraged to review Epazz's public filings on SEC.gov, including its unaudited and audited financial statements, registration statements, Form 10-Ks and Form 10-Qs, which contain general business information about the company's operations, operations results and the risks associated with the company and its operations. Penny stock picks need to be researched. Please do your homework, and review all our filings.

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www.epazz.com/investors.aspx[https://www.globenewswire.com/Tracker?data=iYifd8skgiTJQt5OTDsh83HtgBeEQXRO9fTllbZMj-5sd1le0w1CVKvkJga02Gk8Uz7nsbDz814Emi238JCJ1jEFaIshm2Xe8GwKbAdCdB_UNdMUzv-wizlEVNImSyeo0mqTJEKVJu_-nHHJkM00IQ==]

Attachment

* Epazz, Inc.[https://ml.globenewswire.com/Resource/Download/1dee98c4-dfe6-4e41-885c-ca8d445dd731]

NEWS RELEASE TRANSMITTED BY Globe Newswire

The Canadian Press

Document CPR0000020230712ej7c005ej

HUAWEI, UNIDO UNVEIL AI GLOBAL ALLIANCE FOR INDUSTRY, MANUFACTURING

NOREDA FARYZA BINTI MD YAACOB

360 words
11 July 2023
Bernama Daily Malaysian News
BRNAMA
English

KUALA LUMPUR, July 11 (Bernama) -- Huawei, United Nations Industrial Development Organization (UNIDO) and other partners officially launched the “Global Alliance on Artificial Intelligence for Industry and Manufacturing” (AIM Global) at the sixth World Artificial Intelligence Conference (WAIC), recently.

Led by UNIDO, AIM Global will integrate public and private partners to foster the use of and innovation around artificial intelligence (AI) in industry and manufacturing.

Huawei Vice President Corporate Communications, Vicky Zhang said in a statement: “We are proud to be a strategic partner of AIM Global. Working closely with UNIDO and other Alliance partners, Huawei will use AI to bring new momentum to industry development.

“Huawei is building a strong foundation in computing capabilities and is launching multiple large models designed for specific industries. Our goal is to develop AI solutions that more effectively serve all industries – and that better support scientific research.”

The Alliance will benefit from the local networks and insights of UNIDO’s investment and technology promotion offices that offer support to small and medium enterprises (SMEs) globally.

The resulting deep understanding of actual SME challenges across sectors will inform the strategy of AIM Global in order to maximise its impact and UNIDO is committed to support pioneering efforts to enhance industrial competitiveness and sustainable development via AI.

AIM Global will serve as a platform for collaboration, knowledge sharing, and the development of best practices, focusing on four key areas.

First, it will facilitate research and development of AI technologies specific to industry and manufacturing. Second, the Alliance and its partners will engage to develop and promote ethical guidelines for the use of AI in industry and manufacturing.

Third, with the help of the Alliance, UNIDO seeks to convey policy recommendations to governments and international organisations on the use of AI in industry and manufacturing. Finally, AIM Global will promote the adoption of best practices for the use of AI in industry and manufacturing.

Huawei will actively support AIM Global with case studies on industrial AI implementation, insights from its intensive research and development as well as making its global network of experts available.

Pertubuhan Berita Nasional Malaysia (Bernama)

Document BRNAMA0020230712ej7b0001v

Fero Labs; Fero Labs Secures $15M to Reduce Manufacturing Emissions with AI

674 words
3 July 2023
Global Warming Focus
GLOWRM
596
English

2023 JUL 3 (VerticalNews) -- By a News Reporter-Staff News Editor at Global Warming Focus -- Fero Labs, an AI-driven manufacturing process optimization software company, announced the close of a $15 million growth round led by Climate Investment ('CI', formerly OGCI Climate Investments), with additional participation from investors Blackhorn Ventures, Innovation Endeavors, and DI Technology. This round brings Fero Labs' total funding to date to $30 million.

Today, the manufacturing industry accounts for 25% of global carbon emissions, two-thirds of which come from steel, cement, and chemicals. Fero Labs works with some of the largest global players in these sectors, using AI to help their engineers make more efficient production decisions. To date, Fero Labs' software has uncovered upwards of $20M in savings for customers including Covestro, Gerdau and CELSA Nordic and reduced more than 100,000 tons of carbon emissions. With this new funding, the company plans to deploy new sustainability features that will accelerate commercialization across key industries, with the internal goal of reducing at least 800,000 tons of emissions by 2025.

"We are pleased to announce our latest funding as we continue to build our white-box AI technology to make factories greener," said Berk Birand, co-founder and CEO at Fero Labs. "The industrial sector is notoriously hard to decarbonize, and hardware solutions like carbon capture and storage come with a hefty price tag and daunting implementation process. White-box AI software requires no capital expenditure and can be quickly implemented. This means companies can immediately start reducing emissions and quantify emissions reduction more accurately with easy-to-understand dashboards and reports. Tangible proof of impact is a crucial part of the sustainability journey. The participating investors are the perfect long-term partners for us to bring on as we continue to work toward hitting our sustainability goals."

Fero Labs' software provides plant operators, with little-to-no data science background, access to powerful insights, enabling them to understand the root cause of any issue and deploy updates to ensure their plants operate sustainably and at peak performance. Fero Labs is unique in the industrial space for using white-box AI, which reveals the reasoning behind its predictions. Unlike the black-box AI popularly seen in tools like ChatGPT, Fero Labs makes it possible for users to know if they can trust the results.

"Fero Labs' AI software materially reduces industrial emissions in some of the highest emitting sectors," said Felicity O'Kelly, Investment Principal at CI. "The white-box algorithm approach engenders confidence even at the operator level, which is something that we haven't seen in the market before. Given CI's focus on driving accelerated carbon emissions reduction through high impact innovations, such as Fero Labs, we're excited to partner and support the next phase of the company's growth." Felicity has joined Fero Labs' Board of Directors alongside CI's Technology Director, Rick Cutright, who has joined as an observer.

"We're excited to work with the Fero Labs team as they empower process engineering teams across 'hard-to-abate' sectors. The team's expertise building AI and machine learning models that drive cost and emissions reductions

throughout the manufacturing lifecycle makes them particularly well-suited to leverage applied deep learning for the energy transition. We believe differentiation in a crowded AI market can be found at the foundational data unit, and Fero Labs has a clear path to scale their advantage over time," said Melissa Cheong, Managing Partner at Blackhorn Ventures. Melissa has also joined the Fero Labs board as an observer.

In 2022, Fero Labs tripled its revenue and number of customers which span sectors including steel, cement, chemical, energy, food and more. To learn more about Fero Labs, please visit ferolabs.com.

Keywords for this news article include: Software, Fero Labs, Technology, Climate Change, Global Warming, Greenhouse Gases, Sustainability Research.

NewsRX, LLC

Document GLOWRM0020230703ej7300012

Sustainability Research - Sustainable Manufacturing; Findings from London Metropolitan University in the Area of Sustainable Manufacturing Described (Integration of Artificial Intelligence In Sustainable Manufacturing: Current Status and Future Opportunities)

429 words
30 June 2023
Ecology, Environment & Conservation
ECECON
713
English

2023 JUL 7 (VerticalNews) -- By a News Reporter-Staff News Editor at Ecology, Environment & Conservation -- Current study results on Sustainability Research - Sustainable Manufacturing have been published. According to news reporting originating from London, United Kingdom, by VerticalNews correspondents, research stated, "Manufacturing firms often struggle to attain the optimum balance of environmental, economic, and social goals. Sustainable Manufacturing (SM) is one of the ways to balance the aforesaid aspects."

Our news editors obtained a quote from the research from London Metropolitan University, "Many disruptive technologies such as Artificial Intelligence (AI), blockchain, machine learning, the Internet of Things, and Big Data, are contributing immensely to the digitalisation in SM. This article aims to explore the trends of AI applications in SM during the period of 2010-2021 by conducting a systematic literature review and bibliometric and network analyses. Prominent research themes, namely sustainable scheduling, smart manufacturing and remanufacturing, energy consumption, sustainable practices and performances, and smart disassembly and recovery have been identified through network analysis. Content analysis of extant literature reveals that Genetic Algorithm (GA), Artificial Neural Network (ANN), and Fuzzy Logic are the most widely used AI techniques in SM. Potential future research directions like amalgamation of AI with Industry 4.0, use of hybrid AI systems, focus on social sustainability and use of emerging AI techniques (Deep learning, CNN etc.) have also been proposed."

According to the news editors, the research concluded: "The intellectual map of AI in SM delineated in this article will be helpful for the researchers as well as industry practitioners in their future endeavours."

This research has been peer-reviewed.

For more information on this research see: Integration of Artificial Intelligence In Sustainable Manufacturing: Current Status and Future Opportunities. Operations Management Research, 2023. Operations Management Research can be contacted at: Springer, One New York Plaza, Suite 4600, New York, Ny, United States. (Springer - www.springer.com[http://www.springer.com]; Operations Management Research - www.springerlink.com/content/1936-9735/[http://www.springerlink.com/content/1936-9735/])

The news editors report that additional information may be obtained by contacting Anil Kumar, London Metropolitan University, Guildhall Sch Business & Law, 84 Moorgate, London EC2M 6SQ, United Kingdom. Additional authors for this research include Rohit Agrawal, Abhijit Majumdar and Sunil Luthra.

Keywords for this news article include: London, United Kingdom, Europe, Artificial Intelligence, Emerging Technologies, Machine Learning, Sustainability Research, Sustainable Manufacturing, London Metropolitan University.

NewsRX, LLC

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Industrial Control Systems

Intrinsic, Siemens Advance AI in Manufacturing Floors

460 words
23 June 2023
Asia Electronics Industry
ASELEC
English

Intrinsic[https://intrinsic.ai/], an Alphabet company, and Siemens[http://www.siemens.com/] have teamed up to explore integrations and interfaces between Intrinsic's robotics software and Siemens Digital Industries. Particularly, the two will leverage on their open and interoperable portfolio for automating and operating industrial production.

Intrinsic has a world-class team of robotics and AI experts. Moreover, it has a strong footprint in advanced perception and reinforcement learning. Meanwhile, Siemens' automation engineers and software developers have industry-leading domain know-how in automation technology in the industrial space.

The collaboration of Intrinsic and Siemens make industrial robotics more accessible and usable for manufacturing SMEs.[https://aei.dempa.net/wp-content/uploads/2023/06/Siemens-and-Intrinsic.jpg]

AI Facilitates Seamless Operations

Currently, the development and runtime environments for AI-based[https://aei.dempa.net/archives/tag/ai] robotics[https://aei.dempa.net/archives/tag/robotics] and automation[https://aei.dempa.net/archives/tag/automation] components differ significantly in their development paradigms and make integration cumbersome. For example, deploying advanced robotic capabilities such as pose estimation, robot manipulation or automated path planning entail complex processes. Typically, they require teams of domain experts to operationalize. The two companies intend to investigate new methods to seamlessly bridge the gaps between robotics, automation engineering and IT development.

Bridging both worlds will speed up the development process of flexible, AI-enabled robot work cells and facilitate their seamless operation. Thus, making industrial robotics[https://aei.dempa.net/archives/category/industrial-robots] more accessible and usable for more businesses, entrepreneurs, and developers. Particularly, for new market segments like small and medium-sized companies.

"Intrinsic's mission is to democratize access to robotics. However, robotics is rarely decoupled from the production environment, where the most value is created today," says Wendy Tan White, CEO at Intrinsic. "That's why working with Siemens Digital Industries, an industry leading automation expert, is an exciting opportunity to bring joint solutions to the market in the future, so many more businesses can benefit from the value that robotics and automation can offer."

Accelerates Transformation

Rainer Brehm, CEO of Factory Automation at Siemens said the company aims to bringing IT and OT closer together – the key principle of our Industrial Operations X portfolio. In addition, Brehm said, "We are impressed by Intrinsic's open approach to industrial robotics and we are excited to explore with Intrinsic how coupling of AI-based robots and automation technology can be further accelerated."

Both Siemens and Intrinsic will be exhibiting at automatica 2023, the leading trade fair for intelligent automation and robotics, in Munich, Germany, from 27 – 30 June. On Tuesday 27 June, 1 – 2 PM CET, Intrinsic CEO Wendy Tan White and Rainer Brehm, CEO Factory Automation at Siemens, will join the munich_i CEO Round Table, “Software: revolution for automation and robotics?”

Under the motto “Accelerate Transformation”, Siemens will be showcasing the latest technologies and specific use cases from the world of robotics, making them tangible for visitors in a test zone.

Dempa Publications, Inc.

Document ASELEC0020230623ej6n00003

Finance

AI could produce more and better jobs in manufacturing; Not everyone believes in gloomy forecasts for the manufacturing sector

1156 words
22 June 2023
The Irish Times
IRTI
14
English

Artificial intelligence has the potential to transform Ireland's manufacturing base, and collaboration and knowledge sharing is the key to unlocking the huge potential here, say industry experts.

While adoption of industrial AI here is still in its early stages and there's no data revealing the level of AI investment, an ecosystem is now developing to encourage it, involving State-sponsored bodies, industry groups, academics and firms.

Companies have adopted a cautious approach, says Domhnall Carroll, chief executive of Digital Manufacturing Ireland, a State-backed body responsible for promoting digital innovation. Carroll says barriers to AI adoption include companies not having a strategic roadmap, lack of financial resources for investment and many not having figured out the HR implications of AI adoption.

"Adoption levels now are quite low. I don't think that anyone is applying AI in a blanket way to their factories. I think you are seeing testing and people making themselves aware of the technology, and we're seeing a lot of early-stage pilot projects."

The payback and the expectations of what AI will deliver are not always clear to companies, he says. AI works best in environments where there are a lot of standardised processes and a lot of data. That can typically be in areas such as electronics manufacturing, for example, but there are many sectors and sub-sectors where deploying AI widely - or in discrete processes - can cut costs and increase quality and service levels.

"Over the long term, many believe it will be hugely valuable but over the short to medium term firms are wondering what projects they should launch and how would they assess their success, so a common challenge with AI in manufacturing is a belief that companies need to see the benefits before they spend money."

Raising knowledge of the potential of AI and sharing best practices are key steps to de-risking initiatives at the firm level, he says.

The Irish Centre for Business Excellence is among the bodies involved in promoting peer collaboration regarding AI among its membership base of high-tech companies.

"Collaboration helps to accelerate the adoption of AI through the pooling of financial, technology and talent resources which might be unattainable individually," says chief executive Linda Barron. "Data is a critical component for training and improving AI algorithms, for example, and getting access to diverse data sets that are representative of real-world manufacturing environments helps build more accurate and robust AI models."

Risks

Implementing AI technologies in manufacturing can involve risks such as data security, privacy or disruption to

existing processes and collaboration with peers allows for collective assessment of these risks, she adds.

The launch last week of the Visual Cognitive Manufacturing Group, supported by the IDA, is the latest initiative in this area. This group, led by several firms in the medical devices and pharmaceutical sectors, including Boston Scientific, Medtronic, Abbott, Johnson and Johnson and West Pharmaceutical Services, will share knowledge in areas such as predictive analysis and machine learning as well as virtual and augmented realities.

