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Elevating the Chip Industry

Budget 2025 Set to Strengthen Malaysia Semiconductor Industry: Association

Amazon Launches Data Centre in Malaysia, Part of US$6.2bil Investment Here

Image Source: WIO Wireless Control Unit by Bluetooth

COVER STORY

An Interview with

Prof. Datin Lorela Chia, President of MASSCI, Josephine Tan, General Manager, Penang Green Council, and Prof. Patricia Chung, President of IIPCC Malaysia Berhad

MoU Signing between MASSCI and Penang Green Council on Advancing Sustainable Manufacturing, Blockchain, IP, and Green Practices

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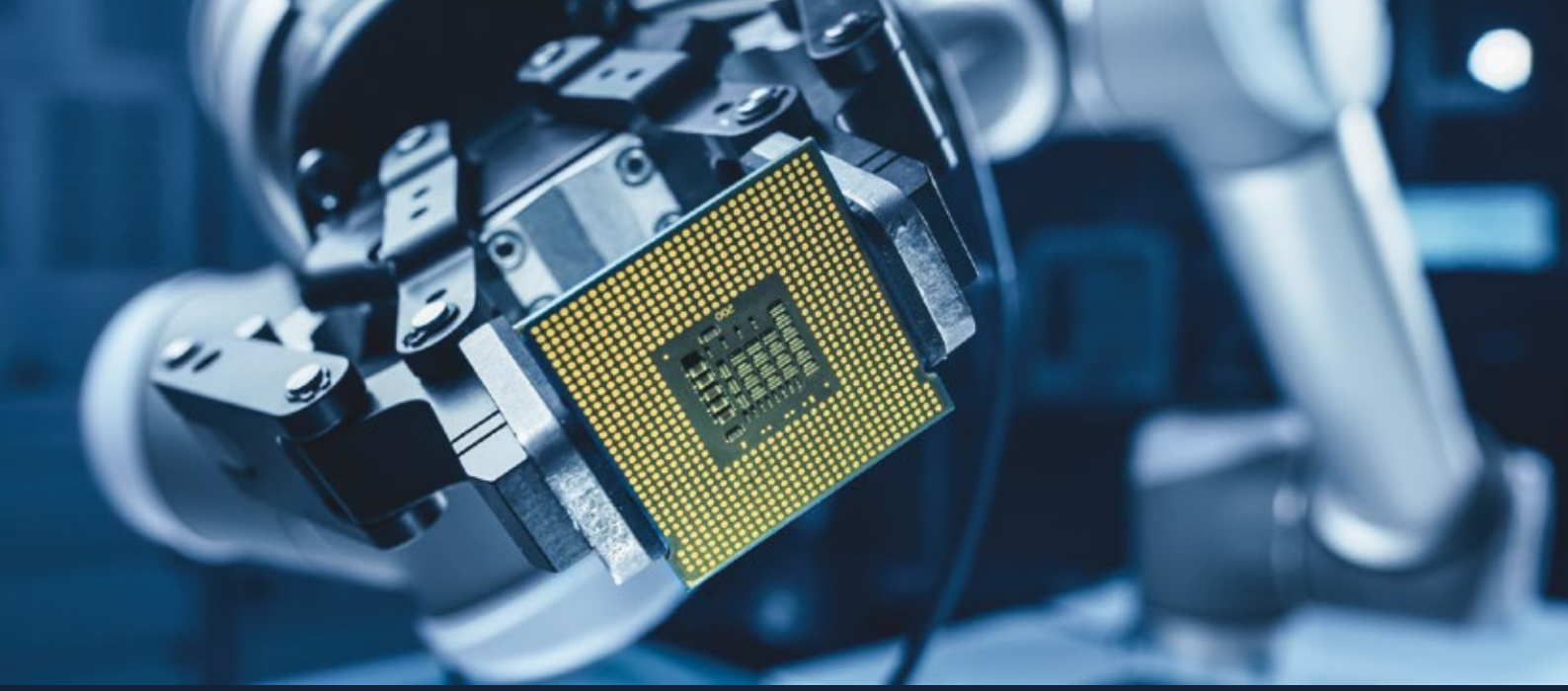

PUBLISHER'S MESSAGE

As we wrap up 2024, it's incredible to see how much progress has been made in Malaysia's semiconductor industry. The government's focus on bolstering this sector through Budget 2025 is a promising step toward solidifying the country's place in the global supply chain.

Presented by Prime Minister Datuk Seri Anwar Ibrahim, Budget 2025 outlines RM421 billion in allocations—RM335 billion for operating expenses and RM86 billion for development. A standout feature is the RM1 billion strategic investment fund under the New Investment Incentive Framework, designed to promote high-value activities like integrated circuit (IC) design and advanced materials. This focus on innovation rather than product-specific incentives is a forward-thinking move that could drive Malaysia's E&E sector to new heights.

The government's effort to bridge regional economic gaps through special tax incentives for investments in 21 economic sectors across Perlis, Kedah, Kelantan, Terengganu, Sabah, and Sarawak is commendable. Inclusive growth is essential for a balanced and sustainable economy, and this approach reflects a thoughtful strategy for spreading prosperity nationwide. Additionally, the multi-tiered levy mechanism (MTLM), set to launch next year, is a practical response to reducing dependence on foreign labor.

Thank you for your incredible support of Automate Asia Magazine. It's been a pleasure sharing the latest updates with you. Stay connected with us at www.asiaautomate.com, and cheers to an exciting 2025!

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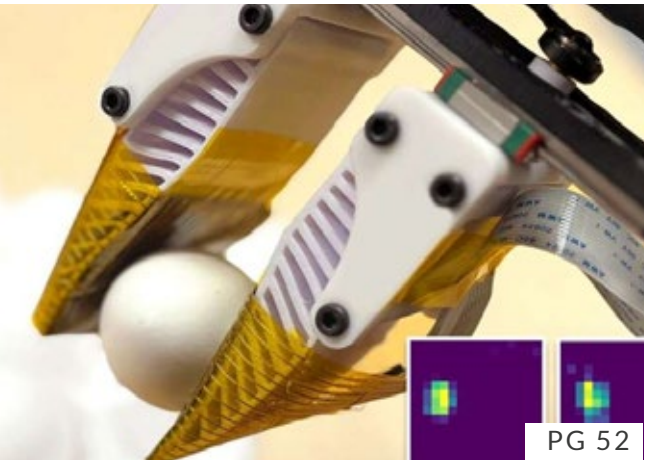

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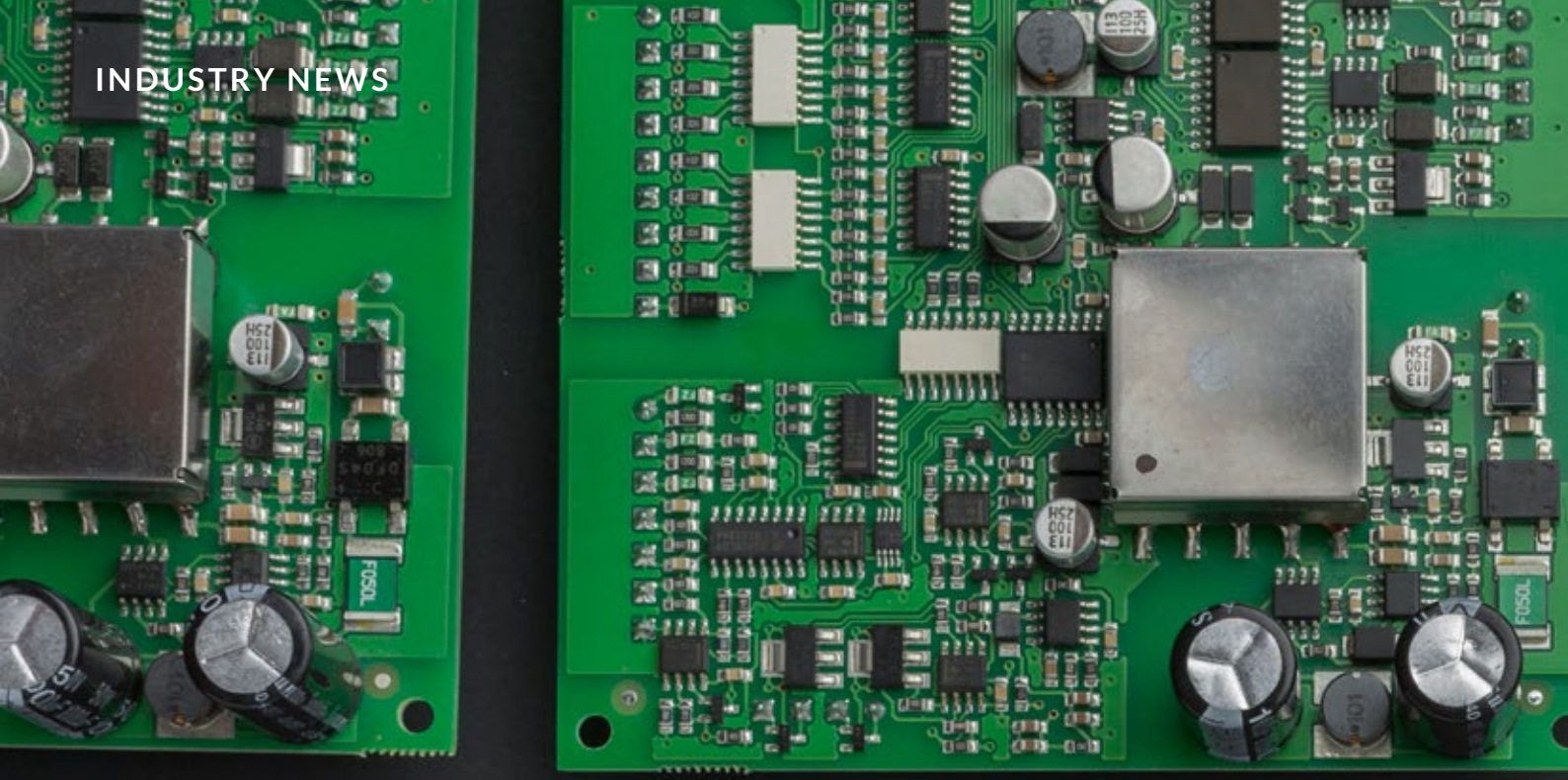


Selangor MB: Second Malaysia Semiconductor IC Design Park to be Launched Early Next Year

The second Malaysia Semiconductor IC Design Park in Cyberjaya, Sepang, will be launched early next year, said Selangor Menteri Besar Datuk Seri Amirudin Shari.