An international study highlights, however, that many companies are struggling to introduce AI in their production facilities.

The Institute for Learning and Innovation in networks at Karlsruhe University of Applied Science interviewed more than 650 global manufacturers about their AI adoption practices.

The study found that organisational factors, such as digital skills, company size and R&D intensity had the greatest impact on the adoption of AI in manufacturing. Research-intensive, knowledge-based and service-oriented companies were found to be the best adopters and tended to roll out AI technologies not only at their domestic facilities but also at their foreign production sites, it added.

It is no surprise then that the medtech and pharmaceutical industries here are among the most enthusiastic adopters of AI.

Dr Sinéad Keogh, director of the Irish Medtech Association within Ibec, says companies are integrating AI into their operations, as part of a broader digital technology transformation.

"We're seeing digital technology - including AI - supporting more efficient and more effective manufacturing of products. We're seeing very high levels of investment by the medtech and biopharma sectors as well as engineering industries in advanced manufacturing technologies. We're hearing about a lot of companies using machine learning in areas such as predictive maintenance, order tracking and delivery scheduling, for example."

About 350 AI-enabled medical devices entered the market last year in areas such as medical imaging and the treatment of cardiovascular disease, she says, while AI is also being widely used in product development, including by many high potential Irish SMEs working in this sector.

One company that has begun integrating AI into its operations here is West Pharmaceutical Services. Bill O'Leary, director of global operations and manufacturing digitalisation says that its focus is on capturing data from as many of its systems as possible. Among the benefits of this is that it can more easily highlight any anomalies in the production process, for example. "It's early stage for now. We have not got into predictive mode yet, but we will," he says.

O'Leary sees the benefits of peer collaboration in this area.

"There are common challenges here that are agnostic to the sector, so it makes sense to share information that is not IP sensitive. We need to ensure in Ireland that we are sharing our challenges, we're sharing what we know about existing and emerging technologies, about vendor performance and what we are seeing globally. The ecosystem of support and collaboration here is among the best in the world."

Head-start

Ireland's well-resourced base of FDI companies may have a head-start in this area but SMEs are not precluded from leveraging AI, he believes. Typically, the decision-making process is longer and the validation threshold much higher in the multinational sector than for smaller nimbler operations who can deploy AI technologies much quicker

in many cases.

Concern has been expressed that AI adoption raises the prospect of mass lay-offs in the manufacturing sector. Carroll believes this is overblown and that the instinctive knowledge of many high-skilled workers will ensure their places on the production line won't be replaced by AI-based systems any time soon.

"History shows us that better manufacturing results in more manufacturing jobs and better jobs. There are large parts of industry where there is feedback from the process to the person, not through the machine system but from a person's observation and contextual understanding.

"These are really hard to replicate and undesirable to replicate because every case is different. The more complex and broader the challenge, the more likely it is that people will have a strong role in that. AI and automation are there to support people, - it's not the other way around."

The Irish Times

Document IRTI000020230622ej6m0001z

Digital transformation on agenda: 54% manufacturing companies implemented AI, analytics for business functions, says PwC

Tanya Krishna

565 words
21 June 2023
Financial Express Online
FIEXON
English

With the onset of industry 4.0, Indian manufacturing industry is set for major transformation in terms of doing business operations and currently 54 per cent of the companies have implemented AI and analytics for business functions, said a PwC India survey. “Indian manufacturing companies currently prefer to adopt one standardised digital solution across plants compared to global companies which prefer one standardised digital solution with different functionalities or module,” the report said. It further added that the other 38 per cent of the companies do not have any plans to adopt digital technology for their businesses.

PwC India conducted a survey wherein it interviewed the CXOs of organisations in the domestic market, including multinational companies (MNCs) to gain insights into the digital transformation trends of the manufacturing sector. In the report “Reimagining Digital Factories of Tomorrow”, PwC India said, “Digital champions from across the six sectors in India believe that being resilient, transparent and sustainable will prepare them for future growth. However, they also opine that greater innovation and faster time to market will help them to stay relevant in the competitive landscape in the coming days.”

For the technology deployment use cases, it said, the average payback period is less than three years. “Shorter payback periods encourage organisations to invest in technological solutions,” it said, while adding that lack of planning for aligning digital transformation with the organisation’s objectives and implementing digital technology remains a greater challenge. The report stated that companies in India that invested at least 3 per cent of their entire sales in digital transformation had a higher proportion of high returns. Further, it said that Indian companies are used to focusing more on people, policies and mindset while the global companies prefer building up the right system for driving any transformation.

Also ReadTo curb imports of unverified telecom equipment: Expedite equipment testing norms rollout: STL’s Agarwal

The survey also indicated that collaborating with the right team who can devise a custom digital transformation strategy which is suitable for the organisation, and working with the right enablers to implement the strategy is important to increase the return on investment (ROI). “Organisations will also need to determine aspects of tangible returns apart from the financial outcomes to ensure that implementing digital technology has a holistic, long-term and sustainable impact on the business,” said Sudipta Ghosh, Partner, Industrial Products Sector and Data and Analytics Practice Leader, PwC India. “The return on investments will be governed to a large extent by how organisations are using the data to generate insights and take timely decisions.” he added.

Going forward

While learning from success stories within the industry may provide the insights on where to begin on framing a transformation blueprint, it is important to take into consideration a wide variety of contingencies and probable pitfalls from failure case studies. “Though many companies have implemented fit-for-future technologies in some

capacity to solve operational challenges, only few are able to implement it successfully across the value-chain. Adopting digital technologies effectively at scale requires the commitment of the leadership team besides a clear roadmap for implementation and skilled people," said Ankur Basu, Partner and Digital Operations Leader, PwC India.

Currently 54 per cent of the manufacturing companies have implemented AI and analytics for business functions. [https://www.financialexpress.com/wp-content/uploads/2023/05/Image-Credit-Freepik121.jpg?w=1024]

Indian Express Group

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Startups & Tech

Survey Finds 54% Cos in Manufacturing Sector Adopting AI

Our Bureau

299 words
21 June 2023
The Economic Times - Mumbai Edition
ECTMUM
English

Mumbai: Indian firms are developing the road map to adopt digital transformation with 54% of them implementing analytics and artificial intelligence (AI) for business functions, a survey by the professional services firm PwCIndia found.

PwC conducted the survey titled 'Imagining Digital Factories of Tomorrow' to understand the current digital landscape in the Indian manufacturing industry and assess the prospect of laying down the future road map.

CXOs oforganisations in the domestic market, including multinational companies (MNCs), were interviewed to gain insights into the digital transformation trends of the manufacturing sector broadly comprising six segments: retail and consumer goods, high tech and electronics, chemical and process industries, pharma and MedTech, automotive and transportation, and industrialmanufacturing.

"Indian manufacturing companies currently prefer to adopt one standardised digital solution across plants compared to global companies, which prefer one standardised digital solution with different functionalities or modules. Indian companies are showing an upward trend towards adopting analytics and AI with a current implementation rate of 54%," the PwC survey said. The survey added that 38% of the companies do not have any plans to adopt digital technology for their businesses.

Digital champions from across the six sectors in India believe that being resilient, transparent, and sustainable will prepare them for future growth. However, they also said that greater innovation and faster time to market will help them to stay relevant in the competitive landscape in the coming days.

The average payback period is less than three years for the technology deployment use cases. Shorter payback periods encourage organisations to invest in technological solutions. Though investment in digital technology remains a challenge, lack of planning for aligning digital transformation with the organisation's objectives and implementing digital technology remains a greater problem.

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54% of manufacturing firms adopting AI: PwC survey

Sameer Ranjan Bakshi

342 words
21 June 2023
Financial Express
AIWFIE
English

With digital transformation high on their priority list, 54% of companies in the manufacturing sector have implemented AI and analytics for business functions, reveals a PwC India survey.

Conducted with an aim to gain insight into the digital transformation trend of the sector, the survey interviewed CXOs of organisations, including MNCs, broadly comprising six segments – retail and consumer goods, high tech and electronics, chemical and process industries, pharma and MedTech, automotive and transportation, and industrial manufacturing.

Also ReadCarbon Black Maker PCBL announces capacity expansion plans to reach 7,90,000 MTPA, 122 MW of green power

Sudipta Ghosh, partner, industrial products sector and data and analytics practice leader, PwC India, said, “Organisations are focusing on improving the efficiency of processes such as reducing the down time of assets, minimising maintenance cost of expensive equipment and automation of processes like connected workstations using IoT for better visibility at the shop floor.”

The survey showed that Indian manufacturing companies currently prefer to adopt one standardised digital solution across plants compared to global firms, which prefer one standardised digital solution with different functionalities.

Also ReadHeranba Industries received seven CIB registrations in May

“Though many companies have implemented fit-for-future technologies in some capacity to solve operational challenges, only a few are able to implement it successfully across the value chain,” said Ankur Basu, partner and digital operations leader, PwC India. He added that adopting digital technologies effectively at scale requires the commitment of the leadership team, besides a clear road map for implementation and skilled people.

While 38% of the Indian companies that participated in the survey revealed they don’t have any plans to adopt digital technology, the research also showed that digital champions from across the six sectors in India believe being resilient, transparent and sustainable will prepare them for future growth.

The survey showed that Indian manufacturing companies currently prefer to adopt one standardised digital solution across plants compared to global firms, which prefer one standardised digital solution with different functionalities. [https://www.financialexpress.com/wp-content/uploads/2023/06/1-237.jpg?w=1024]

Indian Express Group

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India

54% of Indian manufacturing companies adopt AI and analytics: PwC

Kalpana Pathak

513 words
21 June 2023
The Economic Times
ECTIM
English

Indian companies are developing the roadmap to adopt digital transformation with 54% of them implementing analytics and artificial intelligence (AI) for business functions, according to a survey by the professional services firm PwC India.PwC conducted the survey titled--Reimagining Digital Factories of Tomorrow-- to understand the current digital landscape in the Indian manufacturing industry and assess the prospect of laying down the future roadmap.CXOs of organisations in the domestic market, including multinational companies (MNCs), were interviewed to gain insights into the digital transformation trends of the manufacturing sector broadly comprising six segments-- retail and consumer goods, high tech and electronics, chemical and process industries, pharma and MedTech, automotive and transportation, and industrial manufacturing."Indian manufacturing companies currently prefer to adopt one standardised digital solution across plants compared to global companies which prefer one

standardised digital solution with different functionalities or modules. Indian companies are showing an upward trend towards adopting analytics and AI with a current implementation rate of 54%," the PwC survey said.The survey added that 38% of the companies do not have any plans to adopt digital technology for their businesses.Digital champions from across the six sectors in India believe that being resilient, transparent and sustainable will prepare them for future growth. However, they also said that greater innovation and faster time to market will help them to stay relevant in the competitive landscape in the coming days.The average payback period is less than three years for the technology deployment use cases. Shorter payback periods encourage organisations to invest in technological solutions. Though investment in digital technology remains a challenge, lack of planning for aligning digital transformation with the organisation’s objectives and implementing digital technology remains a greater problem.“This is a very interesting time for organisations, especially in India, who have embarked upon the digitisation journey," said Sudipta Ghosh, Partner, Industrial Products Sector and Data and Analytics Practice Leader, PwC India.Ghosh added that organisations are focusing on improving the efficiency of processes, such as reducing the down time of assets, minimising the maintenance cost of expensive equipment, cutting down the cost of poor quality by understanding the parameters needed for the golden batch using digital twins, automation of processes like connected workstations using IoT for better visibility at the shop floor and workflow-based automated solution for efficient scheduling.Indian companies tend to focus more on people, policies and mindset while the global companies prefer to build up the right system for driving any transformation. Successful digital transformation demands elements of centralised standard-setting to establish best practices and guidelines, accompanied by centralised teamwork for local implementation.“Though many companies have implemented fit-for-future technologies in some capacity to solve operational challenges, only few are able to implement it successfully across the value-chain. Adoptingdigital technologies effectively at scale requires the commitment of the leadership team besides a clear roadmap for implementation and skilled people," said Ankur Basu, Partner and Digital Operations Leader, PwC India.

Bennett, Coleman & Co., Ltd.

Document ECTIM00020230620ej6k00010

Manufacturing sector implementing AI for biz ops: PwC

140 words
20 June 2023
Deccan Herald
DECHER
English

54% Indian companies have already implemented analytics and AI to reinvent their business functions, PwC India said

India’s manufacturing sector is also going through a period of digital transformation and adopting artificial intelligence in increasing numbers as newer technologies are easing business and logistics operations, as per a survey by consultancy firm PwC India.

54% Indian companies have already implemented analytics and AI to reinvent their business functions, PwC India said on Tuesday, while announcing the results of the survey

“Digital champions from across the six sectors in India believe that being resilient, transparent and sustainable will prepare them for future growth. However, they also opine that greater innovation and faster time to market will help them to stay relevant in the competitive landscape in the coming days,” the report said.

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Toyota Motor Engineering & Manufacturing North America. Inc. Patent Issued for Method and system for on-demand roadside AI service (USPTO 11661077)

1161 words
20 June 2023
Information Technology Newsweekly
INTEWK
857
English

2023 JUN 20 (VerticalNews) -- By a News Reporter-Staff News Editor at Information Technology Newsweekly -- According to news reporting originating from Alexandria, Virginia, by VerticalNews journalists, a patent by the inventors Oguchi, Kentaro (Mountain View, CA, US), Qi, Xuewei (Mountain View, CA, US), filed on April 27, 2021, was published online on May 30, 2023.

The assignee for this patent, patent number 11661077, is Toyota Motor Engineering & Manufacturing North America. Inc. (Plano, Texas, United States).

Reporters obtained the following quote from the background information supplied by the inventors: "Advancements in artificial intelligence (AI) and deep learning technology are leading to more autonomous vehicles and advanced driving assistance systems (ADAS). Autonomous vehicles and ADAS systems may utilize on-board vehicle sensors and on-board computing resources to identify vehicles and other road agents in their environment and to make driving decisions. However, vehicles have a limited amount of on-board computing power, a limited number of on-board sensors, and a limited field of view while driving. As such, the capabilities of an autonomous vehicle or an ADAS system may be limited by these and other factors. Therefore, a need exists for a method and system for on-demand roadside AI service."

In addition to obtaining background information on this patent, VerticalNews editors also obtained the inventors' summary information for this patent: "In an embodiment, a method may include receiving a service request from a vehicle, obtaining environment data with one or more sensors, determining a vehicle type of the vehicle based on the service request, determining service data responsive to the service request based on the vehicle type of the vehicle and the environment data, and transmitting a service message to the vehicle including the determined service data.

In another embodiment, a method may include collecting environment data with one or more vehicle sensors, transmitting a service request from the vehicle to a roadside server, receiving, from the roadside server, a service message comprising service data responsive to the service request, fusing the service data with the environment data to obtain fused data, and determining one or more driving instructions based on the fused data.

"In another embodiment, a roadside server may comprise a controller configured to receive a service request from a vehicle, obtain environment data with one or more sensors, determine a vehicle type of the vehicle based on the service request, determine service data responsive to the service request based on the vehicle type of the vehicle and the environment data, and transmit a service message to the vehicle including the determined service data."