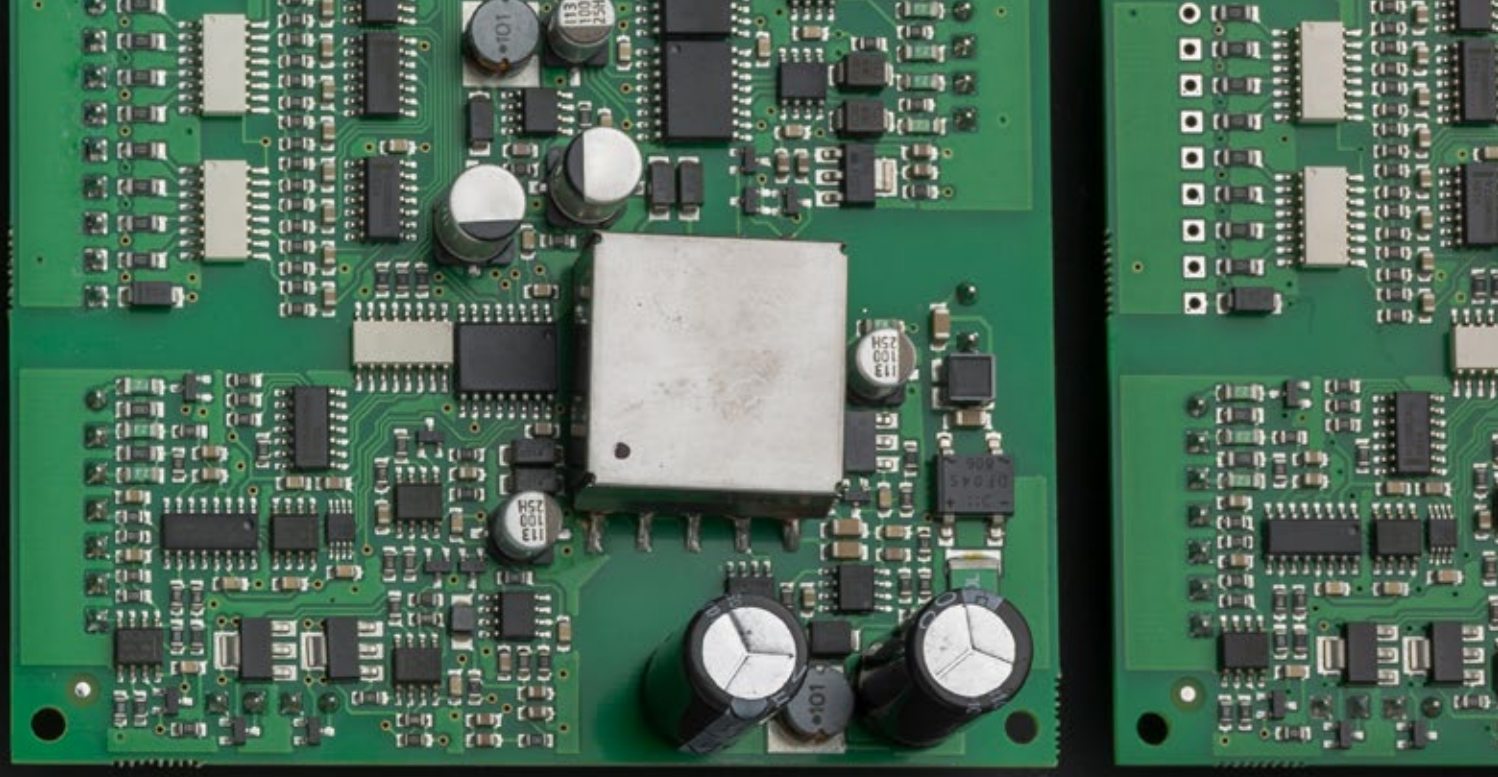
Amirudin said the launch of the second integrated circuit (IC) design park was a follow-up to the successful establishment of such a park in Puchong by the Selangor Information Technology & Digital Economy Corporation (SIDEC) which successfully attracted the participation of seven local and international IC companies.

He said, the initiative was the result of close cooperation between the state government and the federal government.

"For that purpose, the Selangor government will contribute RM50 million, which is RM10 million a year from 2024 until 2029, while the federal government through the Ministry of Economy is estimated to channel RM100 million," he said when tabling the Selangor Budget 2025 at the Selangor State Legislative Assembly.

At the same time, Selangor Digital School (SDS) will be upgraded to Advanced Semiconductor Academy of Malaysia (ASEM) which will develop an 80,000 square foot campus in the second IC design park, Amirudin said.

Meanwhile, Amirudin said the Selangor AI Incubator Centre, which is a facility in the field of artificial intelligence (AI), will be developed with the first phase conceptualized as a technology training center to be equipped with facilities for the



The launch of the second integrated circuit (IC) design park was a follow-up to the Selangor Menteri Besar Datuk Seri Amirudin Shari said the successful establishment of such a park in Puchong by the Selangor Information Technology & Digital Economy Corporation (SIDEC) which successfully attracted the participation of seven local and international IC companies. — Bernama pic

AI incubator program as well as offering specific education and certification program in the field.

He said the overall allocation for all these AI initiatives amounted to RM5 million, which reflected the commitment of the state government to prepare Selangor to enter the gates of AI.

"The state government is also always ready to cooperate with other AI service providers to expand the scope of the technology in Selangor," he said.

Source: www.malaymail.com

Brazil at Sweet Spot for Malaysian Semiconductor Industry to De-Risk Supply Chain - Tengku Zafrul

The largest South American country, Brazil is strategically located for Malaysian semiconductor industry's "Plus One" strategy to de-risk their supply chain resiliency.

Minister of Investment, Trade and Industry Tengku Datuk Seri Zafrul Abdul Aziz said it is more than just a precautionary measure.

"It's a forward-thinking approach that will help Malaysian semiconductor companies not only de-risk their supply chains but also expand their reach to new markets," he told the Malaysian media here on Monday.

So, many Malaysian companies who want to look at Latin America, Central America, and North America, this is where they can find synergies, said Tengku Zafrul, who is part of Prime Minister Datuk Seri Anwar Ibrahim's contingent on an official visit here.

"In terms of size, Brazil's semiconductor industry is relatively small, but it is very advanced, especially in integrated circuit (IC) design and some of the tools for integrated circuit design," he explained.

Malaysia has a comprehensive semiconductor ecosystem and is strong in back-end and outsourced semiconductor assembly and test (OSAT) activities. Malaysia is currently the sixth-largest semiconductor exporter globally, with exports exceeding US$85 billion (RM380 billion).

On the other hand, Brazil's semiconductor export value stands at US$1.2 billion (2022) with a competitive edge IC design.

Malaysia's ecosystem includes global giants such as Intel, Infineon, Micron, and Texas Instruments, as well as homegrown champions like Carsem and Inari, known for their expertise in OSAT activities.

He said that by forging closer ties with Brazil or other regions, Malaysia can strengthen its position as a global semiconductor leader while ensuring that its industry is resilient, diversified, and prepared for future challenges.

Asked about the possibility of disruption from the change of President in the United States, Tengku Zafrul said, "So far we have not received any information. President-elect (Donald Trump) will be sworn in on Jan 20, 2025."

"At the same time, we are discussing with companies involved in the supply chain around the world, especially in strategic sectors such as semiconductors. We also need to hold engagement sessions with those companies to discuss with the United States, China, and Europe how we can ensure that this supply chain continues to be strong.

"However, their concern is not in terms of the supply chain but in terms of tariffs. During the recent election campaign, President-elect Trump said he wanted to raise tariffs in sectors such as semiconductors and other strategic sectors.

"Even though we don't know yet, we have to always be ready and engage with multinational and local companies. It is still early days," he said.

"There are always pros and cons. The geopolitical tension was positive for Malaysia as countries like China and other countries took a plus-one strategy to ensure resilience of their supply chain, which ASEAN and Malaysia benefitted from.

"Especially the electrical and electronics (E&E) sector in Malaysia, which benefit most in the plus one strategy given the country has over 50 years of experience," he said.

"But in the long term, if the tariff is increased, our concern is in terms of demand, the price will become expensive, so if it becomes expensive, consumption may decrease."

"However, this is just an expectation," he added. "We don't know yet if this will happen or not."

Investment, Trade, and Industry Minister Tengku Datuk Seri Zafrul Abdul Aziz - BERNAMA

Source: www.thestar.com.my

Elevating the Chip Industry

Malaysia will continue to strengthen its ties with international markets in the semiconductor industry following the return of Donald Trump as the president of the United States.

This comes with the anticipation of protectionist measures following Trump's re-election.

Deputy Investment, Trade, and Industry Minister Liew Chin Tong said Prime Minister Datuk Seri Anwar Ibrahim and the Malaysian delegation have worked hard to build ties between the Malaysian semiconductor industry and the Brazilian semiconductor industry.

Two memoranda of understanding (MoU) were inked between the two countries following Anwar's recent working visit to the Latin American country, allowing Malaysia to position itself as a global hub for semiconductor innovation and manufacturing.

"The Malaysia Semiconductor Industry Association (MSIA) is also in talks with its counterpart in the Netherlands, while the government is working with Asean member states on the semiconductor industry.

"We are also talking to Saudi Arabia in a very serious manner. This is so that we can avoid a strict bifurcation of the global supply chain," he told the media at the MSIA National Electrical and Electronics (E&E) Forum 2024.

Liew said as the world's sixth-largest semiconductor exporter, Malaysia holds a 7% share of the global market and contributed to 23% of US semiconductor trade in 2022.

"The world is still very much exporting to the United States, and we hope that we can work with the United States in a very close manner," he added.

According to him, there is a "huge middle power" where Malaysia can play a role within the global semiconductor supply chain. And in the coming 10 to 15 years, Malaysia has to be clear in its strategy and goal.

"We need to work with partners to build that strong middle power, so that we can be a centre in which global business in the semiconductor industry can be conducted from".

He added local players should continue moving up the value chain by creating its own technology – especially within the artificial intelligence (AI)realm.

This is to be coupled with horizontal expansion and innovation, which he said "so that whatever capability we have at multiple levels in the semiconductor industry can also be used to solve daily problems and therefore creating Malaysian innovation".

He proposed adopting a flexible industrial policy framework, stressing that it does not need to be comprehensive.

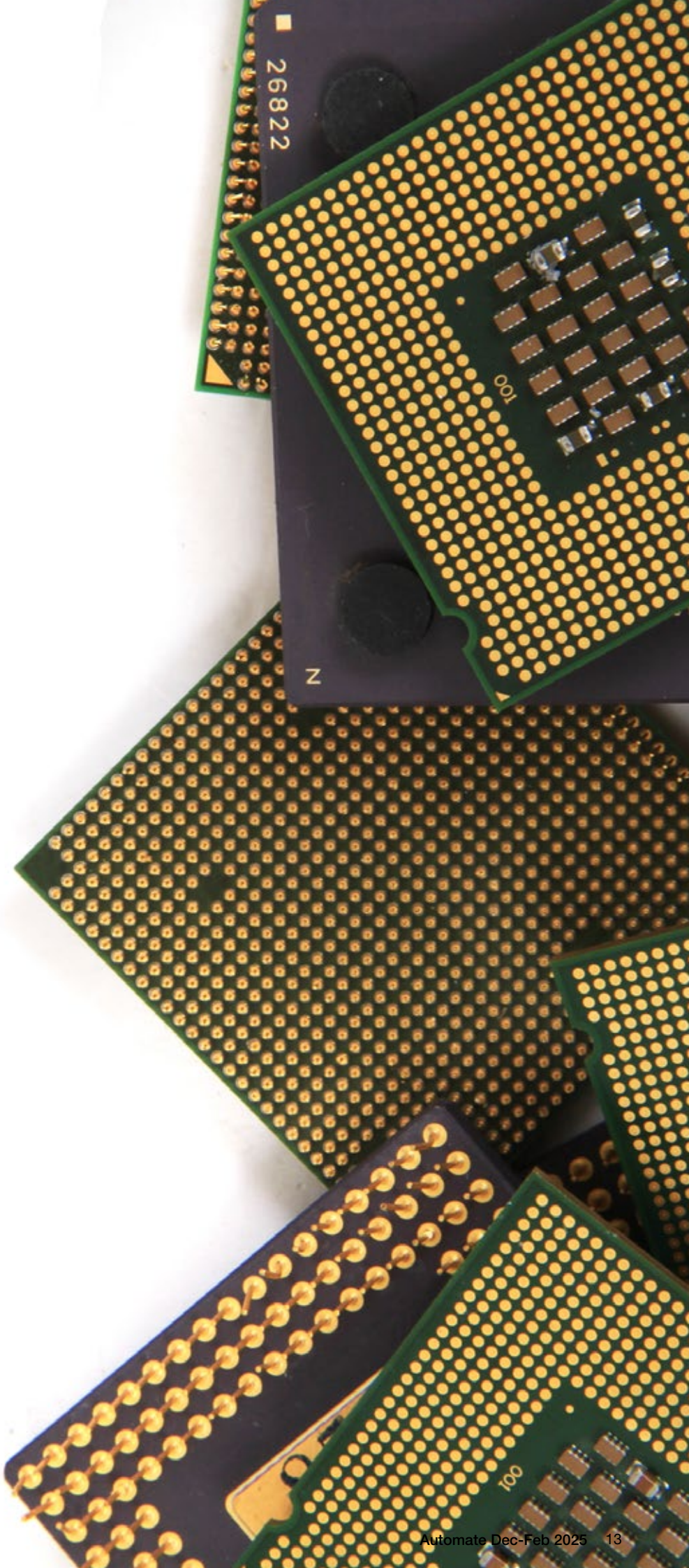
Recognizing Malaysia's constraints as a trading nation with an open economy, he urged for broader strategies to leverage tools from the industrial policy "toolbox."

He also advocated for blending public and private funds, emphasizing that investments should not rely solely on grants but include collaborative financing approaches.

He gave an example of which the Malaysian government has directed government-linked investment companies to work on a gear-up program, which channels RM120 billion into Malaysian technologies over the span of five years.

"I think this is the direction that will work and I hope this can actually become into something that is able to create Malaysian technologies. So, having the private and public coming together to find ways to fund technology is important," he said.

Despite global challenges, he remains optimistic, noting that the semiconductor industry is a strategic industry not only for Malaysia but for the whole world because of the increasing uses of AI technology, which requires semiconductors.



When asked about the outlook on E&E exports for 2025, MSIA president Datuk Seri Wong Siew Hai said there will be more clarity on where the industry is heading in the first quarter of financial year 2025, once policies by the United States government have been decided. He told StarBiz that the local semiconductor industry may experience single-digit growth in 2025 in line with the global economic trends.

"We have received strong E&E investments this year and our E&E exports for the first 10 months, from January to October 2024 is RM491 billion, which is up 1.5% compared to last year. I am still hoping that it will breach RM600 billion by the end of the year," he said.

Sharing a similar view, Tradeview Capital chief investment officer Nixon Wong also anticipates a rather muted growth from the end of 2024 entering next year.

MOU Signing Exchange during National EE Forum 2024 by Malaysia Semiconductor Industry Association (MSIA). 25 NOVEMBER 2024 —CHAN TAK KONG/The Star/ MUHAMMAD FARID

Malaysia's E&E export is very dependent on the semiconductor recovery globally – which is anticipated to kick in somewhere around the second half of 2025.

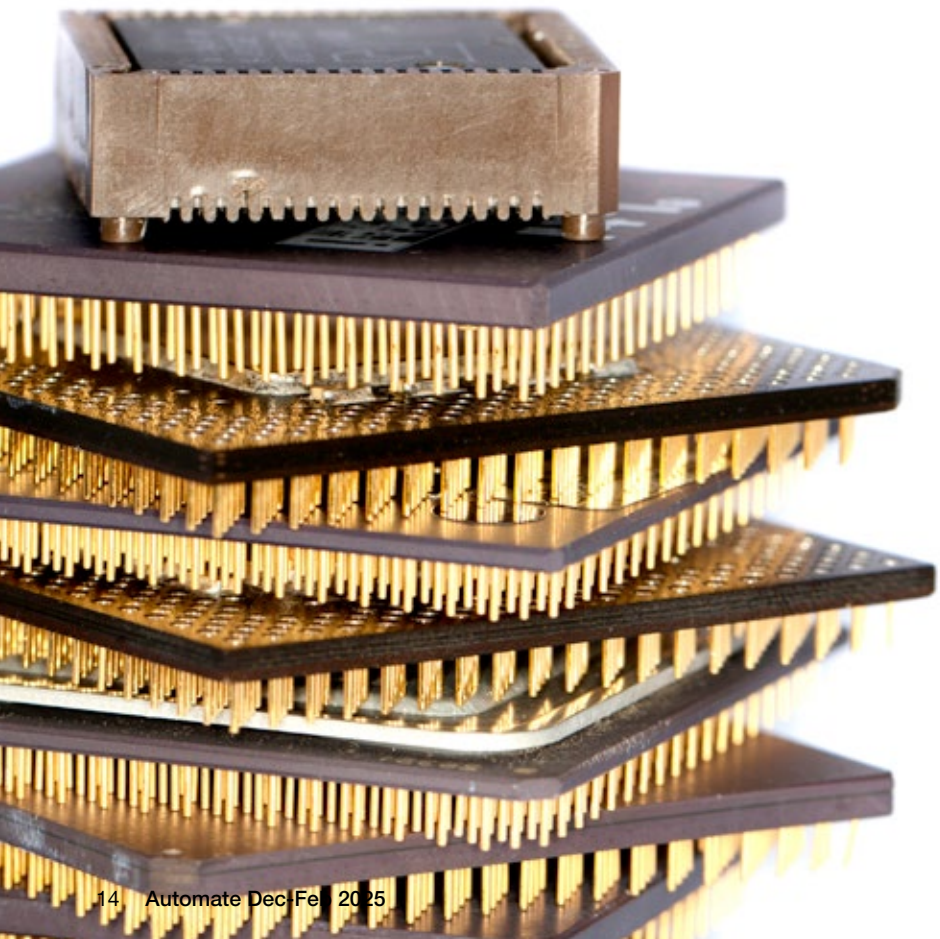
"There is some chance of earlier recovery, with all eyes on potential restocking from the United States front as well as economic growth recovery from the China front.