The claims supplied by the inventors are:

1. A method comprising: receiving a service request from a vehicle; obtaining environment data with one or more sensors; determining a vehicle type of the vehicle based on the service request; determining service data responsive to the service request based on the vehicle type of the vehicle and the environment data; and

transmitting a service message comprising the determined service data to the vehicle.

2. The method of claim 1, further comprising: receiving sensor data collected by the vehicle as part of the service request; and determining the service data responsive to the service request based at least in part on the sensor data collected by the vehicle.

3. The method of claim 1, wherein the vehicle type comprises an automation level of the vehicle.

4. The method of claim 1, wherein: the service request comprises a request for perception service; and the service data comprises data associated with one or more road agents in the vicinity of the vehicle.

5. The method of claim 4, further comprising, upon determination that the vehicle type is an autonomous vehicle: transmitting the service message via millimeter wave radio.

6. The method of claim 4, further comprising, upon determination that the vehicle type is a semi-autonomous vehicle: extracting features based on the environment data; and transmitting the service message comprising the extracted features via Dedicated Short-Range Communication (DSRC).

7. The method of claim 4, further comprising, upon determination that the vehicle type is a legacy vehicle: determining positions of one or more road agents based on the environment data; and transmitting the service message comprising the determined positions of the one or more road agents via DSRC.

8. The method of claim 1, wherein: the service request comprises a request for localization service; and the service data comprises a location of the vehicle.

9. The method of claim 1, wherein: the service request comprises a request for decision service; and the service data comprises one or more driving instructions.

10. A roadside server comprising a controller configured to: receive a service request from a vehicle; obtain environment data with one or more sensors; determine a vehicle type of the vehicle based on the service request; determine service data responsive to the service request based on the vehicle type of the vehicle and the environment data; and transmit a service message comprising the determined service data to the vehicle.

11. The roadside server of claim 10, wherein the controller is further configured to: receive sensor data collected by the vehicle as part of the service request; and determine the service data responsive to the service request based at least in part on the sensor data collected by the vehicle.

12. The roadside server of claim 10, wherein: the service request comprises a request for perception service; and the service data comprises data associated with one or more road agents in the vicinity of the vehicle.

13. The roadside server of claim 12, wherein the controller is further configured to, upon determination that the vehicle type is an autonomous vehicle: transmit the service message via millimeter wave radio.

14. The roadside server of claim 12, wherein the controller is further configured to, upon determination that the vehicle type is a semi-autonomous vehicle: extract features based on the environment data; and transmit the service message comprising the extracted features via DSRC.

"15. The roadside server of claim 12, wherein the controller is further configured to, upon determination that the vehicle type is a legacy vehicle: determine positions of the one or more road agents based on the environment data; and transmit the service message comprising the determined positions of the one or more road agents via DSRC."

For more information, see this patent: Oguchi, Kentaro. Method and system for on-demand roadside AI service. U.S. Patent Number 11661077, filed April 27, 2021, and published online on May 30, 2023. Patent URL (for desktop use only): https://ppubs.uspto.gov/pubwebapp/external.html?q=(11661077)&db=USPAT&type=ids[https://ppubs.uspto.gov/pubwebapp/external.html?q=(11661077)&db=USPAT&type=ids]

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Economy

Majority of manufacturing enterprises adopt AI, analytics for business processes: Report

BL Bengaluru Bureau

331 words
20 June 2023
BusinessLine Online
BSNLNO
English

Digital transformation is a top priority for the manufacturing industry, with 54 per cent of enterprises implementing AI and analytics for business processes, according to PwC India survey.

The research noted that digital champions from across the six sectors in the country believe that being resilient, transparent, and sustainable will prepare them for future growth. Additionally, manufacturing companies prefer to adopt one standardised digital solution across plants, compared to global companies, which prefer one standardised digital solution with different functionalities or modules.

"Organisations are focussing on improving the efficiency of processes, such as reducing the downtime of assets, cutting down on the cost of poor quality by understanding the parameters needed for the golden batch using digital twins, automating processes such as connected workstations using IoT for better visibility at the shop floor, and workflow-based automated solutions for efficient scheduling," said Sudipta Ghosh, Partner, Industrial Products Sector and Data and Analytics Practice Leader, PwC India

However, 38 per cent of the Indian companies that participated in the survey said they do not have any plans to adopt digital technology for their businesses.

Moreover, investment in digital technology remains a challenge, and a lack of planning for aligning digital transformation with the organisation's objectives and implementing digital technology remains a greater problem. According to the report, the average payback period is under three years for the technology deployment use cases, and shorter payback periods will encourage organisations to invest in technological solutions.

Similarly, collaborating with the right team that can devise a custom digital transformation strategy suitable for the organisation and working with the right enablers to implementing the strategy is important to increase the return on investment (ROI).

"Though there is no single model for success, companies should frame a transformation blueprint with answers to key questions before committing to a digital transformation path," noted Ankur Basu, Partner and Digital Operations Leader, PwC India.

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MINT, Technology

Manufacturing sector embraces AI; 54% of firms implement Artificial Intelligence: PwC report

Mansi Jaswal

603 words
20 June 2023
Mint
HNMINT
English

New Delhi, June 20 -- In the age of Artificial Intelligence, India's manufacturing sector does not want to trail behind other sectors hence it is adopting a major transformation with respect to business operations.

The shift in customer preferences, new distribution models, geopolitical uncertainties, supply chain disruption, and ESG regulations have given rise to new opportunities for the manufacturing sector in terms of redesigning and innovating the existing business models. Various government initiatives like the production-linked incentive schemes (PLI) and 'Make in India' have also contributed to the development of a favourable environment in the domestic market to the manufacturing sector.

In a report by PwC, Indian companies are showing an upward trend toward adopting analytics and AI with a current implementation rate of 54%.

In a survey, titled Reimagining Digital Factories of Tomorrow, the PwC India underscored that manufacturing companies currently prefer to adopt one standardised digital solution across plants.

Domestic firms majorly focus more on people, policies, and mindset while global companies prefer building up systems for driving any transformation, the survey said.

However, 38% of the Indian companies that participated in the survey revealed that they do not have any plans to adopt digital technology for their businesses.

Notably, a majority of Indian manufacturing firms are following the global trend of implementing advanced technology solutions such as additive manufacturing, analytics, artificial intelligence (AI), augmented reality (AR)/ virtual reality (VR), and smart devices.

The survey highlighted that every company is at a different stage of evolution in its digital transformation journey. For instance, industrial manufacturing, hi-tech and electronics, and pharma and MedTech have seen a bigger change in adopting digital technology.

The survey showed that the innovation rate and TTM strategy are gaining significant prominence with an expected growth of 38% in Indian companies, while the cost leadership and efficiency improvement approach is declining with an expected drop of 11%.

The report highlighted that 32% of the Indian champions are opting for PLM compared to 46% of global champions, whereas 21% of the Indian manufacturing ring firms are opting for IIoT compared to 31% of global champions. Low code automation is gaining importance in Indian champions as compared to their global counterparts.

The technology adoption rate in India is promising. According to the survey, more than 50% of the Indian digital

champions have implemented technology across industries. In India, additive manufacturing industries are where technology has been adopted the most with an adoption rate of around 55%. Global champions are majorly focusing on analytics and AI, with an implementation score of around 88%.

Companies in India that invested at least 3% of their entire revenue in digital transformation had a higher proportion of high returns than those who invested 2% or less of their revenue.

"This is a very interesting time for organisations, especially in India, who have embarked upon the digitisation journey. Organisations are focusing on improving the efficiency of processes, such as reducing the downtime of assets, minimising the maintenance cost of expensive equipment, cutting down the cost of poor quality by understanding the parameters needed for the golden batch using digital twins, automation of processes like connected workstations using IoT for better visibility at the shop floor and workflow-based automated solution for efficient scheduling," Sudipta Ghosh, Partner, Industrial Products Sector and Data and Analytics Practice Leader, PwC India, said.

AI in Manufacturing

TDK AI Data Analysis Promotes Material Development

456 words
7 June 2023
Asia Electronics Industry
ASELEC
English

TDK Corporation[https://www.tdk.com/en/index.html]'s Aim1 is an original artificial intelligence (AI) data analysis platform. The company announced its launch in April for internal use as part of the efforts to progress materials informatics (MI)2.

The operation of Aim builds a foundation for medium- to long-term material development. This aims to support industries and applications ranging from autonomous driving, wearables, robotics, renewable energy and more.

In the development process, TDK has refined its unique materials technology. It accumulated data analysis technologies for the material development of various products, including passive components. However, these technologies have been concentrated in individual business divisions and departments, making it difficult to be deployed throughout the company.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/06/AW2306-12-TDK-AI-Aim-1024x603.jpg]

In recent years, MI, which utilizes AI and big data to improve the efficiency of material development[https://aei.dempa.net/archives/13546], has garnered attention worldwide. Also in 2013, TDK started MI initiatives and applied them to the development of magnetic and dielectric materials. Eventually, in 2018, the Aim platform was developed.

Specifically, Aim is an original AI data analysis platform that was developed to widely deploy data analysis technologies accrued in individual departments throughout the company. This way, anyone can use them as well as compile high-quality data necessary for AI and big data utilization.

The Aim platform is being tested in Japan since 2019. It was being used for high-speed and high-precision image analysis of materials to measure factors, such as the shape and size of grains or particles in magnet materials or dielectric materials, for example. Additionally, it has been leveraged to reduce analysis time and inspection time internally. Further, it has undergone an expansion of functions in preparation for full-scale introduction of MI throughout TDK.

Over time, functions such as improved data analysis and more robust databases have expanded. Moreover, mechanisms for MI utilization have been developed. Accordingly, the operation of Aim in MI began in April 2023. Initially, it will be operated by research-specific divisions in Japan. However, the company plans to widely deploy it at additional locations in Japan and overseas. As TDK verifies its effects through operation and testing, more efficient MI mechanisms will be developed.

TDK will promote in-house digital transformation (DX) related to material development through the operation of Aim and other means. Moreover, by accelerating MI promotion at TDK, the company's original materials technology will continue to evolve to provide new valuable technologies and products.

1Aim: A neologism that comes from AI + material. Aim is a TDK AI data analysis platform for the dissemination of

internally developed data analysis technologies throughout the company.

2Materials informatics (MI): Efforts to improve the efficiency of material development using information science methods.

Dempa Publications, Inc.

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Deep Dive

AI in manufacturing: Why companies need to upskill and reskill employees as AI revolution sweeps industry

Krishna Gopalan

843 words
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Business Today
BTDY
English

In his over three-decade career at ABB, Sanjeev Sharma has seen the automation story from close quarters. While the various automation technologies were disruptive in their own ways, AI, he thinks, has been much easier to adapt. Hard to believe, perhaps, but Sharma, ABB India's Country Head & Managing Director, says that the relative effort is lower, provided one is clear about the outcome. "It is very different from the time when we bought software or went about the process of configuring it. Insights in AI are quick and profound."

The underlying theme at each stage for manufacturing, be it Industry 2.0, 3.0, 4.0 or now 5.0 using cobots (robots that can collaborate with humans), has one common thread—increase productivity. The big moment for AI, according to Sharma, was around 2016 when digitalisation first started to take off. "We saw Google Maps, search engines and data-based tech harnessing insights for the future and that was potent. In many ways, the pendulum shifted then. Now, with data, the task is to put it to good use," he explains. By querying a database, answers are now available that improve decision making at the level of engineering, manufacturing and the ability to increase OEE (overall equipment effectiveness).

The pace of change through AI is expected to be so rapid that the need to adapt cannot ever be exaggerated. In that sense, if Industry 4.0 was a focus on efficiency, 5.0 could well be the neutraliser. "Efficiency is good but not at the cost of effectiveness. AI should be employed in a responsible manner, with both humans and technology co-existing," says Jayanta Banerjee, Group CIO of Tata Steel. According to him, humans will never be replaced by AI and the question is really about how to make the best use of technology.

Across manufacturing, the benefits have been significant. Jayant Acharya, Deputy Managing Director of JSW Steel, speaks of how his industry can today improve operational efficiency and productivity, reduce costs, up its quality control and enhance customer experience, with a sustainable orientation. His company is looking to augment its capacity (from 27 million tonnes per annum today to 38 million tonnes per annum by FY25). "This will leverage our three key strategic pillars [innovation, sustainability and partnerships], supported by end-to-end digital transformation of our steel manufacturing operations," says Acharya. The plan is to deploy game-changing advanced technologies such as AI/ML, robotics, standard and advanced analytics, edge computing and cloud deployments, plus the introduction of robotic process automation (RPA)/bot-based interventions and intelligent digital video analytics. "These technological interventions will enable JSW Steel to create a network of digitally connected smart steel factories in India." The company's transition to digitally connected smart steel manufacturing includes three critical parts—creating a smart iron zone, creating a smart steel zone and developing a smart milling zone.

The apprehension that AI will displace jobs does not find too many takers. ABB's Sharma predicts there will be a different nature of jobs created during the period. "From a business point of view, companies must be patient since expectations are high and [the] approach should be one of patient capital," he explains. Sharma equates it to a bamboo tree, which hardly grows for five years and then sharply takes off. JSW Steel's Acharya says AI will alter

the job dynamics, especially for those who are underprepared. "The advent of digital transformation will require specific skill sets and manpower, and that can come from a judicious mix of lateral hires with digital skills and upskilling the current employee base," he points out. At a group level, the entity has created a multi-disciplinary task force of high-potential employees comprising more than 50 data scientists—to be expanded to 100—to steer digital transformation across its businesses.

On the issue of reskilling, an interesting view comes from Tata Steel's Banerjee. "In the past, a car had a rear-view mirror and now there is a dashboard. To put that together, you need a very able and skilled bunch of people," he says. To elaborate the point, Banerjee thinks the co-pilot will always be of great assistance: "But there needs to be a pilot and that is the human. In this transition, the human can never be outrun by technology." In that sense, the disruption will come in the form of reskilling. His company took the route of investing in cloud and then data. "Every technology is critical and must be put to good use. But it must still deliver on an RoI basis and that is how it will be judged." In that sense, companies will look at AI in the same manner. How they manage to do it in a world where agility is the buzzword is what will separate the men from the boys. The story has barely started.

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T.V. Today Network Ltd.

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FDA Releases Two Discussion Papers to Spur Conversation about Artificial Intelligence and Machine Learning in Drug Development and Manufacturing

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FDA releases two Discussion Papers to Spur Conversation about Artificial Intelligence and Machine Learning in Drug Development and Manufacturing. In 2021, more than 100 drug and biologic applications submitted to FDA included AI/ML components.

Original Press Release:

May 10 -- U.S. FDA issued the following news release:

Artificial intelligence (AI) and machine learning (ML) are no longer futuristic concepts; they are now part of how we live and work. The U.S. Food and Drug Administration uses the term AI to describe a branch of computer science, statistics, and engineering that uses algorithms or models to perform tasks and exhibit behaviors such as learning, making decisions, and making predictions. ML is a subset of AI that uses data and algorithms, without being explicitly programmed, to imitate how humans learn.