"We may also need to factor in the movement of the ringgit against the US dollar as well."

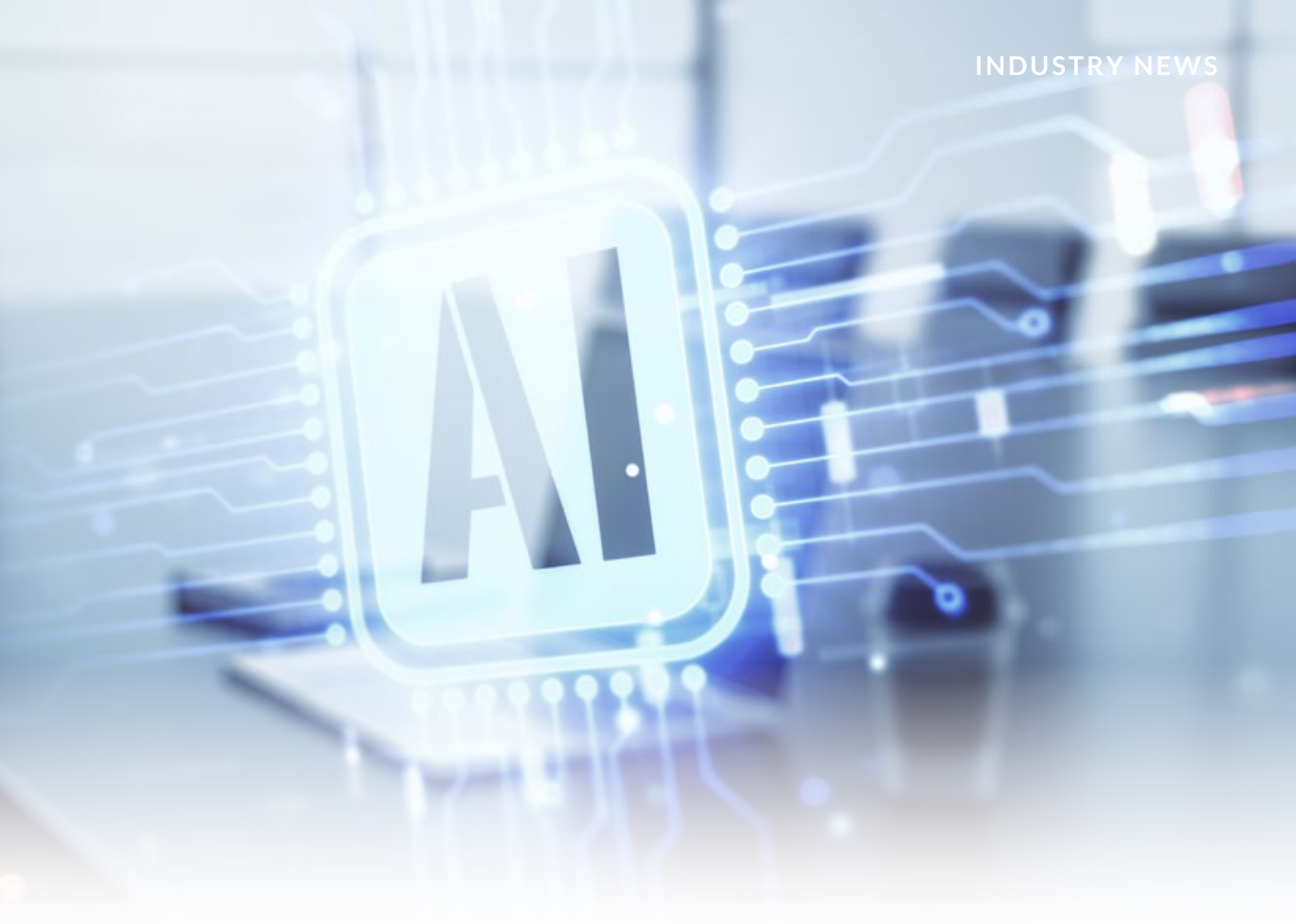
Hence, Wong is of the view that companies with more US exposure may tend to benefit more than those with exposure to China. With Trump 's being pro-US, capital expenditure growth is expected to come from US companies, while trade policies may cap China's export.

"The situation is fluid and depends on how aggressive the United States trade tariff on China and also on the rest of the world, which may cap overall demand growth," he added.

On a separate note, two MoU signings were completed between Elliance Sdn Bhd and SkyeChip Sdn Bhd, as well as between Elliance, Kaitech Sdn Bhd and Estek Automation Sdn Bhd. The parties will form a strategic partnership to design and produce Malaysia's first Edge AI system.



Source: www.thestar.com.my



Sarawak AI Centre to Boost Digital Innovation

Premier Tan Sri Abang Johari Tun Openg said today that the state government is establishing the Sarawak AI Centre. - BERNAMA PIC

Premier Tan Sri Abang Johari Tun Openg said today that the state government is establishing the Sarawak AI Centre, which will lead the state's initiatives in artificial intelligence (AI) development and its integration into the digital infrastructure.

He said the center would be pivotal in driving innovation and positioning Sarawak as a hub for AI research and development.

"Through strategic partnerships with academic institutions, industry leaders, and government entities, the Sarawak AI Centre will be nurturing a vibrant AI ecosystem," he said at the opening of the Seventh International Digital Economy Conference Sarawak (IDECS) here today.

He said one of the center's flagship initiatives was the "AI for Smart Agriculture" program, which uses AI-powered data analytics to optimize crop yields and promote sustainability in agriculture.

Source: www.nst.com.my

Budget 2025 Set to Strengthen Malaysian Semiconductor Industry: Association

Malaysia's semiconductor industry is set to solidify further with various commendable initiatives outlined under Budget 2025, including the Supply Chain Resilience Initiative and the New Investment Incentive Framework.

Malaysia Semiconductor Industry Association (MSIA) director Andrew Chan said the budget, with a stronger focus on developing talent in the electrical and electronics (E&E) sector, has further solidified the country's role in the global semiconductor supply chain.

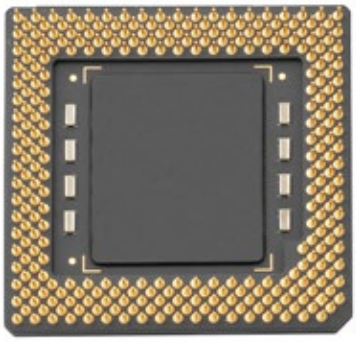
"These efforts aim to bolster the country's competitiveness in the semiconductor sector and the measures outlined in the budget lay a solid foundation for long-term growth and resilience within the industry," he told Bernama.

Budget 2025 was unveiled by Prime Minister Datuk Seri Anwar Ibrahim, who is also finance minister, on Friday, with an allocation of RM421 billion, comprising an operating expenditure of RM335 billion and a development expenditure of RM86 billion.

The expansionary budget also involved the introduction of the New Investment Incentive Framework, including a strategic investment fund worth RM1 billion aimed at enhancing the capacity of local talent and encouraging high value activities to be carried out in the country. This framework, which focuses on high value activities as opposed to existing incentives based on specific products, is expected to be implemented in the third quarter of next year.

To enhance the diversification of the E&E sector through high-value-added activities, such as integrated circuit (IC) design services and advanced materials, the government has agreed to expand the tax incentives to boost exports to include IC design activities.

In efforts to reduce the economic gap between regions, special income tax incentives will be offered for investments in 21 economic sectors in Perlis, Kedah, Kelantan, Terengganu, Sabah, and Sarawak, subject to the success of economic spillovers.



Meanwhile, commenting on the government's plan to implement a multi-tiered levy mechanism (MTLM) early next year to reduce dependence on foreign workers, Chan said it is a proactive step by the government.

He reckons that the levy proceeds will be reinvested in the industry for automation and mechanization, which aligns well with the broader push for digital transformation and increased efficiency. "We look forward to hearing more details of the MTLM," he added.

Source: thesun.my

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Amazon Launches Data Centre in Malaysia, Part of US$6.2bil Investment Here

Amazon Web Services (AWS) says it has launched the AWS Asia Pacific data center in Malaysia to help local businesses and organizations run their applications closer to home and serve their users more efficiently.

As part of its long-term commitment, AWS is planning to invest an estimated US$6.2 billion (about RM29.2 billion) in Malaysia through 2038.

The construction and operation of the new AWS data center is estimated to add about US$12.1 billion (RM57.3 billion) to Malaysia's gross domestic product (GDP).

It will also support an average of more than 3,500 full-time equivalent jobs at external businesses annually through 2038, AWS said in a statement.

These jobs - including construction, facility maintenance, engineering, telecommunications, and others within the country's broader economy - will be part of the AWS supply chain in Malaysia.

Investment, Trade and Industry Minister Tengku Datuk Seri Zafrul Abdul Aziz said the launch of an AWS infrastructure data center here provides access to new and emerging technology for Malaysian entities and businesses of all sizes, boosting the country's capabilities for digital innovation.

"This milestone is a significant step towards fulfilling the vision of Malaysia's New Industrial Master Plan (NIMP) 2030 to build a highly skilled, innovative, prosperous, inclusive, and sustainable economy," he said in the statement.

"We recognize the transformative power of digitalization, cloud computing and AI as key drivers in Malaysia's effort to become a manufacturing and services hub within Asia.