AI/ML's growth in data volume and complexity, combined with cutting-edge computing power and methodological advancements, have the potential to transform how stakeholders develop, manufacture, use, and evaluate therapies. Ultimately, AI/ML can help bring safe, effective, and high-quality treatments to patients faster.

For example, AI/ML could be used to scan the medical literature for relevant findings and predict which individuals may respond better to treatments and which are more at risk for side effects. Conversational agents or chatbots, which are based on "generative" AI, have the potential to answer people's questions about participating in clinical trials or reporting adverse events. Digital or computerized "twins" of patients can be used to model a medical intervention and provide biofeedback before patients receive the intervention.

The regulatory uses are real: In 2021, more than 100 drug and biologic applicationsExternal Link Disclaimer submitted to the FDA included AI/ML components. These submissions spanned a range of therapeutic areas, and sponsors incorporated the technologies in different developmental stages.

As with other evolving fields of science and technology, there are challenges associated with AI/ML in drug development, such as ethical and security considerations like improper data sharing or cybersecurity risks. There are also concerns with using algorithms that have a degree of opacity, or algorithms that may have internal operations that are not visible to users or other interested parties. This can lead to amplification of errors or preexisting biases in the data. We aim to prevent and remedy discrimination — including algorithmic discrimination, which occurs when automated systems favor one category of people over other(s) — to advance equity when using AI/ML techniques. To address these concerns, the FDA has released a discussion paper, "Using Artificial Intelligence and Machine Learning in the Development of Drug and Biological Products."

AI and ML in the Development of Drug and Biological Products

The discussion paper is a collaboration among the FDA's Center for Drug Evaluation and Research, the Center for Biologics Evaluation and Research, and the Center for Devices and Radiological Health, including its Digital Health Center of Excellence. The paper aims to spur a discussion with interested parties in the medical products development community, such as pharmaceutical companies, ethicists, academia, patients and patient groups, and global counterpart regulatory and other authorities, on using AI/ML in drug and biologic development, and the development of medical devices to use with these treatments.

The paper includes an overview of the current and potential future uses for AI/ML in therapeutic development. It also discusses the possible concerns and risks associated with these innovations and ways to address them. For instance, the paper describes the importance of having human involvement, which will vary depending on how the technologies will be used. The paper also emphasizes adopting a risk-based approach to evaluate and manage AI/ML in facilitating innovations and protecting public health.

The paper characterizes certain risks, such as biases in data used to train ML algorithms, or inaccuracies and completeness of these data. In addition, the paper outlines the role of monitoring the performance of models to ensure they are reliable, relevant, and consistent over time.

There are also questions to consider, and a call for engagement and collaboration among the biomedical community. As a follow-up to the paper, we are planning a workshop to discuss how the community can work together to realize the potential of AI/ML for product development while being mindful of potential challenges. We look forward to hearing from experts on this important topic.

CDER's Discussion Paper on the Framework for Regulatory Advanced Manufacturing Evaluation

To further address the use of AI in drug manufacturing, CDER issued another discussion paper, Artificial Intelligence in Drug Manufacturing, as part of the Framework for Regulatory Advanced Manufacturing Evaluation (FRAME) Initiative. AI technologies are important in drug manufacturing because they can enhance process controls, identify early warning signals, and prevent product losses. We are also planning a second workshop for stakeholders to discuss the questions in our AI in drug manufacturing discussion paper.

Our agency's efforts in AI/ML extend beyond these initiatives. We consult product developers, engage patients, and promote regulatory science in this area, among other activities. As a public health regulatory agency, we hope to encourage the safe development of these technologies that are poised to help Americans gain quicker and more reliable access to important treatments. The FDA's work also supports the Administration's ongoing work to ensure technology improves the lives of the American people, while advancing a cohesive and comprehensive approach to AI-related risks and opportunities.

Source: U.S. FDA

[Category: Pharmaceuticals]

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AI/Robotics

Wilmington robotics company cuts jobs, outsources manufacturing

Aaron Pressman

321 words
10 May 2023
The Boston Globe
BSTNGB
English

Robotics company Symbotic has cut 200 jobs as part of a move to outsource manufacturing of its machines that move goods around large warehouses for Walmart and other retailers.

The Wilmington-based company said it was ceasing building its own robots at a Montreal facility and would make a “significant curtailment” of manufacturing at its Massachusetts headquarters. As a result, the company will lay off 100 full-time employees and 100 contractors.

“Our teams are working diligently to be more efficient as they keep our many deployment projects running on budget and on schedule and executing a new outsourcing strategy,” chief executive Rick Cohen said on a call last week with analysts. “We are now aggressively diversifying training and scaling up a network of supplier and contractor partners.”

The company employed 1,120 full-time employees as of September, 2022. It did not disclose the number of contractors employed.

Symbotic's revenue and order backlog have skyrocketed over the past year as customers including Walmart have been deploying its warehouse robotics systems. Revenue in the company's most recent quarter ended March 25 nearly tripled to $267 million, while the company posted a net loss of $55 million for the quarter, up from $30 million a year earlier. Symbotic's backlog of unfilled customer orders for robots totaled $12 billion.

The quarterly results included severance costs of $3 million and a total of $8 million in restructuring charges to make the shift to outsourced manufacturing, chief financial officer Thomas Ernest told analysts.

Symbotic went public almost one year ago by merging with a blank-check company. With revenue growing more quickly than analysts expected, the company's stock price has gained 122 percent so far this year. The company is among a growing cadre of local robotics companies working on warehouse automation, including Boston Dynamics, Amazon Robotics, and Locus Robotics.

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The University of Hong Kong; HKU Dentistry develops core technologies using generative AI in smart manufacturing of dental crowns

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2023 MAY 10 (NewsRx) -- By a News Reporter-Staff News Editor at Biotech Week -- Leading researchers from the Faculty of Dentistry at the University of Hong Kong (HKU) have developed a novel smart manufacturing on dental crowns by using generative artificial intelligence (AI) that leverage dental manufacturing technology.

The team, led by Dr James Tsoi, Associate Professor in Dental Materials Science collaborated with colleagues from HKU Faculty of Engineering's Department of Computer Science to take a leap forward for the next-generation AI-designed dental prosthesis production workflow.

The researchers developed a generative AI algorithm that uses a true three-dimensional (3D) deep learning approach, producing personalised dental crowns with high accuracy that mimic the morphology and match the materials required for the biomechanics of natural teeth. Biomechanical finite element analysis revealed that by using lithium silicate, the AI-designed crown can come very close to achieving the expected lifespan of natural teeth. In contrast, the two existing methods of designing dental crowns result in crowns that are either too large or too thin, and fall short of matching the same lifespan as natural teeth.

The results have been published in leading academic journal Dental Materials in an article titled 'Morphology and mechanical performance of dental crown designed by 3D-DCGAN'.

Currently, the Computer-Aided Design and Manufacturing (CAD/CAM) digital workflow has significantly improved dentistry but still has its challenges. From the design to the manufacture of dental prostheses, the process is labour-intensive, time-consuming, and generates health and environmental hazards during the 3D printing and milling processes. The software uses a 'tooth library' that contains predefined crown templates to assist in generating prosthetic designs but further adjustments are still needed by the operator to meet individual conditions.

The smart manufacturing method developed by the research team can meet the challenge and help replace the conventional approach to designing personalised dental crowns.

"We used a 3D-DCGAN (3D-Deep Convolutional Generative Adversarial Network) approach to 'teach' the AI algorithm 'good' designs by feeding the algorithm with over 600 cases of natural and healthy dentition. The algorithm improves the quality of the design through internal competition between a generator and a discriminator," said Dr Hao Ding, a co-investigator on the project.

"During the training process, natural teeth morphological features were learned by the algorithm, so that it can design dental crowns comparable to a natural tooth - both morphologically and functionally." Dr Ding added.

The 3D-DCGAN AI-designed crowns were compared with natural teeth and with two other conventional CAD methods of crown design methods. The results revealed that the generative AI-designed crowns had the lowest 3D discrepancy, closest cusp angle (morphological feature), and similar occlusal contacts (functional feature) as compared to natural teeth.

"This demonstrates that 3D-DCGAN could be utilised to design personalised dental crowns with high accuracy that can not only mimic both the morphology and biomechanics of natural teeth, but also operate without any additional human fine-tuning, thus saving additional costs in the production process," said principal investigator Dr James Tsoi.

"Many AI approaches design a 'look alike' product, but I believe this is the first project that functionalise data-driven AI into real dental application. We hope this smart manufacturing technology will be the stepping-stone for driving Industry 4.0 in dentistry, which is vital to meet the challenges of ageing society and lack of dental personnel in Hong Kong." He added.

Dr Tsoi said the breakthrough marks an important step towards leveraging the dental industry in Great Bay Area, which sees an annual USD3.3B revenue for producing 25-30% dental prosthesis globally, and to align with the National 14th Five-year plan in developing new forms of industrialisation and informatisation viz. smart intelligent manufacturing.

Clinical trials for using this generative AI for dental crowns are underway. The team is also working on the applicability of this tool in other dental prostheses such as bridges and dentures.

The study was supported by the General Research Fund (GRF), the Innovation and Technology Fund Mainland-Hong Kong Joint Funding Scheme (ITF-MHKJFS), and the Health and Medical Research Fund (HMRF). Its preliminary results were presented by Dr Hao Ding at the 35th Annual Scientific Meeting of the International Association of Dental Research (IADR) Southeast Asia (SEA) and it was awarded the leading IADR-SEA Research Category Award (Dental Materials and Biomaterials Category) in 2021.

The article in Dental Materials titled 'Morphology and mechanical performance of dental crown designed by 3D-DCGAN' published in Dental Materials, can be accessed through this link.

The research team Faculty of Dentistry, the University of Hong Kong Principal Investigator Dr James Kit Hon Tsoi, Associate Professor in Dental Materials Science

Co-Investigators Dr Hao Ding, Postdoctoral Fellow in Dental Materials Science Ms Yanning Chen, PhD Candidate in Dental Materials Science Prof Jukka Pekka Matinlinna, Honorary Professor in Dental Materials Science Dr Edmond Ho Nang Pow, Clinical Associate Professor in Prosthodontics Prof Michael Francis Burrow, Clinical Professor in Prosthodontics

Faculty of Engineering, the University of Hong Kong Dr Zhiming Cui, PhD graduate at the Department of Computer Science Prof Wenping Wang, Emeritus Professor at the Department of Computer Science

Drexel University Mr Ebrahim Maghami, PhD Candidate at the Department of Mechanical Engineering and Mechanics

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FDA - FDA Releases Two Discussion Papers to Spur Conversation about Artificial Intelligence and Machine Learning in Drug Development and Manufacturing

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FDA Releases Two Discussion Papers to Spur Conversation about Artificial Intelligence and Machine Learning in Drug Development and Manufacturing

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Economy

China's Second-Quarter Policy to Focus on Digital Economy, AI, Advanced Manufacturing, Experts Say

Zhu Yanran

399 words
4 May 2023
Yicai Global
YICAIG
English

(Yicai Global) May 4 -- The highlights of China's policy in the second quarter will mainly lie in the digital economy, artificial intelligence, and advanced equipment manufacturing technologies, according to experts.

China's policies will mainly focus on technology-related industries in the second quarter, with the digital economy, AI, and advanced manufacturing as the primary targets, said Dong Qi, chief macro analyst at Guotai Junan. The new energy vehicle and other industries will also receive great support to boost China's global competitiveness, Dong noted.

China should accelerate the construction of a modern industrial system supported by the real economy, consolidate and expand the development advantages of NEVs by stepping up the building of charging piles, energy storage, and other related facilities, speed up the transformation of power grids, promote the development of general AI, create an innovation ecology, and prevent risks, according to the Political Bureau of the Communist Party of China Central Committee held on April 28.

General AI technologies will be an important policy support orientation in the future, Zheshang Securities said, adding that data, application scenario innovation, and computing power infrastructure, which are related to AI development, will further clarify its support measures and implementation. In the long run, smart cars, homes, house appliances, buildings, medical care, pensions, and education are worth paying attention to, it pointed out.

The purchasing managers' index for China's manufacturing sector fell 2.7 percentage points to 49.2 in April from March, according to the latest data from the National Bureau of Statistics. A reading below 50 indicates contraction. The figure shows that the driving force of the economy remains weak and that the market demand is still insufficient.

Despite the five-day Labor Day holiday boosted consumption, further economic recovery requires the market demand to continue to pull.

The number of domestic trips in China during the Labor Day holiday reached 274 million, exceeding that of the pre-pandemic level in 2019, according to data released by the Ministry of Culture and Tourism yesterday. The domestic tourism revenue in the five days between April 29 and May 3 soared 129 percent to CNY148.1 billion (USD21.4 billion) from a year earlier, achieving the same level in 2019.

Editor: Zhang Yushuo, Futura Costaglione

Click here to view image.[https://img.yicaiglobal.com/src/image/2023/05/21678963041989.jpg]

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DLA - AFRL successfully field-tests AI robot to improve DAF manufacturing capability

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3 May 2023
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English

Access the original document here[https://www.dla.mil/About-DLA/News/News-Article-View/Article/3384517/afrl-successfully-field-tests-ai-robot-to-improve-daf-manufacturing-capability/]

AFRL successfully field-tests AI robot to improve DAF manufacturing capability

The text version of this document is not available. You can access the original document here[https://www.dla.mil/About-DLA/News/News-Article-View/Article/3384517/afrl-successfully-field-tests-ai-robot-to-improve-daf-manufacturing-capability/].

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AFRL SUCCESSFULLY FIELD-TESTS AI ROBOT TO IMPROVE DAF MANUFACTURING CAPABILITY

2591 words
3 May 2023
US Fed News
INDFED
English

WRIGHT-PATTERSON AFB, Ohio, May 3 -- The U.S. Air Force Materiel Command issued the following press release:

AFRL successfully field-tests AI robot to improve DAF manufacturing capability

A multidisciplinary development team, comprised of Air Force Research Laboratory, or AFRL, depot, industry and academia representatives, observes the successful first demonstration of an autonomous robotic incremental metal forming prototype, nicknamed AI-FORGE, at Warner-Robins Air Logistics Complex, Georgia, in late January 2023. Personnel from AFRL's Materials and Manufacturing Directorate, Ohio State University, the Advanced Robotics for Manufacturing Institute, Yaskawa Motoman, and CapSen Robotics collaborated to develop the robotic blacksmithing system, which uses incremental forming, a heat-assisted metalworking process that permits users to manufacture small lots of customized manufactured parts for military aircraft. During its initial test run, the artificially intelligent system operated autonomously without human interruption for over six hours.

Photo Details /

Download Hi-Res

$(document).ready(function () { let isDesktopInit = false; let detailSize = "full"; let displayhgt = "95vh";

let $this = $('[data-fancybox]').fancybox($.extend(true, {}, $.fancybox.defaults, { buttons: ['share'], caption: function (instance, item) { var caption = '';

if (item.type === 'image') { if (isMobile()) { caption += '' + '' + '

' + $(this).find('figcaption').html() + getDetailsURL($(this).parent()) + getDownloadURL($(this).parent()) + showFBShare() + '' + '' + '

SHOW PHOTO DETAILS '; } else { caption += $(this).find('figcaption').html() + getDetailsURL($(this).parent()) + getDownloadURL($(this).parent()) + showFBShare(); } }

return caption; }, afterLoad: function (instance, current) { //initial desktop view if (isMobile()) $(".fancybox-caption__body").addClass("mobile"); }, afterShow: function (instance, current) { var $currentSlide = $(".fancybox-slide.fancybox-slide-- current.fancybox-slide-- image").parent().parent();

if (isMobile()) $currentSlide.find(".fancy-detail-link").on("touchstart", function() { captionToggle(); }); }, afterClose: function () {

} }));

let debounceTimer;

```
$(window).on("resize", function (event) {

if (isMobile()) return;

if ($(".af3-caption-body").length > 0 && $(".af3-caption-body").css("height") != undefined) {
event.stopImmediatePropagation(); $(".fancybox-caption__body").removeClass("half"); isDesktopInit = false;
captionToggle();

debounceTimer = setTimeout(function () { clearTimeout(debounceTimer); debounceTimer = null;

recalculateImageSize();

}, 1000); } });

function recalculateImageSize() { // Fancy box miscalculates because of race conditions with new layout var
origImgWth = $(".fancybox-image").prop("naturalWidth"); var origImgHgt = $(".fancybox-
image").prop("naturalHeight"); var winWth = $(window).innerWidth(); var winHgt = $(window).innerHeight() var ratio
= Math.min(winWth / origImgWth, winHgt / origImgHgt); var newImgWth = (origImgWth * ratio); var newImgHgt =
(origImgHgt * ratio); var dstTop = Math.floor((winHgt - newImgHgt)) / 2; var dstLeft = Math.floor((winWth -
newImgWth)) / 2;

$(".fancybox-content").removeAttr("style");

$(".fancybox-content").css("width", newImgWth + "px"); $(".fancybox-content").css("height", newImgHgt + "px");
$(".fancybox-content").css("transform", "translate(" + dstLeft + "px, " + dstTop + "px"); }

function captionToggle() {

if ($(".fancybox-caption__body").hasClass("af3-caption-body")) { $(".af3-caption-body").stop(true, false).animate({
height: "0vh" }, 800, function () { // Animation complete. closeDetails(); }); $(".fancy-photo-detail-
link").html($(".fancy-photo-detail-link").html().replace("CLOSE", "SHOW")); } else { $(".fancybox-
caption__body").addClass("af3-caption-body"); $(".af3-caption-body").addClass(detailSize); $(".af3-caption-
body").animate({ height: displayhgt }, 800); $(".fancybox-caption").addClass("af3-caption-bg"); $(".base-caption-
info").addClass("full-height"); $(".fancy-photo-detail-link").addClass("photo-detail-gradient"); $(".fancybox-
button").css("display", "none"); $(".fancy-photo-detail-link").html($(".fancy-photo-detail-
link").html().replace("SHOW", "CLOSE")); $(".fancybox-caption__body").prepend(prependClosing()); $(".closing-
box, .closingx").on("touchstart", function() { captionToggle(); }); } }

function getDetailsURL(fbObj) {

return 'DETAILS'; }

function getDownloadURL(fbObj) { return 'DOWNLOAD'; }

function showFBShare() { return 'SHARE'; }

function closeDetails() { $(".af3-caption-body").removeClass(detailSize); $(".fancybox-
caption__body").removeClass("af3-caption-body"); $(".fancybox-caption").removeClass("af3-caption-bg"); $(".base-
caption-info").removeClass("full-height"); $(".fancy-photo-detail-link").removeClass("photo-detail-gradient");
$(".fancybox-button").css("display", "block");

if (detailSize === "half") { detailSize = "full"; displayhgt = "90vh"; $(".fancybox-caption").removeClass("desktop-
```

init"); } }

function prependClosing() { return '' }

function isMobile() { var isMobile = false; //initiate as false // device detection if (/(android|bb\d+|meego).+mobile|avantgo|bada\/|blackberry|blazer|compal|elaine|fennec|hiptop|iemobile|ip(hone|od)|ipad|iris|kindle|Android|Silk|lge |maemo|midp|mmp|netfront|opera m(ob|in)i|palm(os)?|phone|p(ixi|re)\/|plucker|pocket|psp|series(4|6)0|symbian|treo|up\.(browser|link)|vodafone|wap|windows (ce|phone)|xda|xiino/i.test(navigator.userAgent) || /1207|6310|6590|3gso|4thp|50[1-6]i|770s|802s|a wa|abac|ac(er|oo|s\-)|ai(ko|rn)|al(av|ca|co)|amoi|an(ex|ny|yw)|aptu|ar(ch|go)|as(te|us)|attw|au(di|\-m|r |s)|avan|be(ck|ll|nq)|bi(lb|rd)|bl(ac|az)|br(e|v)w|bumb|bw\-(n|u)|c55\/|capi|ccwa|cdm\-|cell|chtm|cldc|cmd\-|co(mp|nd)|craw|da(it|ll|ng)|dbte|dc\-s|devi|dica|dmob|do(c|p)o|ds(12|\-d)|el(49|ai)|em(l2|ul)|er(ic|k0)|esl8|ez([4-7]0|os|wa|ze)|fetc|fly(\-|_)|g1 u|g560|gene|gf\-5|g\-mo|go(\.w|od)|gr(ad|un)|haie|hcit|hd\-(m|p|t)|hei\-|hi(pt|ta)|hp(i|ip)|hs\-c|ht(c(\-| |_|a|g|p|s|t)|tp)|hu(aw|tc)|i\-(20|go|ma)|i230|iac(|\-|\/)|ibro|idea|ig01|ikom|im1k|inno|ipaq|iris|ja(t|v)a|jbro|jemu|jigs|kddi|keji|kgt(|\/)|klon|kpt |kwc\-|kyo(c|k)|le(no|xi)|lg(g|\/(k|l|u)|50|54|\-[a-w])|libw|lynx|m1\-w|m3ga|m50\/|ma(te|ui|xo)|mc(01|21|ca)|m\-cr|me(rc|ri)|mi(o8|oa|ts)|mmef|mo(01|02|bi|de|do|t(\-| |o|v)|zz)|mt(50|p1|v)|mwbp|mywa|n10[0-2]|n20[2-3]|n30(0|2)|n50(0|2|5)|n7(0(0|1)|10)|ne((c|m)\-|on|tf|wf|wg|wt)|nok(6|i)|nzph|o2im|op(ti|wv)|oran|owg1|p800|pan(a|d|t)|pdxg|pg(13|\-([1-8]|c))|phil|pire|pl(ay|uc)|pn\-2|po(ck|rt|se)|prox|psio|pt\-g|qa\-a|qc(07|12|21|32|60|\-[2-7]|i\-)|qtek|r380|r600|raks|rim9|ro(ve|zo)|s55\/|sa(ge|ma|mm|ms|ny|va)|sc(01|h\-|oo|p\-)|sdk\/|se(c(\-|0|1)|47|mc|nd|ri)|sgh\-|shar|sie(\-|m)|sk\-0|sl(45|id)|sm(al|ar|b3|it|t5)|so(ft|ny)|sp(01|h\-|v\-|v)|sy(01|mb)|t2(18|50)|t6(00|10|18)|ta(gt|lk)|tcl\-|tdg\-|tel(i|m)|tim\-|t\-mo|to(pl|sh)|ts(70|m\-|m3|m5)|tx\-9|up(\.b|g1|si)|utst|v400|v750|veri|vi(rg|te)|vk(40|5[0-3]|\-v)|vm40|voda|vulc|vx(52|53|60|61|70|80|81|83|85|98)|w3c(\-|)|webc|whit|wi(g |nc|nw)|wmlb|wonu|x700|yas\-|your|zeto|zte\-/i.test(navigator.userAgent.substr(0, 4))) { isMobile = true; }

return isMobile; } });

"There is an immediate need to obtain customized forged components that we might only require a few of, but which have significant lead times," said Dr. Sean Donegan, digital manufacturing research team lead, AFRL's Materials and Manufacturing Directorate. "In the near future, this system will allow us to acquire the specific auxiliary components and tools that are required to successfully support DAF missions. But in the far term, we want to be able to make almost anything."

AI-FORGE uses incremental forming, a heat-assisted metalworking process that permits users to manufacture small lots of customized manufactured parts for military aircraft. The addition of artificially intelligent software allows the robotic system to make significant forming decisions on its own without the need for a human operator, offering near-term cost- and time-saving benefits as well as an improved ability to replace hard-to-find aircraft structural parts.

OSU's College of Engineering received $500,000 in funding from the Advanced Robotics for Manufacturing, or ARM, Institute to develop the system, while AFRL's Materials and Manufacturing Directorate provided project leadership and oversight as well as an additional $150,000 in post-doctoral research support to OSU.

A multidisciplinary team based in OSU's Artificially Intelligent Manufacturing Systems, or AIMS, Laboratory, primarily led development efforts, oversaw system integration and advised on the use of artificial intelligence decision making software. Additional collaborators CapSen Robotics, who supplied the system's computer vision components and motion-planning software, and Yaskawa Motoman, who provided robotic hardware, bore an

additional cost share to see the project to completion. Researchers outfitted the system with custom sensors to control and track temperature and material shape changes.

After the system was developed and integrated onsite at OSU, it was transported to WR-ALC, a military maintenance and sustainment depot, where it ran autonomously under environmentally taxing conditions for approximately six hours without human intervention.

"Parts break, and they're critically important - if you don't have them, the mission fails," Donegan said. "And these are not always the kinds of things that you can just go and pick up off the shelf at a big box home hardware store. These are things that were, at one time, custom-made for that given aircraft platform, and now maybe you can't get them anymore because the company that made them went out of business, or the forging house lost [the specific tools] needed to recreate that specific part. These kinds of things happen more frequently than we'd like."

The AI-FORGE system offers a solution that is analogous to a human metalworker using heat and pressure to robotically forge replacement parts. In this case, AI-FORGE uses artificial intelligence to automate specific portions of the forging process, including placing, holding and deforming a part to create desired formations.

"When a human blacksmith forges a piece of metal into a specific shape, they have to make all kinds of decisions on the fly," Donegan said. "How to orient the component, where to apply force, how much heat to use, when to put it back into the furnace - all of this has to be decided in real time. A skilled artisan blacksmith can make decisions like these without even thinking about them, and our research team is especially interested in how to replicate that kind of decision-making process [with artificial intelligence]."

For the initial demonstration, project engineers chose to highlight the system's ability to run autonomously rather than focus on its capability to create overly complex parts, said Shane Groves, lead automation engineer at WR-ALC. To this end, for its first run, engineers tasked the robot with the creation of a geometrically basic but still critically relevant component that is currently in short supply at some local air bases.

"We picked a relatively simple part as the demonstration unit because, first, we had to see if it is even possible to do this type of work in a depot environment, and we determined that it absolutely is," Groves said. "That's why I think this was one of the most successful ARM demonstrations we have ever seen here at WR-ALC because we established that yes, the system was able to operate autonomously and complete the task in a very taxing environment."

With an initial test run complete, researchers can begin to think about ways to build a more sophisticated system that allows users to better control the inner microstructure of these parts, including ones that may have been additively manufactured initially, said Dr. Andrew Gillman, research materials engineer in AFRL's Materials and Manufacturing Directorate.

Incremental forming, a process that is performed in a series of locally controlled steps, is of particular interest to members of the materials science community, largely due to its potential to deliver repeatable results, Gillman said.

"If we can locally control the properties of these components, it could transform the front end of tech development," Gillman said. "Perhaps we can come up with new designs, think of entirely new ways to use the material."

The inner microstructure of additively manufactured parts can be unpredictable, Groves said.

"Unpredictable results do not build confidence, but what [incremental forging] allows us to do is to not only create a shape, but also align its microstructure in a way that is repeatable," Groves added.

Form, fit and function are all aspects that both human and robotic blacksmiths must take into account when

shaping specific components, and function boils down to whether the part can properly perform its job, said Dr. Michael Groeber, associate professor of the Integrated Systems Engineering and Mechanical and Aerospace Engineering departments at the Ohio State University.

"Function largely comes from the inner properties of the material," Groeber said. "So, once I have my shape, I have to ask, well, can it hold the load that it needs? Can it withstand stresses and things like that? And that's really driven by the internal structure of the material, which is highly impacted by processing. The end goal is, we don't only want to be able to make shapes. We want to make shapes but also control how we get there, in order to produce repeatable results. Then we can start to get into some really clever designs that will ensure performance [in aircraft or other systems]."

The Ohio State University team included co-principal investigator Dr. Steve Niezgoda, an associate professor of materials science and engineering who co-led the AI decision-making portion of the work, and Walter Hansen, a mechanical and systems engineer at the Center for Design and Manufacturing Excellence, who spearheaded the physical system integration and hardware design. Dr. Toby Mahan's AFRL-funded post-doctoral research efforts contributed significantly to the success of the project, while Dr. Glenn Daehn developed the initial concepts upon which the project was based, Groeber said.

In the future, artificially intelligent incremental forming methods could be applied to the development of personalized medical devices, Groeber added.

"We can imagine smaller systems where this AI decision-making of incremental forming applies, such as metal implants," Groeber said. "If a surgeon needs jaw reinforcement plates or hip implants for a patient, right now, they have to eyeball what they think might be the best size, choose from limited options, and then bend the component manually to fit the patient. In the future we could see robotic systems like this doing the bending. There is potential for accuracy and quality improvements when a robot does this versus a surgeon because everyone's anatomy is different."

Groves said the demonstration effort was the direct result of an effective partnership between AFRL, academia, industry, the ARM Institute and the depot.

"It's the way it was designed to work from the start," Groves said. "AFRL develops the technology with the help of their partners, and then we help them test it, and then we transition it together, as a team, into production."

Groves said his team's mission is to support the warfighter, no matter the challenge.

"The people who are successful are those who are agile and can adapt to changes," Groves said. "And the systems, then, have to do the same."

About AFRL

The Air Force Research Laboratory, or AFRL, is the primary scientific research and development center for the Department of the Air Force. AFRL plays an integral role in leading the discovery, development and integration of affordable warfighting technologies for our air, space and cyberspace force. With a workforce of more than 11,500 across nine technology areas and 40 other operations across the globe, AFRL provides a diverse portfolio of science and technology ranging from fundamental to advanced research and technology development. For more information, visit www.afresearchlab.com. [http://www.afresearchlab.com.];

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H2O.ai; H2O.ai Brings H2O AI Cloud to the Snowflake Manufacturing Data Cloud

592 words
25 April 2023
Information Technology Newsweekly
INTEWK
169
English

2023 APR 25 (VerticalNews) -- By a News Reporter-Staff News Editor at Information Technology Newsweekly -- H2O.ai announced the launch of H2O AI Cloud as a pre-built solution for the Manufacturing Data Cloud, launched by Snowflake, the Data Cloud company. The Manufacturing Data Cloud enables companies in automotive, technology, energy, and industrial sectors to unlock the value of their critical siloed industrial data by leveraging Snowflake's data platform, Snowflake- and partner-delivered solutions, and industry-specific datasets. The Manufacturing Data Cloud empowers manufacturers to collaborate with partners, suppliers, and customers in a secure and scalable way, driving greater agility and visibility across the entire value chain.