"As the largest investment made by an international technology company in Malaysia, the AWS infrastructure data center will help ensure Malaysia remains competitive on the global stage," he added.

AWS vice president of infrastructure services Prasad Kalyanaraman said the new AWS data center in Malaysia enables organizations across Asia Pacific to unlock the full potential of the world's most extensive and reliable cloud.

This will help customers deploy advanced applications with a broad set of AWS technologies like artificial intelligence (AI) and machine learning (ML).

"Malaysia's rapidly growing digital economy requires access to secure, resilient, and sustainable cloud infrastructure.

"With today's launch, AWS is proud to support Malaysia's digital transformation and help accelerate its role as a regional hub for AI," he noted.

With the launch of the AWS Asia Pacific (Malaysia) data center, AWS now has 108 availability zones across 34 geographic regions.

The company has also announced plans to add 18 more availability zones and six additional AWS data centers in Mexico, New Zealand, the Kingdom of Saudi Arabia, Taiwan, Thailand, and the AWS European Sovereign Cloud.

AWS data centers are composed of availability zones that place infrastructure in separate and distinct geographic locations.

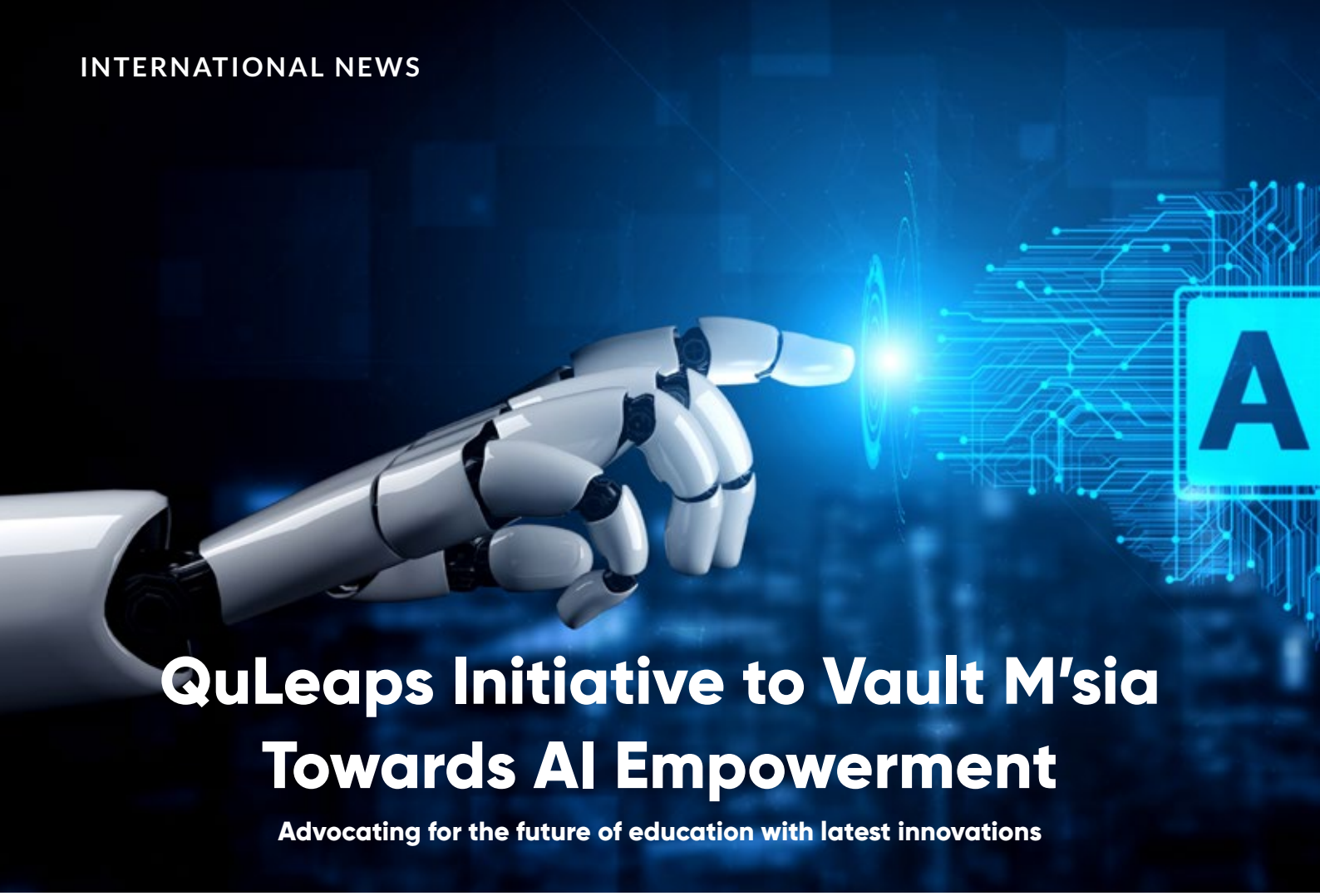
The AWS Asia Pacific (Malaysia) data center consists of three availability zones located far enough from each other to support customers' business continuity, but near enough to provide low latency for high availability applications that use multiple availability zones.

Each availability zone has independent power, cooling, and physical security, and is connected through redundant, ultra-low-latency networks.

AWS customers focused on high availability can design their applications to run in multiple availability zones to achieve even greater fault tolerance.

Signage is seen at an Amazon facility in Staten Island, New York City, U.S., April 24, 2022. REUTERS/Andrew Kelly

Source: www.nst.com.my



QuLeaps Initiative to Vault M'sia Towards AI Empowerment

Advocating for the future of education with latest innovations

AT a recent AI workshop for teenagers run by QuLeaps AI Sdn Bhd CEO Dr. Tan Poh Joo, Berjaya Corporation Bhd (BCorp) founder Tan Sri Vincent Tan spoke on the potential of AI to transform education and industry.

He emphasised the importance of AI and how it is vital for Malaysia to embrace its use and strengthen training in the field for this purpose.

Tan, who founded QuLeaps, a subsidiary of BCorp, said the AI bootcamp proved very popular, judging by the feedback as many wrote thank you letters in appreciation. This further spurred his ambition to bring more AI training bootcamps to Malaysia.

The idea behind the initiative was to build up the ecosystem in Malaysia for AI to be implemented across all sectors, and enable Malaysia to compete on a global level.

Originally from Penang, Tan completed his PhD in Microelectronic and Semiconductor Device from Universiti Sains Malaysia and then moved to the US, where he spent 25 years in Silicon Valley, building his career and achieving milestones in the development of systems for various generations of AI.

"Now I am embarking on a new venture aimed at AI digital transformation for industries and also nurturing AI talents, fostering and accelerating innovation among the young generation and professionals in Asean countries, Malaysia in particular, in line with our mission to empower and accelerate the

Tan said a whole ecosystem needed to be built to support the A1 initiatives for education and training in the long term.

region through AI solutions and talent development," he said.

During a Q&A session with theSun, Tan shared his vision for transforming the mindset of the younger generation through AI.

"Malaysia needs to develop and accelerate its ecosystem at school level, through maybe the computer clubs so that they are exposed to technology at a young age, to coding etc. It is not one workshop that will change the mindset.

We need to build infrastructure at school level, also teacher preparedness and technology investments in schools now, so that they can be prepared to embrace AI.

"AI is built upon the fundamentals of computer science and it starts in the classroom."

Also, public awareness must be raised and it must be emphasised that AI should be used for good," he stressed.

To implement a viable AI ecosystem, the four pillars that need to work together are the government, investor, parents, and community, as well as academics who have to design the various programmes for training, whether in the private or public sectors.

They may include schools and higher learning institutions as exposure to digital literacy has to start from a young age.

Tan shared on how the state of California in America is partnering with tech giant Nvidia to help train students, college faculties, developers and data scientists in artificial intelligence.

Overall, the initiative is aimed at expanding resources such that students, educators and workers, particularly in community colleges, can learn new skills in generative AI and advance their careers.

Tan feels that California is the capital of AI and he can stay in touch with the latest in technology by still having links there, while working with the team in Malaysia to transform organisations such as BCorp to AI systems.

If that can happen, then the target set by Prime Minister Datuk Seri Anwar Ibrahim for 30,000 AI engineers in the country can be achieved.

Source: thesun.my

Microsoft Opens AI and Robotics Research Base in Tokyo

Microsoft said that it has opened an artificial intelligence and robotics research and development base in Tokyo's Minato Ward as part of its investment in Japan.

In cooperation with Japanese universities and research institutes, as well as companies such as Kawasaki Heavy Industries and Nissan Motor, the U.S. technology giant aims to combine AI with Japan's strength in robotics and put the results into practical use.

Microsoft has AI and machine learning research bases in various countries around the world.

At its Tokyo base, the company has also prepared a program to train personnel who will support the learning of AI-related skills.

"We hope that the research base will contribute to finding a unique solution in Japan, where the working population is shrinking due to aging," Microsoft Japan President Miki Tsukasa said at an opening ceremony.

When then-Prime Minister Fumio Kishida visited the United States in April, Microsoft announced plans to boost its data center capacity in Japan and open a new research base in Tokyo.

Microsoft has artificial intelligence and machine learning research bases in various countries around the world. | AFP-JIJI

Source: www.japantimes.co.jp

Petronas, Velesto and NOV Team Up on Drilling Rig Automation and Robotics

Novel technologies to be deployed to reduce emissions and achieve cost efficiency

Malaysia's energy behemoth Petronas, compatriot Velesto Energy, and National Oilwell Varco (NOV) have teamed up to implement rig mechanized automation processes and integrate robotics into drilling operations.

A memorandum of understanding between the trio aims to establish a collaborative framework that leverages NOV's drilling automation system and other energy carbon optimization solutions including robotics technology, on Velesto Drilling-operated rigs to enhance operational performance and safety.

Velesto Drilling jack-up drilling rigs in Malaysian waters. Photo:VELESTO ENERGY

This collaboration also focuses on transforming and optimizing drilling operation efficiency in Malaysia, reducing emissions and achieving cost efficiency through advanced automation and digitalization technologies as key enablers.

Under the MoU, Petronas will provide steer and operational guidance on the deployment of this technology to ensure the deployment of NOV's NOVOS system and robotics aligns with its strategic goals.

Velesto will oversee the integration and optimization of these systems on its drilling rigs, while NOV will provide technical support and training for local implementation and knowledge transfer.

Drilling contractor Velesto said that by aligning with Petronas' sustainability goals, this initiative seeks to drive technology adoption and equip local talent with advanced skills, supporting the industry's future growth.

Velesto has a fleet of six wholly owned premium jack-up rigs and two hydraulic workover units and is the largest jack-up owner and operator in Malaysia and Southeast Asia.

Source: www.upstreamonline.com

UM Launches Malaysia's First AI-Powered WiFi 7 Technology

TP-Link Malaysia and Universiti Malaya (UM) have partnered to establish the country's first AI-powered WiFi 7 network at the Faculty of Computer Science and Information Technology (FCSIT). This initiative positions UM as the first public university in Malaysia to implement the latest WiFi 7 technology, which promises enhanced connectivity, lightning-fast speeds, and improved security for students and staff.

The memorandum of agreement marks the beginning of the deployment of a smart network that will significantly enhance performance and security across the campus. This network is designed to intelligently adapt to users' needs, providing reliable internet access and automatically responding to security threats.

Key areas of FCSIT, including Lecture Hall 1, Lecture Hall 2, and the Networking teaching lab, will be equipped with WiFi 7 technology to support over 750 users. Hugo Cai, Regional Director of TP-Link Malaysia, stated, "We are proud and excited to partner with UM to explore the utilization of cutting-edge technologies like WiFi 7 and integrated AI solutions as we look towards driving innovation and enhancing Malaysia's digital experience, especially in the education sector."

The project will be led by Assoc Prof Dr Ang Tan Fong and supported by a team including Prof. Ir. Dr. Chan Chee Seng and Assoc Prof. Dr. Ling Teck Chaw. UM's Chief Information Officer Prof. Ts Dr. Nor Badrul Anuar Juma'at expressed hopes for further collaboration with TP-Link to enhance coverage across the campus.

Over the three-year collaboration, TP-Link will provide equipment and technical support valued at up to RM300,000. Upon completion, all equipment will be transferred to UM, further solidifying the university's commitment to advancing its digital infrastructure. The AI-driven WiFi 7 network aims to improve internet access, security monitoring, network management, and data analytics, positioning UM at the forefront of innovation in education.

Source: www.businesstoday.com.my

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Phoenix Contact Attends Data Centre World Asia 2024, Showcases Reliable and Sustainable Solutions

Phoenix Contact Southeast Asia (SEA) proudly marked its second consecutive appearance at the 2024 Data Centre World Asia Exhibition held on October 9-10, 2024, showcasing its comprehensive suite of solutions for data center operations.

An Immersive Experience of Data Centre Solutions

Visitors to the Phoenix Contact booth were invited to experience an immersive simulation of solutions tailored for critical data center applications. The setup featured interactive walls, each highlighting key components that illustrate the brand's role in ensuring the reliable operation of data centers.

The first interactive wall demonstrated components designed to maintain continuous power in switch rooms. A second wall, highlighted temperature management solutions vital for cooling systems in the chiller plant. Additionally, a third wall featured Industry 4.0 solutions, including network switches and programmable logic controllers (PLCs), that enhance operational efficiency within the control room.

A Trusted Partner in Modern Data Centers

Phoenix Contact's presence at Data Centre World Asia reinforces its role as a trusted partner in data center innovation. The attendance of its Managing Director for Southeast Asia alongside key stakeholders from its global headquarters further emphasized the company's dedication to building resilient partnerships throughout Southeast Asia.

The Phoenix Contact team and Visitors at the Interactive Walls.

With over a century of expertise, Phoenix Contact remains at the forefront of manufacturing advanced technologies that power critical industries, particularly data centers. As data demands grow and digitalization accelerates, Phoenix Contact's mission is to provide solutions where availability meets responsibility, supporting the growth of sustainable and resilient data centers.

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Exhibition booth of Phoenix Contact Southeast Asia for Data Centre World Asia 2024.

"We're driving innovation at the core of data center operations," stated Mr. Jerry Yee, Director of Industrial Components and Electronics at Phoenix Contact SEA. "With a global footprint, and a strong regional presence, we're uniquely positioned to support data centers with advanced solutions that enable peak efficiency. Together, we're building a smarter, more resilient future where technology and reliability converge to keep the world seamlessly connected.".

Key Stakeholders from Phoenix Contact GmbH & Co. KG (from left to right): Mr. Alexander Kehler (Vice President Sales Asia, Industrial Components and Electronics), and Mr Andreas Rossa (Executive Vice President and member of the Board in the Business Area Industrial Components and Electronics).

Phoenix Contact Team for Data Centre World Asia 2024: Phoenix Contact Southeast Asia, Phoenix Contact Japan, and Phoenix Contact Korea.

Mr. Jerry Yee, Director (Industrial Components and Electronics) at Phoenix Contact SEA with Visitors.

Looking Ahead

Data centers remain bedrock to the digital economy, housing critical data for global businesses, services, and communication networks. Phoenix Contact is dedicated to supporting the sustainable growth of data centers by providing the vital components that ensure these critical facilities operate reliably and efficiently. Through innovation and exceptional customer support, Phoenix Contact empowers its partners to build the next generation of resilient, responsible and reliable data centers.

For more insights on how Phoenix Contact can support the development of modern data centers, visit our website **phoenixcontact.com/en-sg,** or reach out to our team at **info@phoenixcontact.com.sg**.

About Phoenix Contact Southeast Asia

Phoenix Contact Southeast Asia is a subsidiary of Phoenix Contact GmbH & Co. KG, a global market leader in the field of electrical engineering. With over 25 years in Southeast Asia, the company offers cutting-edge solutions in power, automation, connectivity, and control technology. Phoenix Contact Southeast Asia is committed to sustainability through collaborative partnerships, technological innovation, and community engagement, shaping a responsible future for industries worldwide.

Interview with Prof. Datin Lorela Chia, President of MASSCI, Josephine Tan, General Manager, Penang Green Council, and Prof. Patricia Chung, President of IIPCC Malaysia Berhad

MoU Signing between MASSCI and Penang Green Council on Advancing Sustainable Manufacturing, Blockchain, IP, and Green Practices

1. **Can you provide a brief overview of the MoU signed between MASSCI and the Penang Green Council? What are the primary objectives?**

MASSCI: The MoU signed between MASSCI and the Penang Green Council marks a significant step towards fostering sustainable industrial development and leadership. This collaboration aims to promote sustainability not just in the conventional sense but by addressing the deeper, systemic changes that are crucial for long-term progress. While much of the sustainability conversation tends to centre on visible topics like ESG practices, plastic reduction, and energy efficiency, our focus is on the more transformative aspects of sustainability that often go unnoticed but are equally critical for lasting impact.

At the heart of this MoU is our commitment to advancing sustainable leadership and the development of robust, future-ready ecosystems. One major area of emphasis is intellectual property (IP) management within the sustainability sector. Protecting and leveraging innovations in this space is essential for fostering a culture of sustainability-driven growth. Additionally, we aim to explore the potential of blockchain technology as a tool to drive greater transparency, accountability, and trust in sustainability claims, ESG reporting, and green practices. This partnership is not just about environmental impact—it's about shaping sustainable, ethical leadership in industry, and paving the way for responsible and inclusive industrial development.

Penang Green Council: As a government-linked agency under the Penang State Government, the Penang Green Council is dedicated to advancing environmental policies, research, and advocacy, as well as running on-the-ground environmental education and outreach programs. Our role is to empower local SMEs to embrace sustainability and integrate ESG practices.

Two years ago, we launched the Penang Green Industry Program to support SMEs in their ESG journeys. This initiative helps local industries understand ESG principles and provides them with the necessary tools to adopt these practices. Through this partnership with MASSCI, we hope to further expand our network and help SMEs align with global sustainability standards.

2. How will these advancements impact the local semiconductor industry and its environmental footprint?

IIPCC: The integration of green technologies, blockchain, and IP management will have a significant impact on Malaysia's semiconductor industry. We are already seeing the rise of green IP, which enables semiconductor companies to align their innovations with sustainability goals. Blockchain technology is also opening up new possibilities for financing green innovations, particularly through tokenized assets. This offers semiconductor companies a more sustainable and transparent way to raise funds.

The ability to tokenize real-world assets like intellectual property marks a major advancement. It will allow companies to demonstrate the value of their green technologies, helping secure the necessary investment to advance these innovations. Looking ahead, we expect blockchain adoption to grow among semiconductor companies for ESG reporting and other sustainability initiatives.

Penang Green Council: Penang hosts a significant portion of Malaysia's semiconductor and manufacturing industries, and many multinational corporations (MNCs) have already embraced ESG principles. However, there remains a gap with local SMEs in the supply chain. Our focus is on building capacity and raising awareness to help these SMEs understand and adopt ESG practices. This will reduce their environmental impact and enhance their competitiveness in the global market.