"Snowflake's partnership with H2O.ai is part of the greater effort to give our manufacturing customers and their suppliers access to the data, applications, and services needed to improve efficiency, reduce costs, and enhance supply chain transparency," said Tim Long, Global Head of Manufacturing at Snowflake. "We look forward to working closely with H2O.ai to help the industry continue to embrace the increasingly digital-industrial world." With Snowflake's Manufacturing Data Cloud, organizations can build a data foundation for their business, improve supply chain performance, and power smart manufacturing initiatives in today's digital-industrial world. The H2O AI Cloud solution benefits manufacturing organizations in a variety of ways, including: PREDICTIVE MAINTENANCE: By integrating historical, structured and unstructured data such as images from the manufacturing floor in Snowflake, the H2O AI Cloud can monitor production equipment in real-time, detect anomalies or deviations from normal operations, and predict when maintenance is needed to improve equipment uptime. QUALITY CONTROL: The H2O AI Cloud allows manufacturers to perform predictive analytics with real-time monitoring, analyzing both data and product imagery, and identifying any object anomalies with high accuracy and speed. SUPPLY CHAIN OPTIMIZATION: By analyzing large volumes of historical data and data from sensors, machines, and other sources, H2O.ai can optimize production processes across the entire supply chain including document processing, inventory, demand forecasting, and transportation logistics, as well as identify potential risks and inefficiencies.

"We're excited to see our efforts address the complex challenges of the manufacturing industry, as part of the Snowflake Manufacturing Data Cloud launch," said Rod Hamlin, SVP of Global Business Development and GM of EMEA at H2O. "H2O is focused on enabling joint customers to deliver AI solutions that are changing the industry, from predictive manufacturing design to transportation optimization." Learn more about Snowflake's Manufacturing Data Cloud launch here and how H2O.ai is transforming the manufacturing industry here. ABOUT H2O.AI H2O.ai is the leading AI Cloud company, on a mission to democratize AI. As a company, it distills the technical prowess of 30 Kaggle Masters into straightforward AI cloud tools that solve powerful problems. Goldman Sachs, NVIDIA, and Wells Fargo are not only customers and partners, but strategic investors in the company. H2O.ai's marquee products of Driverless AI, Hydrogen Torch and Document AI have transformed over 20,000 global organizations and over half of the Fortune 500, including AT&T, Commonwealth Bank of Australia, Citi, GlaxoSmithKline, Hitachi, Kaiser Permanente, Procter & Gamble, PayPal, PwC and Unilever. Join the movement of AI4Good at www.h2o.ai[http://www.h2o.ai]. View source version on businesswire.com: https://www.businesswire.com/news/home/20230413005228/en/[https://www.businesswire.com/news/home/20230

413005228/en/]

Keywords for this news article include: H2O.ai, Cloud Computing, Information Technology.

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AI in Manufacturing

Siemens, Microsoft Drive Industrial Yield With AI

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Asia Electronics Industry
ASELEC
English

Siemens[http://www.siemens.com/] and Microsoft[https://www.microsoft.com/] are harnessing the collaborative power of generative artificial intelligence (AI). Accordingly, their objective is to help industrial companies drive innovation and efficiency across the design, engineering, manufacturing and operational lifecycle of products.

To enhance cross-functional collaboration, the companies are integrating Siemens[https://aei.dempa.net/archives/tag/siemens]' Teamcenter® software for product lifecycle management (PLM) with Microsoft's collaboration platform Teams. In addition, it will also integrate the language models in Azure OpenAI Service as well as other Azure AI capabilities.

Recently, the two technology leaders demonstrated at Hannover Messe 2023[https://www.hannovermesse.de/en/] in Germany how generative AI can enhance factory automation[https://aei.dempa.net/archives/tag/factory-automation] and operations through AI-powered software development, problem reporting and visual quality inspection.

"The integration of AI into technology platforms will profoundly change how we work and how every business operates," said Scott Guthrie, executive vice president, Cloud + AI, Microsoft. "With Siemens, we are bringing the power of AI[https://aei.dempa.net/archives/tag/AI] to more industrial organizations, enabling them to simplify workflows, overcome silos and collaborate in more inclusive ways to accelerate customer-centric innovation."

Siemens and Microsoft drive industrial productivity with generative artificial intelligence.[https://aei.dempa.net/wp-content/uploads/2023/04/Microsoft-Siemens-Featured-1024x603.png]

Connecting Shop Floor Workers

With the new Teamcenter app for Microsoft Teams, anticipated later in 2023, the companies are bringing closer design engineers, frontline workers and teams across business functions to close feedback loops faster and solve challenges together. For example, service engineers or production operatives can use mobile devices to document and report product design or quality concerns using natural speech. Through Azure OpenAI Service, the app can parse that informal speech data, automatically creating a summarized report and routing it within Teamcenter to the appropriate design, engineering, or manufacturing[https://aei.dempa.net/archives/tag/manufacturing] expert. To foster inclusion, workers can record their observations in their preferred languages which is then translated into the official company language with Microsoft Azure AI. Hence, Microsoft Teams provides user-friendly features like push notifications to simplify workflow approvals, reduce the time it takes to request design changes and speed up innovation cycles.

In addition, the Teamcenter app for Microsoft Teams can enable millions of workers who do not have access to PLM tools today to impact the design and manufacturing process more easily as part of their existing workflows.

Factories Running With AI-Powered Automation

Siemens and Microsoft are also collaborating to help software developers and automation engineers accelerate the code generation for Programmable Logic Controllers (PLC)[https://aei.dempa.net/archives/tag/PLC], the industrial computers that control most machines across the world's factories. At Hannover Messe, the companies demonstrated a concept for how OpenAI's ChatGPT and other Azure AI services can augment Siemens' industrial automation engineering solutions. Furthermore, the showcase highlighted how engineering teams can significantly reduce time and the probability of errors by generating PLC code through natural language inputs. These capabilities can also enable maintenance teams to identify errors and generate step-by-step solutions more quickly.

"Powerful, advanced artificial intelligence is emerging as one of the most important technologies for digital transformation," said Cedrik Neike, Member of the Managing Board of Siemens AG and CEO Digital Industries. "Siemens and Microsoft are coming together to deploy tools like ChatGPT so we can empower workers at enterprises of all sizes to collaborate and innovate in new ways."

Industrial AI Prevents Defects

Detecting defects in production early is critical to prevent costly and time-consuming production adjustments. Industrial AI like computer vision enables quality management teams to scale quality control, identify product variances easier and make real-time adjustments even faster.

This collaboration is part of the longstanding strategic relationship between Siemens and Microsoft, built on over 35 years of joint innovation with thousands of customers. Other areas of collaboration include Senseye on Azure[https://azuremarketplace.microsoft.com/en-us/marketplace/apps/senseyeltd1605001850899.senseye_pdm?tab=overview], enabling companies to run predictive maintenance at enterprise scale and support for customers that seek to host their business applications in the Microsoft Cloud to run solutions from the Siemens Xcelerator[https://www.siemens.com/global/en/products/xcelerator.html] open digital business platform, including Teamcenter[https://appsource.microsoft.com/en-GB/product/web-apps/siemensplmsoftware.teamcenter_on_azure?exp=ubp8&tab=Overview], on Azure.

Moreover, Siemens is also partnering with Microsoft as part of its zero trust strategy[https://customers.microsoft.com/en-us/story/1472098551855945018-siemens-manufacturing-security-german].

Dempa Publications, Inc.

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BRIEF-American Manufacturing Resurgence Reshoring Accelerates Significantly And Manufacturing Becomes A Digital-First Industry As CEOs Invest In Emerging Technologies Like Artificial Intelligence (Ai), Robotics And More

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Reuters News
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April 17 (Reuters) - Xometry Inc:

* AMERICAN MANUFACTURING RESURGENCE: RESHORING ACCELERATES SIGNIFICANTLY AND MANUFACTURING BECOMES A DIGITAL-FIRST INDUSTRY AS CEOS INVEST IN EMERGING TECHNOLOGIES LIKE ARTIFICIAL INTELLIGENCE (AI), ROBOTICS AND MORE Source text for Eikon: Further company coverage:

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AI in Manufacturing

Lam Research Study Points to Human-Machine Collaboration for Chip Innovation

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Asia Electronics Industry
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English

In a new study, Lam Research Corp.[https://www.lamresearch.com/?_ga=2.262005453.1942274788.1681458484-2017653373.1662101141] examined the potential for the use of artificial intelligence (AI) [https://aei.dempa.net/archives/13172] in process development for chip fabrication today. It is a human-driven step that is essential for the mass production of every new advanced semiconductor in the world.

As the semiconductor market progresses towards $1 trillion in annual revenue by 20301, the study recently published in the journal Nature, identifies an opportunity to address two grand challenges facing the industry: reducing development costs and accelerating the pace of innovation to meet the increasing demand for next-generation chips. The study found that a “human-first, computer-last” approach can reach process engineering targets dramatically faster and at half the cost compared to today's approach.

“New approaches in innovation are needed to enable the industry to scale fast enough to meet the data-driven world's evolving demand for next-generation chips,” said Tim Archer, president and chief executive officer at Lam Research. “The opportunity for greater collaboration between talented engineers and machines in process engineering highlighted in Lam's study in Nature is a potential game-changer for our customers and our industry at large. This research is a testament to Lam's more than 40-year heritage of industry leadership and semiconductor manufacturing innovation. I congratulate the Lam team on this exciting work.”

Lam Infographic Process Engineering[https://aei.dempa.net/wp-content/uploads/2023/04/LAM-19850_Nature-Article-Infographic_FNL_WA-551x1024.jpg]

Hybrid Human-First, Computer-Last Strategy

The rising complexity of next-generation chips continues to drive process development to be more challenging and expensive. Seeking a more efficient approach, researchers at Lam put talented process engineers head-to-head against AI-enabled computer algorithms in the study.

To manufacture every chip or transistor designed, experienced and skilled engineers must first create a specialized recipe that outlines the specific parameters and permutations needed for each process step. Hundreds of steps are required to build these nanometer-sized devices on a silicon wafer. Process steps typically include multiple instances of depositing thin layers of materials onto silicon wafers and etching away excess material with atomic-scale precision. This essential phase of semiconductor development is currently done by human engineers, largely using their intuition and a “trial and error” approach.

With every recipe unique to the chip design and more than 100 trillion possible options to incorporate, process development can be laborious, time-intensive, and costly. This increasingly slows down the time needed to achieve the next technology breakthrough.

In the Lam study, machine and human participants competed to create a targeted process development recipe at

the lowest cost, weighing a variety of factors associated with test batches, metrology and overhead expenses. The study concluded that while humans excelled in solving challenging and out-of-the-box problems, a hybrid human-first, computer-last strategy can help address the tedious aspects of process development and, ultimately, speed up process engineering innovation.

“Although critical to the creation of each and every chip produced, the plasma physics of process engineering has been for decades rooted in the same scientific approach that Thomas Edison used: trial and error,” said Rick Gottscho, executive vice president and strategic advisor to the CEO – Innovation Ecosystem at Lam Research and co-author of the study.

“Our research showed that while engineering talent remains essential to innovation, process engineering costs can be reduced by 50 percent by integrating AI at the right stage and with the right data. The study provides a prescriptive approach for bringing together the best of human-led engineering and the best of what data science and machines offer to create a combination that performs better than either one alone. If realized, this hybrid approach can lead to significant savings in both dollars and engineering time for the industry,” said Gottscho.

Lam is currently incorporating the key learnings from the study into its development operations. The Lam study provides initial guidance on how to successfully integrate human knowledge, skill and experience with AI's ability to rapidly assess numerous possible combinations in process engineering.

“By complementing engineering expertise with AI using the human-first, computer-last approach, the tedious and laborious aspects of design are alleviated for engineers, freeing them up to focus on the creative areas of development and explore innovations that may have been out of reach either due to bandwidth or cost,” said Keren Kanarik, technical managing director of Lam Research, lead author of the research paper and a former process engineer.

“While the application of AI in process engineering is still in its infancy and human expertise and domain knowledge is essential for the foreseeable future, the results point us to a path to foundationally change the way processes are developed for manufacturing chips.”

1- Source: McKinsey and Co., “The semiconductor decade: A trillion-dollar industry,” April 1, 2022

Dempa Publications, Inc.

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AI in Manufacturing

ENEOS Materials Taps Yokogowa's Autonomous Control AI

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Asia Electronics Industry
ASELEC
English

ENEOS Materials Corporation[https://eneos-materials-trading.com/en/] and Yokogawa Electric Corporation[https://www.yokogawa.com/] have to use the latter's Factorial Kernel Dynamic Policy Programming (FKDPP), a reinforcement learning-based AI algorithm. Particularly, ENEOS Materials chemical plant will employ the AI control system.

The agreement follows a successful field test in which this autonomous control AI*1 demonstrated a high level of performance. Whereas, controlling a distillation column at this plant for almost an entire year. This is the first example in the world of reinforcement learning AI being formally adopted for direct control of a plant*2.

Distillation columns at the ENEOS Materials chemical plant[https://aei.dempa.net/wp-content/uploads/2023/04/ENEOS_Materials_chemical_plant.jpg]

Demonstrate Four Benefits

Over a 35 day (840 hour) consecutive period, from January 17 to February 21, 2022, this field test initially confirmed*3 that the AI[https://aei.dempa.net/archives/tag/ai] solution could control distillation operations. Previously, this was beyond the capabilities of existing control methods (PID control/APC) and had necessitated manual control of valves based on the judgements of experienced plant personnel. Following a scheduled plant shutdown for maintenance and repairs, the field test resumed and has continued to the present date.

Confirmed benefits from the year-long field test[https://aei.dempa.net/wp-content/uploads/2023/04/Confirmed_benefits_from_the_year-long_field_test_en-1024x324.png]

In this field test, the autonomous control AI demonstrated the following four benefits:

Moreover, it has been conclusively shown that this solution is capable of controlling the complex conditions needed to maintain product quality and ensure that liquids in the distillation column remain at an appropriate level, while making maximum possible use of waste heat as a heat source. In so doing it has stabilized quality, achieved high yield, and saved energy.

* Year-round stabilityThe autonomous control AI maintained stable control of the liquid levels and maximized the use of waste heat, even in winter and summer weather, with external temperatures changes by about 40ºC. No problems were observed, and stable operation and high product quality was achieved throughout the field test.

* Reduced environmental impactBy eliminating the production of off-spec products, the autonomous control AI reduced fuel, labor, and other costs, and made efficient use of raw materials. While producing good quality products that met shipment standards, the autonomous control AI reduced steam consumption and CO2 emissions by 40%*4 in comparison to conventional manual control.

* Lightened workload and improved safetyThe autonomous control AI eliminated the need for operators to perform manual inputs. This not only decreased workload and helped to prevent human error, it also reduced mental stress

levels and improved safety.

* Robustness of the AI control modelEven after modifications were made at the plant during a routine shut-down for maintenance and repair, the same AI control model could remain in use.

Stable, Optimized Performance

ENEOS Materials found over the course of this one-year verification process that the autonomous control AI was a robust system. Hence, could achieve stable performance and optimize operations throughout the year, including in winter and summer.

The company will look into applying this AI to other types of processes and plants. Furthermore, will continue working to improve productivity and save energy by expanding the scope of autonomization.

To promote plant autonomization, on February 27 Yokogawa launched the provision of an autonomous control AI service for edge controllers*5, also a world first*6. In conjunction with this service, the company is offering customers who wish to achieve autonomous plant operations a global consulting service that covers everything from the identification of control issues to the investigation of optimum control methods and the calculation of cost-effectiveness, and includes safety, implementation, maintenance, and operation.

Going forward, ENEOS Materials and Yokogawa will continue to work together and investigate ways to carry out digital transformation (DX) through the use of AI for control and condition-based maintenance in plants.

Notes:

*1 Yokogawa defines autonomous control AI as AI that deduces the optimum method for control independently and has a high level of robustness enabling it to autonomously handle, to a certain extent, situations that it has not previously encountered.

*2 Based on comprehensive secondary research of publicly available resources by IoT Analytics, performed in March 2023.

*3 In a World First, Yokogawa and JSR Use AI to Autonomously Control a Chemical Plant for 35 Consecutive Days – Putting into practical use a next-generation control technology that takes into account quality, yield, energy saving, and sudden disturbances – [https://www.yokogawa.com/us/news/press-releases/2022/2022-03-22/]

*4 In comparison to the amount of steam previously used to maintain the liquid level and the corresponding amount of CO2 emissions.

*5 Yokogawa Launches Autonomous Control AI Service for Use with Edge Controllers – Optimizes control to improve productivity and save energy – [https://www.yokogawa.com/news/press-releases/2023/2023-02-27/]

*6 As the world's first commercially available reinforcement learning AI service for edge controllers. Based on comprehensive secondary research of publicly available resources by IoT Analytics, performed in March 2023.

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Moglix partners with IIT-Kanpur to revolutionise AI in manufacturing

FE Education

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5 April 2023
Financial Express Online
FIEXON
English

B2B e-commerce company Moglix has signed a Memorandum of Understanding (MoU) with Artificial Intelligence and Innovation Driven Entrepreneurship – Center of Excellence (AIIDE- CoE), Indian Institute of Technology, Kanpur at their Noida campus. The MoU signifies Moglix's commitment towards innovation in technology and collaboration with academia, an official release said.

According to the release, Moglix and IIT-Kanpur will collaborate on developing new technologies to stay ahead of the curve in the rapidly evolving field of AI and identify new opportunities for innovation under the AIIDE CoE in the field of supply chain optimization, product recommendation, natural language processing, image recognition and predictive maintenance. Additionally, the two organisations will be engaged in connecting with the startups incubated with the Incubator to explore opportunities regarding investment, strategic partnerships, product piloting for research, best practices and collaboration on new projects and initiatives aimed at augmenting the startup ecosystem.

"We have partnered with IIT-Kanpur to drive innovation in AI technology for the manufacturing industry. This partnership will enable us to accelerate the development of cutting-edge AI solutions and empower our customers to optimize their operations and unlock new growth opportunities," Rahul Garg, founder, CEO, Moglix, said.

Furthermore, Nikhil Agarwal, CEO, AIIDE-Centre of Excellence, added that this collaboration will enable development of innovative AI solutions that will have a significant impact on the infrastructure and industrial space."

AIIDE-CoE is a domain-specific facility established with the vision to promote innovation and entrepreneurship in the field of artificial intelligence. The centre provides a platform for startups to gain access to mentorship, networking opportunities, training, research and development, infrastructure, and funding opportunities. To promote entrepreneurship at the grassroots level the Uttar Pradesh Government under its flagship startup policy 2020 envisioned establishing domain-specific Centers of Excellence in the state of Uttar Pradesh.

Also ReadMSM aims to facilitate 10,000 Indian students for higher education across global universitiesFollow us onTwitter,Facebook,LinkedIn

The MoU signifies Moglix's commitment towards innovation in technology and collaboration with academia. [https://www.financialexpress.com/wp-content/uploads/2023/04/Untitled-design-2023-04-05T152250.540.jpg?w=1024]

Indian Express Group

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Business

Artificial intelligence could help Yorkshire's manufacturing firms operate more efficiently, roundtable is told

Greg Wright

973 words
30 March 2023
Yorkshire Post
YP
English

Artificial intelligence could help Yorkshire's manufacturing firms operate more efficiently as they move into global markets, a major business event was told.

Some of the participants in the roundtable, which was organised by the York & North Yorkshire Growth Hub in conjunction with Made Smarter and The Yorkshire Post, said they were experiencing frustrations caused by red tape, and problems recruiting and retaining staff.

Harry Coates, the managing director of Just Paper Tubes, told the event, which was held at Hospitium in York, that deflation was having an impact on the industry.

He added: "We are the canary down the coal mine; deflation hits us first before affecting others. We are seeing opportunities from using AI (Artificial Intelligence) to help with our customer services. We decided to use AI to assist with post Brexit customs clearance after a new American technology startup contacted us and asked if we would like to be a launch customer. It has made us far more efficient."

Ben Henry, the production manager at engineering company Hunprenco, said his business was not experiencing problems recruiting staff. He believed one of the best ways of ensuring that you don't suffer from a skills shortage is to think carefully about how you describe the vacancy in an advert.

"The way the job is advertised is crucial. As well as picking the right candidate, you have to then commit to investing in them. But there are challenges caused by the energy crisis. As well as raw material prices, the bills we are facing are huge."

Davide Cerca, director of Robustrack, which imports excavators and hydraulic attachments for excavators from Italy for distribution in the UK, said his business was facing challenges linked to bureaucracy and increasing costs. He added: "Raw material increases have given us another challenge." He said the business was improving the skills base of its staff at a time when demand for diggers and excavators was growing.

Jo Botham of bakery company Bothams Whitby, said that in common with many businesses, Bothams faced challenges around rising energy and raw material costs. The company has 120 staff with 30 working in production, many of whom have been with the business from school to retirement. However, it was proving increasingly difficult to recruit younger workers.

He added: "Tourism in Whitby is a huge part of the economy and has become even more of a factor since lockdown (with more people going on holiday in the UK). But this can be a double-edged sword. There is an opportunity for retailers in town and selling 'the dream' with increased web sales. However, the rate of second home ownership in Whitby is amongst the highest in the country which has pushed up the cost and availability, especially for the younger generation .

"We are trying to capitalise on our company's 150 year history, to generate interest in the baking industry. It's all about changing the image of baking and making people aware that we do more than just make bread buns." Mark Tindley, the MD of Synthotech, said his company made widget and gadgets, some of which are robots that are helping to fix the gas pipes around London before the coronation of King Charles III.

He added: "Small businesses have to focus on three things; customers, colleagues and cashflow" Synthotech provides products and services for utility and infrastructure markets around the world and Mr Tindley said ESG (Environmental, social, and governance) would be a major focus for all companies.

"One of the big things to realise is that being carbon neutral isn't enough anymore,'' he added.

Jonathan Lupton MD of Econ Engineering said his business had recently invested in land in another location to help it grow.

He said: "We have struggled to find land to buy, that is close to our manufacturing site in Ripon in order for us to expand."

He is also concerned about the lack of support for manufacturing from local colleges, the company now liaises with colleges in Darlington and Skipton to train manufacturing students because it can't find the support closer to home.

He said that there are some outdated perceptions in the engineering industry. He stressed that people who leave school and find jobs in manufacturing can be rewarded with high salaries.

"There are skilled jobs where you can earn a good living," he said

The company is taking people on and training them up, with many using tablets in the factory which shows how thing have changed.

Jack Barber, the MD of Nature's Laboratory, told the roundtable that some of his challenges related to cashflow, complications caused by Brexit and inflation.

He was also frustrated that, despite having academic research to support the company's claim that its products bring clear health benefits, there are restrictions about what it can say on labelling about these benefits.

He added: "The big opportunities are around spreading awareness about our research and manufacturing expertise around Yorkshire. We want to raise our regional profile. If you asked most people in Whitby, they wouldn't be able to tell you that we are a local company. There is a preconception that Whitby is a tourist town and doesn't have a manufacturing base but that is not true."

Andy Gatenby of Allerton Steel said: "Challenges around recruitment are a common theme. We rely on having skilled people on the shopfloor. The biggest challenge is getting young people through the door in the first place. The education system is failing us.

"Our average age is quite high and quite a number of staff have retired in recent years. However, many college courses are not being run in line with producing the skilled workforce that we are looking for."

JPIMedia Limited

Document YP00000020230330ej3u000e5

Chairman Maser Group Take On ChatGPT And Future Of Manufacturing

760 words
27 March 2023
Nigerian Tribune
NIGTRI
English

Prateek Suri is the CEO and Founder of Maser, a manufacturer of smart TVs and a thought leader in technology, retail, and AI, who is passionate about the future of conversational AI. His expertise is sort after by leading think tanks and institutions across the world. In this interview, Mr. Suri shares insights on the recently launched ChatGPT by parent company OPENAI, starting his views on the buzz around ChatGPT, creating personalised products and experiences for customers, and the future of conversational AI.

INTERVIEW ON CHATGPT

What's your take on the buzz around chatgpt?

This is more than a buzz! ChatGPT is profound in every sense of the word. ChatGPT is the latest language model from OpenAI that was designed and trained to interact with people via a chat user interface. GTP stands for Generative Pre-trained Transformer. It simply provides human-like responses to queries. While traditional online search gives you a response from indexed web pages, ChatGPT enables us to, for instance, compose essays, describe art in great detail, and even help us code. It provides us with responses based on the data it's trained on.

ChatGPT has compelled Google to declare 'code red'. Do you see online search being transformed in the most profound manner?

That's shocking, to say the least. The tech ecosystem has been anticipating a disruption in the way Google search works. Maybe this would change everything. I don't think google would go back to the way they run an online search. With Google code red declaration, I think traditional online search is dead!

Do you see any applications of artificial intelligence TV space? Should we be expecting to see Maser integrate ChatGPT into its electronics products in the future?

Chaptgpt is poised to pierce through the artificial intelligence TV. AI TV is based on smart TV, combined with AI technology to make the TV's functions more exciting and powerful, such as language recognition, image recognition, natural language processing, etc., and it can also deeply learn user usage and search habits. It can help with more precise voice control and user-friendly recommendation of user preferences.

With the launch of ChatGPT, we expect to see a deeper transformation in this space. The global major manufacturers of AI TV include Maser, TCL, LG, Sony, Samsung, Haier, Xiaomi, PHILIPS, Skyworth and TOSHIBA, etc.

Microsoft is investing $10billion in OpenAI, the owner of chatgpt. It promises a premium product offering for corporate users.

I think Microsoft has seen a huge commercial opportunity by way of putting Chat GPT-style AI Tools in every of its product offerings. I expect to see a significant boost to productivity by users of Microsoft's products as a factor of this integration even if it is lopsided against Google.

What's the future of conversation AI?

It is more transformative bots and total disruption in the way human works or engages with technology. Also, it could be filled with consequential litigations as the copyright owners battle over what's fair use or abuse of copyrighted content.

Do you have worries about ChatGPT?

Like every technology, I am deeply concerned about it. It offers us an opportunity to personalize our product offerings. But then it could remake our workplace and even society as we know would be affected. Yet, we have to move the needle of innovation further while keeping an eye on the downsides of technologies.

How can enterprises get started with their ChatGPT strategy?

By keeping their eyes open to how Microsoft brings this technology to the enterprise space. We are also watching the startups that will be shaping the diffusion of this technology. We are intuitively looking at it as a way of creating more entertainment pleasures for our customers. We see a promise in providing a more efficient and automated customer service experience.

What have been the most relevant developments, breakthroughs and advancements in Conversational AI in your industry in 2022, and what do you foresee for 2025?

In 2023, I believe we will have more accelerated use of ChatGPT, especially in different sectors of the economy. The breakthrough might be in the area of AI-style video tool. The release of OPENAI video bot might drive conversational AI into new realms and probably bring these powerful tools into the military space because of their autonomous nature.

For Maser, it would be deeper personalization like never before, improve customer support and augmentation of our metaverse goals as technology rewrites the rules of business.

African Newspapers of Nigeria Limited

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CHINA INDUSTRY AND INFORMATION TECHNOLOGY MINISTER: WILL FOCUS ON KEY AREAS SUCH AS ARTIFICIAL INTELLIGENCE, BIOLOGICAL MANUFACTURING, SMART VEHICLES AND CULTIVATE NEW INDUSTRIAL CHAINS AND SUPPLY CHAINS

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22:27
Reuters News
LBA
English

CHINA INDUSTRY AND INFORMATION TECHNOLOGY MINISTER: WILL FOCUS ON KEY AREAS SUCH AS ARTIFICIAL INTELLIGENCE, BIOLOGICAL MANUFACTURING, SMART VEHICLES AND CULTIVATE NEW INDUSTRIAL CHAINS AND SUPPLY CHAINS

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Artificial Intelligence; Research Data from College of Engineering Update Understanding of Artificial Intelligence [Advanced Artificial Intelligence System By Intuitionistic Fuzzy (Sic)-subring for Automotive Robotic Manufacturing]

683 words
24 March 2023
Journal of Transportation
JTRANS
86
English

2023 APR 1 (VerticalNews) -- By a News Reporter-Staff News Editor at Journal of Transportation -- New research on Artificial Intelligence is the subject of a report. According to news reporting originating in Safat, Kuwait, by VerticalNews journalists, research stated, "In recent years, robotic engineering has been enriched with Artificial Intelligence (AI) technology, preparing the industries to enter the Industry 4.0 era. The powerful neoteric paradigm of AI can serve automotive industries (as one of the largest sectors in the world), to inevitably change their outdated manufacturing strategies."

The news reporters obtained a quote from the research from the College of Engineering, "These industrial sectors are increasingly encountering mega data that inevitably carry uncertainty, for which the available methodologies are not capable to deal with that efficiently. To theoretically resolve this gap, a generalized intuitionistic fuzzy set (IFS) theory is proposed here as an efficient, fast, and flexible method. Based on the membership and non-membership degrees, multi-aspect gamma-systems is developed to model the complex real systems. Inspired by multi-attribute gamma-systems and IFS approach, a novel mathematical concept namely intuitionistic fuzzy gamma-subring (IF gamma R) method, is developed to establish an AI platform for robotic automotive manufacturing. Significant characteristics of IF gamma R are developed, including the overlapping of elements with IF gamma R property is IF gamma R, also image and inverse image of elements with IF gamma R property are IF gamma R under gamma-ring homomorphism. Additionally, the connection between upper and lower bound level cuts and image/inverse image property are parametrically discussed. With the effect of surjective homomorphism on upper and lower level cuts, there would be equivalent upper and lower level cuts of image/inverse image in IF gamma R environment. The developed notion of IF gamma I is obtained as the generalization of gamma-ideal under gamma-ring R along with the resultant fundamental properties of IF gamma I, where the overlapping/intersection family of IF gamma Is is proved to be IF gamma I. Also, the upper and lower bound level cuts of elements with IF gamma I property are gamma-ideals. Finally, the proposed IF gamma gamma R method is utilized for automotive AI systems (AAIS) by means of mathematical algebraic notions of gamma-ring, IFS, gamma-ring isomorphism, and upper and lower bound levels. The developed methodology is validated using real dataset of industrial robots in supply chain and then, the elements are characterized in terms of metric overall factory effectiveness. With a systematic pattern of gamma-ring structure, the IF gamma R model is accomplished on elements, and the intercomponent correspondence of AAIS is established with the gamma-ring isomorphism. Based on QC (quality criteria) and non-QC indexes, as the derivation of upper and lower bound level cuts, the analysis of parameters (robots) is simplified for the identification of effective and compatible components in AAIS."