With the introduction of green technologies and financing options, we aim to support this transition, offering local industries a solid framework to adopt sustainability and reduce their environmental footprint.

MASSCI: Reducing the environmental footprint in high-growth, high-value industries such as semiconductors requires a collective and integrated approach. Sustainability must be embedded across every layer of industry, from strategy to daily operations. MASSCI is committed to supporting industries in adopting sustainable practices, with a particular focus on creating frameworks that help businesses, especially in sectors like semiconductors, align with both local and global sustainability standards.

Our approach encourages collaboration across the supply chain, ensuring that businesses of all sizes can contribute to and benefit from more sustainable operations. By helping to create ecosystems that balance environmental responsibility with economic resilience, we aim to support industries in their long-term growth while enhancing their competitiveness in a global market.

This holistic focus on sustainability aims to empower industries to not only reduce their environmental impact but also to position themselves for innovation and success, both now and in the future.

3. Can you share any specific projects or initiatives that will be launched under this MoU? How do you envision this partnership evolving in the future?

Penang Green Council: The MoU will result in a multi-tiered approach to sustainability, beginning with awareness and capacity building. Our first focus will be on educating both industry stakeholders and the broader community about the importance of sustainability and ESG practices. Once stakeholders gain a deeper understanding, they can form informed opinions, which will ultimately guide future policy-making.

As our partnership progresses, we anticipate launching several initiatives aimed at embedding sustainability within business operations. We are also exploring emerging trends and technologies that will provide innovative solutions for the future. This includes the development of data-driven policy-making, which will be informed by the needs and priorities of businesses and communities. By continuing to raise awareness and build capacity, we aim to shape both local policies and the future of sustainable industries.

MASSCI: Building on the Penang Green Council's vision, MASSCI is committed to ensuring that the projects under this MoU not only raise awareness but also contribute to sustainable industrial development in meaningful and impactful ways. While the focus on education and capacity building is a crucial first step, our approach goes beyond just disseminating information. We aim to empower stakeholders—especially businesses—to integrate sustainability into their core strategies, ensuring that these efforts are not only sustainable but also scalable and impactful.

In addition to supporting the development of data-driven policy-making, MASSCI will be actively involved in creating frameworks that help businesses leverage sustainable technologies and practices, with an emphasis on industrialisation and innovation. We envision initiatives that will not only address environmental sustainability but also promote ethical leadership, responsible IP management, and the development of ecosystems that support long-term industrial transformation. By evolving this partnership, we aim to shape an industrial landscape that champions sustainability in all its forms—environmental, social, and economic—creating a model that can be replicated globally.

4. Are there any plans to involve other stakeholders, such as government agencies, educational institutions, or international organizations, in this initiative?

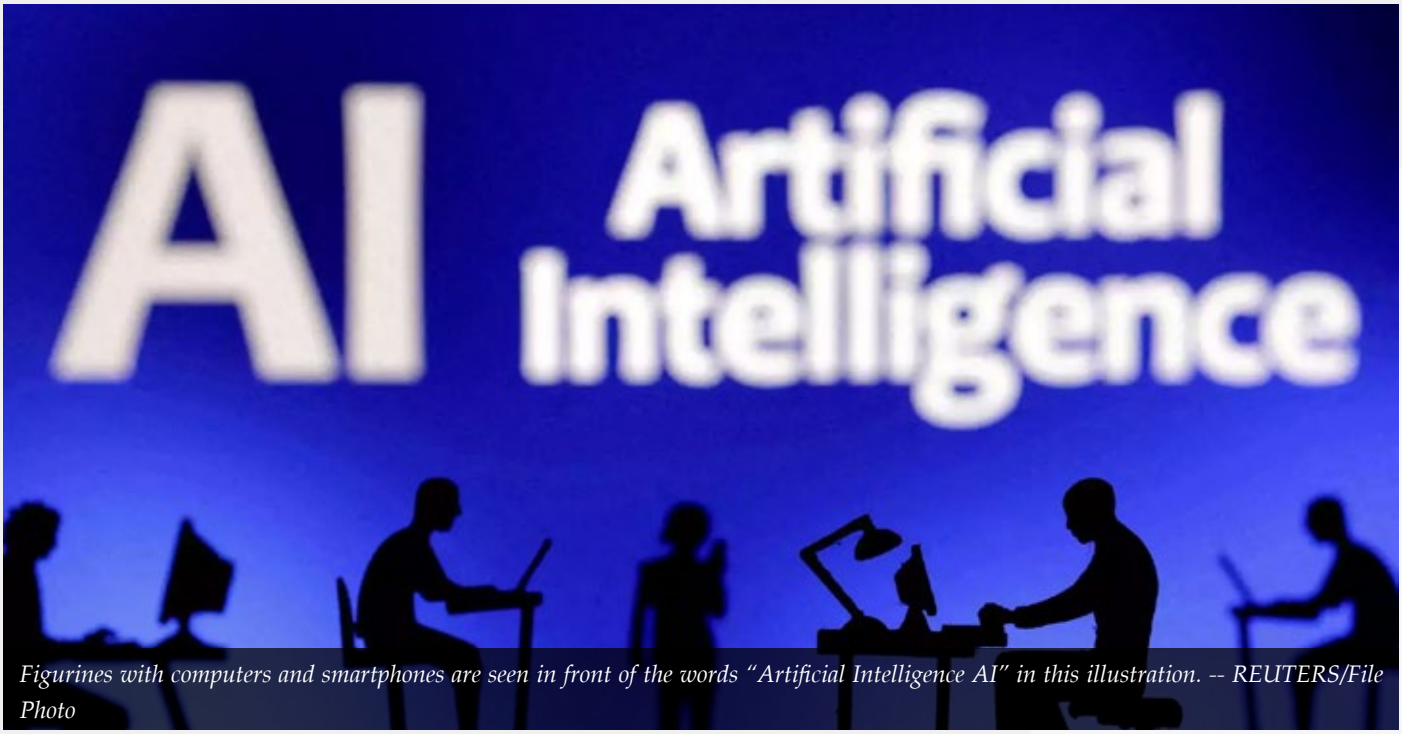
MASSCI: Collaboration is essential to addressing the complex challenges of global sustainability. At the national level, we are witnessing a growing recognition of the need for integrated, cross-sector partnerships, with the Prime Minister himself urging a move beyond siloed efforts. The MoU with Penang Green Council serves as the initial catalyst for a broader, more inclusive approach to sustainable development.

Our vision extends well beyond this partnership. We are committed to involving a diverse range of stakeholders, including government agencies, educational institutions, and international organizations, to drive sustainable leadership and industrial development. By engaging these key players, we can create a unified, cohesive effort to tackle sustainability challenges, ensuring that the solutions we implement are not only effective but also scalable. This initiative aims to foster long-term, transformative change by aligning policies, research, and industry practices, ultimately shaping a sustainable future for all.

IIPCC: Blockchain technology can play a pivotal role in breaking down these silos. By offering a transparent, decentralized approach, blockchain allows stakeholders from different sectors and regions to collaborate seamlessly. The more stakeholders we can integrate into this initiative, the more impactful our collective efforts will be in driving sustainable change.

We believe that this collaborative approach is vital to creating systemic change that will advance sustainability and green practices globally. By involving diverse stakeholders, we can foster an environment conducive to innovation and sustainable development.

How We Can Manage Downsides of Artificial Intelligence



Figurines with computers and smartphones are seen in front of the words "Artificial Intelligence AI" in this illustration. -- REUTERS/File Photo

How many employees will there be in the factory of the future? The late American scholar Warren Bennis opines two-a man and a dog.

The man's job is to feed the dog and the dog's task is to bite the man's hands should he touch the dials on the control panel.

It is a hilarious exaggeration. But it also showed the extent to which artificial intelligence, or AI, could displace tasks and jobs.

A recent study by global consultancy firm McKinsey suggests that by 2030, AI will displace as much as 40 per cent of jobs globally as companies integrate the technology into their businesses.

The displacement will be 14 times more likely for occupations at the lower end of the skills spectrum.

Malaysia's situation reflects the larger global trend.

Last week, at the launch of TalentCorp's study on the impact of AI, digital economy and green economy on the Malaysian workforce, Human Resources Minister Steven Sim floated the figure 600,000 as the number of workers across 10 key sectors who would be displaced over the next three years.

The displacement would be larger if the other sectors contributing to the remaining 40 per cent of gross domestic product were included in the study.

Just as in the 1960s fantasy sitcom I Dream of Jeannie, in the present context, the AI genie is out of the bottle! The bewildered protagonist has difficulty putting the overly devoted genie back into the bottle.

Similarly, companies have little option but to incorporate AI in their operations, lest they become dinosaurs.

Managing the downsides of AI will require adaptability at the individual, company and government levels.

Let's take the individual. They must audit their skills and upgrade them to AI standards to remain relevant in their occupations.

Studies show that workers, especially on the lower rungs, who are AI-adept demonstrate as much as 40 per cent improvement in productivity.

AI literacy would include specialized skills, such as data science and robotics, and soft skills, such as empathy, critical thinking and creativity.

As AI is prone to hallucination producing bias and disinformation employees must be agile and apply good judgment to the machine output for improved performance.

In his 2024 book Co-Intelligence: Living and Working with AI, Ethan Mollick, a professor at the Warton School, University of Pennsylvania, argues that employees should leverage AI in their tasks.

As they work with the machine, they would learn new skills; just like we improved our numeracy by working with calculators and spreadsheets, even as these tools made work easier.

Businesses should increasingly look to hiring more skilled workers to ensure a seamless integration of AI with existing technology.