According to the news reporters, the research concluded: "The generalized IFS-based method for complex systems has a potential to be used in different AI platforms."

This research has been peer-reviewed.

For more information on this research see: Advanced Artificial Intelligence System By Intuitionistic Fuzzy (Sic)-subring for Automotive Robotic Manufacturing. Artificial Intelligence Review, 2023. Artificial Intelligence Review can be contacted at: Springer, Van Godewijckstraat 30, 3311 Gz Dordrecht, Netherlands. (Springer - www.springer.com[http://www.springer.com]; Artificial Intelligence Review - www.springerlink.com/content/0269-2821/[http://www.springerlink.com/content/0269-2821/])

Our news correspondents report that additional information may be obtained by contacting Abbas Amini, Australian Univ Kuwait, College of Engineering, Dept. of Mechanical Engineering, Safat 13015, Kuwait. Additional authors for this research include Narjes Firouzkouhi, Bijan Davvaz, Fadi Alkhatib, Maria Rashidi, Marziyeh Nazari, Hashem Bordbar and Chun Cheng.

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AR and VR in Manufacturing

New Intel AI Models Boost Computer Vision Development

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Asia Electronics Industry
ASELEC
English

Depth estimation is a challenging computer vision task required to create a wide range of applications in robotics, augmented reality (AR) and virtual reality (VR). Existing solutions often struggle to correctly estimate distances, which is a crucial aspect in helping plan motion and avoiding obstacles when it comes to visual navigation. Researchers at Intel[https://aei.dempa.net/archives/tag/intel] Labs are addressing this issue by releasing two AI models1 for monocular depth estimation: one for visual-inertial depth estimation and one for robust relative depth estimation (RDE).

The latest RDE model, MiDaS version 3.1, predicts robust relative depth using only a single image as an input. Due to its training on a large and diverse dataset, it can efficiently perform on a wider range of tasks and environments. The latest version of MiDaS improves model accuracy for RDE by about 30% with its larger training set and updated encoder backbones.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/03/Intel-Featured-1024x603.jpg]

MiDaS has been incorporated into many projects, most notably Stable Diffusion 2.0, where it enables the depth-to-image feature that infers the depth of an input image and then generates new images using both the text and depth information. For example, digital creator Scottie Fox[https://www.pcgamer.com/ai-generated-stable-diffusion-vr-dev-interview-scottie-fox/] used a combination of Stable Diffusion and MiDaS to create a 360-degree VR environment. This technology could lead to new virtual applications, including crime scene reconstruction for court cases, therapeutic environments for healthcare and immersive gaming experiences.

Intel Introduces MiDaS 3.1 for Computer Vision

While RDE has good generalizability and is useful, the lack of scale decreases its utility for downstream tasks requiring metric depth, such as mapping, planning, navigation, object recognition, 3D reconstruction and image editing. Researchers at Intel Labs are addressing this issue by releasing VI-Depth, another AI model that provides accurate depth estimation.

VI-Depth is a visual-inertial depth estimation pipeline that integrates monocular depth estimation and visual-inertial odometry (VIO) to produce dense depth estimates with a metric scale. This approach provides accurate depth estimation, which can aid in scene reconstruction, mapping and object manipulation.

Incorporating inertial data can help resolve scale ambiguity. Most mobile devices already contain inertial measurement units (IMUs). Global alignment determines appropriate global scale, while dense scale alignment (SML) operates locally and pushes or pulls regions toward correct metric depth. The SML network leverages MiDaS as an encoder backbone. In the modular pipeline, VI-Depth combines data-driven depth estimation with the MiDaS relative depth prediction model, alongside the IMU sensor measurement unit. The combination of data sources allows VI-Depth to generate more reliable dense metric depth for every pixel in an image.

MiDaS 3.1[https://github.com/isl-org/MiDaS/releases/tag/v3_1] and VI-Depth 1.0[https://github.com/isl-org/VI-

Depth] are available under an open source MIT license on GitHub.

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AI in Manufacturing

NVIDIA's New GPUs Realize AI, Industrial Metaverse

945 words
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Asia Electronics Industry
ASELEC
English

NVIDIA has announced six new

NVIDIA RTXClick to view image Ada Lovelace architecture[https://www.nvidia.com/en-us/design-visualization/ada-lovelace-architecture/]

GPUs for laptops and desktops. Hence, enabling creators, engineers and data scientists to meet the demands of the new era of AI, design and the metaverse[https://blogs.nvidia.com/blog/2021/08/10/what-is-the-metaverse/].

Particularly, the NVIDIA RTX GPUs with NVIDIA Omniverse[https://www.nvidia.com/en-us/omniverse/] can help designers simulate a concept before making it a reality. In addition, planners can visualize an entire factory before it is built and engineers can evaluate their designs in real time.

The NVIDIA RTX 5000, RTX 4000, RTX 3500, RTX 3000 and RTX 2000 Ada Generation laptop GPUs[https://www.nvidia.com/en-us/design-visualization/rtx-professional-laptops/?ncid=ref-pr-584767#cid=_ref-pr_en-us] deliver breakthrough performance and up to 2x the efficiency of the previous generation to tackle the most demanding workflows. For the desktop, the NVIDIA RTX 4000 Small Form Factor (SFF) Ada Generation[https://www.nvidia.com/en-us/design-visualization/rtx-4000-sff/] GPU features new RT Cores, Tensor Cores and CUDA® cores with 20GB of graphics memory to deliver incredible performance in a compact card.

The latest NVIDIA[https://aei.dempa.net/archives/tag/NVIDIA] RTX Ada Generation GPUs provide the accelerated computing power required for today's highly collaborative content-creation, design, and AI workflows. A new generation of desktop workstations[https://blogs.nvidia.com/blog/2023/02/15/intel-rtx-ada-workstation/] that combine high-end NVIDIA GPUs and smart networking with the latest Intel CPUs can drive innovation. Thus, driving the next wave of product and building designs, AI-augmented applications, and industrial metaverse content.

Click to view image[https://aei.dempa.net/wp-content/uploads/2023/03/Featured-NVIDIA-1-1024x603.png]

"Running data-intensive applications like generative AI and real-time digital twins in the metaverse requires advanced computing power," said Bob Pette, vice president of professional visualization at NVIDIA. "These new NVIDIA RTX GPUs provide the horsepower needed for creators, designers and engineers to accomplish their work from wherever they're needed."

Customers Supporting NVIDIA RTX GPUs

Many professionals are already using NVIDIA RTX GPUs to accelerate their workflows.

For one, Bryan Styles, director of immersive technology at General Motors, said, "General Motors is working to bring electric vehicles to more customers faster and at more price points, and virtual-reality tools are enabling us to test and make decisions at a quicker pace."

“The NVIDIA RTX 6000 Ada Generation GPU is one step ahead of our evolving real-time pipeline for live-action filmmakers,” said Raphaël Goudin, virtual production supervisor at Versatile Media Ltd. “It’s adding efficiency, and ease. More importantly, creative power directly to filmmakers.”

“The NVIDIA RTX 6000 Ada Generation GPU is a game changer that lets us produce images quicker and accomplish things that previously weren’t even possible,” said Jon Ferguson, vice president of virtual design and construction at Layton Construction. “For the first time, we can start producing images with the primary question being ‘What would help this image?’ rather than ‘What can our computers handle?’”

Deliver Creative Power to Professionals Anywhere

NVIDIA’s new laptop GPUs deliver up to double the performance and power efficiency over the previous generation for mobile workstations. Particularly, the new GPUs include the latest generations of NVIDIA Max-Q[https://www.nvidia.com/en-us/design-visualization/rtx-professional-laptops/#max-q-feature-1] and RTX[https://www.nvidia.com/en-us/design-visualization/technologies/rtx/] technologies for optimal energy efficiency and photorealistic graphics, and are backed by NVIDIA Studio[https://www.nvidia.com/en-us/studio/] technologies for creators.

Products with NVIDIA RTX GPUs benefit from RTX optimizations in over 110 creative apps, NVIDIA RTX Enterprise Drivers for the highest levels of stability and performance in creative apps, and exclusive AI-powered NVIDIA tools: Omniverse, Canvas[https://www.nvidia.com/en-us/studio/canvas/] and Broadcast[https://www.nvidia.com/en-us/geforce/broadcasting/broadcast-app/].

Professionals using these laptop GPUs can run advanced technologies like DLSS 3[https://developer.nvidia.com/rtx/dlss] to increase frame rates by up to 4x compared to the previous generation, and NVIDIA Omniverse Enterprise[https://www.nvidia.com/en-us/omniverse/enterprise/] for real-time collaboration and simulation.

Enable Enhanced Performance, Productivity

The NVIDIA RTX 4000 SFF GPU offers a new level of performance and efficiency for mini-desktops, powering artists[https://www.nvidia.com/en-us/omniverse/creators/], designers and engineers who prefer small workstations.

Most importantly, the RTX 4000 SFF GPU enables users to enjoy a fluid experience in computer-aided design, graphic design, data analysis, AI applications and software development. Additionally, systems integrators developing specialized solutions — for example, in healthcare or large-scale displays — can benefit from the card’s combination of performance and compact size.

“The versatile NVIDIA RTX 4000 SFF Ada Generation GPU offers Genetec users performance increases of up to 80% and empowers them to decode, view and analyze more video streams,” said John Burger, product line manager for video appliances at Genetec. “As camera resolutions continue to increase and require additional resources to be decoded, the NVIDIA RTX 4000 SFF offers an ideal solution in a compact form factor for Genetec and its partners.”

Next-Generation RTX Technology

The new RTX desktop and laptop GPUs feature the Ada architecture’s latest technologies, including:

* CUDA cores: Up to 2x the single-precision floating point throughput of the previous generation.

* Third-generation RT Cores: Up to 2x the throughput of the previous generation, with the ability to concurrently run

ray tracing with either shading or denoising capabilities.

* Fourth-generation Tensor Cores: Up to 2x faster AI training performance of the previous generation, with expanded support for the FP8 data format.

* DLSS 3: New levels of realism and interactivity for real-time graphics by multiplying performance with AI.

* Greater GPU memory:* The RTX 4000 SFF provides 20GB of memory with greater bandwidth than the previous generation. The GPU can transfer data to and from its memory more quickly, resulting in improved graphics, compute and rendering performance.* The new NVIDIA RTX Ada Generation Laptop GPUs provide up to 16GB of graphics memory to handle the largest models, scenes, assemblies and advanced multi-application workflows.* Extended-reality capabilities: The RTX 4000 SFF and new NVIDIA RTX laptop GPUs provide support for high-resolution augmented-reality and virtual-reality devices, and deliver the high-performance graphics required for experiencing stunning AR, VR and mixed-reality content.

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Legal Implications Of The ChatGPT Revolution In Manufacturing

John Lanza

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17 March 2023
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BBPUB
English

Generative artificial intelligence (AI) models, such as ChatGPT, will widen the gap between the manufacturers who embrace, and profit from, the shift to Smart Manufacturing and the manufacturers who go about "business as usual." Generative AI models work by using advanced machine learning algorithms to generate human-like responses to text-based inputs. For example, ChatGPT is based on the GPT (Generative Pre-trained Transformer) architecture and has been trained on a diverse range of internet text, i.e., large amounts of text data have been fed into its neural network. This training allows ChatGPT to respond to a wide variety of questions and prompts similar in tone and content to the input it receives. While this may be great for creating chatbots, content, and question-answer lists, what does it have to do with manufacturing? Quite a lot, as it turns out.

Generative AI models can be used by manufacturers to enhance productivity, quality, and efficiency in at least the following ways:

Quality Control: Generative AI models can be trained to identify defects in manufactured products by analyzing images or videos. The model can recognize patterns in the data and alert operators in real time to potential quality issues.

Predictive Maintenance: Generative AI models can be trained to analyze sensor data from machinery and predict when maintenance will be required. This can help reduce downtime and improve overall equipment effectiveness.

Natural Language Processing: Generative AI models can be used to automate customer service and support functions in manufacturing. By analyzing customer inquiries, the model can generate appropriate responses, reducing the workload on support staff.

Supply Chain Management: Generative AI models can be used to analyze data from multiple sources, including suppliers, logistics providers, and retailers, to optimize supply chain operations. The model can identify patterns and provide insights that can help reduce costs and improve efficiency.

Production Planning: Generative AI models can be used to analyze production data and provide insights into how to optimize manufacturing processes. The model can identify bottlenecks, predict production times, and suggest process improvements to increase throughput and reduce waste.

Knowledge Management: Generative AI models can be used to store and retrieve information related to manufacturing processes, materials, and equipment. This can help reduce training times for new employees and improve overall knowledge retention in the organization.

Overall, generative AI models can be a valuable tool for manufacturers looking to improve their operations by leveraging the power of natural language processing and machine learning. There are, of course, important legal considerations that should be taken into account before using these tools, such as issues relating to ownership of generated output and the potential for the inadvertent disclosure of confidential information when using the model. Wrestling with these considerations is an effort worth making for manufacturers, given the potential, substantial

benefits.

The content of this article is intended to provide a general guide to the subject matter. Specialist advice should be sought about your specific circumstances.

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RESEARCHERS UNVEIL NEW AI-DRIVEN METHOD FOR IMPROVING ADDITIVE MANUFACTURING

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US Fed News
INDFED
English

WASHINGTON, March 9 -- The U.S. Department of Energy's Argonne National Laboratory issued the following press release:

Many industries rely on metal additive manufacturing to rapidly build parts and components. Rocket engine nozzles, pistons for high performance cars, and custom orthopedic implants are all made using additive manufacturing, a process that involves building parts layer-by-layer using a 3D printer.

Additive manufacturing allows users to build complex parts quickly, but structural defects that form during the building process is one of the reasons that have prevented this approach from being widely adopted. Researchers from the U.S. Department of Energy's (DOE) Argonne National Laboratory have developed a new method for detecting and predicting defects in 3D printed materials, which could transform the additive manufacturing process.

*Rest of the document can be viewed at: (https://www.anl.gov/article/researchers-unveil-new-aidriven-method-for-improving-additive-manufacturing[https://www.anl.gov/article/researchers-unveil-new-aidriven-method-for-improving-additive-manufacturing]

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