As they already have human capital, businesses should hire from within through reskilling and upskilling. That would not only be equitable but would also minimize the disruption from AI integration.

The government has a preeminent role in the orderly assimilation of AI in the public service and business.

The TalentCorp report is long on proposed public policies. One of the recommendations is to include AI skills in the education curricula, from preschool to tertiary level.

While this inclusion is welcome, it should be complemented with AI tools and platforms for assisted and interactive learning.

Lest we forget, our overworked teachers too should be trained in AI for teaching, grading, classroom management and individualized student support.

Malaysia has established several guardrails in developing and using AI.

These include the AI Roadmap, 2021-2025, the 1998 Computer Crimes Act, and the 1998 Communications and Multimedia Act.

As AI has developed at a blistering pace, these mechanisms should be reviewed for continued relevance.

Other guidelines, such as the 2024 AI Governance and Ethics Code, should be made into binding regulations like the European Union's AI Act.

These initiatives should help in the orderly development of AI and lessen its job displacement impact.

Source: www.nst.com.my

Robotics in 2025: The Key Developments Set to Transform Industry and Society

The robotics landscape is shifting dramatically as we close out 2024. Autonomous mobile robots are transforming warehouse operations, drone delivery networks are expanding across the UK's skies, and collaborative robots are increasingly common on factory floors. Yet despite these advances, the UK continues to lag behind its G7 counterparts in robotics adoption, with just 119 robots per 10,000 manufacturing employees - less than half the density found in comparable European economies.

This gap between potential and reality makes 2025 a crucial year. While emerging technologies like AI are creating new possibilities for robotics applications across industries, many technical and practical challenges remain unsolved.

As we look ahead, several key developments are poised to accelerate the integration of robots into our workplaces, homes, and public services.

1. Advanced humanoid dexterity breakthroughs

If we are to see the mass adoption of humanoid robots in industry and society, we need them to be more dexterous, moving beyond basic pick-and-place operations to execute a wider range of complex tasks.

We sometimes underestimate just how complex and miraculous the human body is, taking for granted simple tasks like picking up a thread and feeding it into a needle. Robots are not currently equipped to perform these delicate tasks, but I expect significant progress next year.

Several promising platforms are set to debut in 2025, among them the Figure 3 which features "advanced dexterity" and is designed for high-rate manufacturing deployment. Already more than 100 humanoid robot models have been produced across the world. The real test, of course, will come when they are deployed at scale which we might happen by the end of next year.

I was interested to read about Agility Robotics' new strategic partnership with Schaeffler AG, a global leader in motion technology, to "integrate [humanoid] technology into our operations and see the potential to deploy a significant number of humanoids in our global network of 100 plants by 2030."

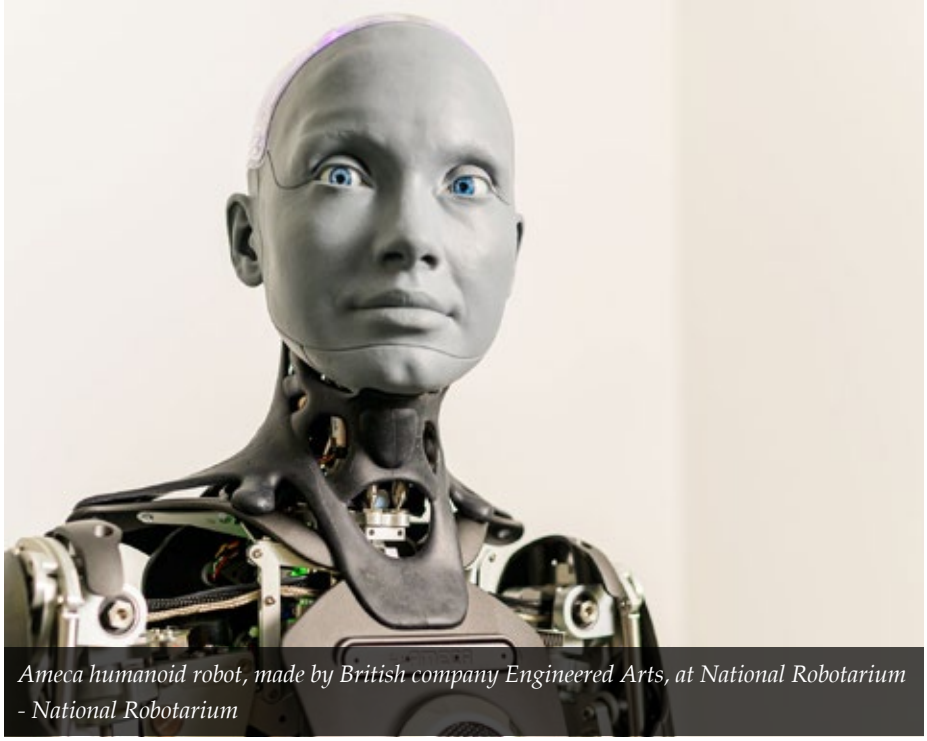
The race is very much on.

2. AI-powered educational robotics go mainstream

From serving as interactive tutors to maintaining vital school connections for children with medical needs, 2025 will mark the year educational robots move from experimental pilots to widespread adoption.

One of the first sectors in which we'll see larger deployments of robots is home-based education, with sophisticated robots powered by Large Language Models (LLMs) becoming available to private customers in 2025.

We're already seeing promising results - in the Wirral, Merseyside, AV1 robots are helping children who struggle with school attendance by providing emotional support through microphones and emoji expressions, improving local attendance rates by 21%. In Twickenham, a young cancer patient named Howard uses an 'AV Howard' robot to attend lessons remotely, with classmates helping to integrate the robot into daily school life - showing how this technology can maintain crucial social connections during difficult times.



Ameca humanoid robot, made by British company Engineered Arts, at National Robotarium - National Robotarium

3. Task-specific AI models drive performance

Rather than relying on general-purpose AI, in 2025 we can expect robots becoming more efficient through the implementation of task-specific AI models.

One of the complications slowing the adoption of robotics is that they need to be retrained with new data for every new place they encounter, which can become very time-consuming and expensive. Robots need to be quickly adaptable to their environments; if they can open a door in your home, they have to know how to open a door everywhere else.

Task-specific AI models will make robots more accurate and efficient, and I would expect to see research being done by the likes of the Massachusetts Institute of Technology (MIT), as well as private enterprises such as all the humanoid manufacturers, to bear fruit over the coming months.

4. Privacy-first design takes centre stage

As AI-enabled robots become more prevalent in our homes and workplaces, 2025 will bring increased focus on privacy-conscious robot design.

Robots unquestionably have a role to play as companions, but relationships are built on trust, so potential users need to feel safe in the company of a social robot. Too often in the past, in the finance industry for example, counter measures are implemented only after data theft or leaks when personal information has already been misused, so integrating ethical principles in the design process of autonomous robots is of vital importance.

This is a complicated area. What does a robot do if it 'thinks' sharing its users' private health information will save their life, but the user does not want their loved ones to know that level of detail? This is a real issue in the development of home monitoring systems, the use of which is growing rapidly.

Regulation is part of this, but I expect ethical design to be the topic of conversation in robotics for the foreseeable future.

5. Standardisation becomes critical for scaling

A critical development for 2025 will be the emergence of clearer industry standards and frameworks for robotics development and deployment.

The UK's Health and Safety Executive is already working with the British Standards Institution to develop clear standards around collaborative robots in manufacturing, and similar initiatives are emerging worldwide such as the Institute of Electrical and Electronics Engineers Humanoid Robot Study Group that will share its landscaping insights with standardisation organisations next year.

We'll see increased focus on creating standardised approaches to robot safety validation, human-robot interaction protocols, and interoperability requirements. This collaboration between industry, academia, and regulatory bodies will be essential for scaling up robotics deployment while maintaining public trust and safety.

There have been false dawns in robotics before, but if the innovators and designers deliver on their promises, I believe 2025 may well be a turning point in the history of human-robot interaction. The convergence of specialised AI, advanced manipulation capabilities, and growing market demand creates ideal conditions for significant progress.

Success will depend not just on technological advancement, but on our ability to thoughtfully integrate these systems into society while addressing legitimate concerns about privacy and safety. For engineers and technology leaders, the challenge now is to bridge the gap between laboratory innovation and practical deployment - but the potential rewards, both economic and societal, make this effort worthwhile.

The writer is Dr Ingo Keller, head of Robotics at The National Robotarium

The above comments and opinions in the article are the author's own own and do not necessarily represent Automate Asia Magazine's view

Source: www.theengineer.co.uk

L – R: Dr Maksim Sonnykh, Head of Factory Automation, Mr Roland Bittenauer, Board Member of Bosch Rexroth responsible for Sales and Marketing, Mr Michel Gunawan, President & CEO of Bosch Rexroth East Asia & Oceania, Mr Darren Chan, CEO of Bosch Rexroth Malaysia cutting the ribbon to mark the official opening of the new office in Bosch Rexroth Penang.

Bosch Rexroth Expands Its Footprint in Malaysia with New Office in Penang

Strategically located in Batu Kawan to better serve customers

Bosch Rexroth is proud to announce the opening of its new office in Penang, located in the rapidly developing industrial hub of Batu Kawan. This relocation marks a major milestone in Bosch Rexroth's continued growth and commitment to the ASEAN region. The new office will serve as a central hub for the company's operations in Northern Malaysia, enabling stronger collaborations with local customers and partners.

Roland Bittenauer, Board Member of Bosch Rexroth responsible for Sales & Marketing, shared his enthusiasm: "This new location in Penang symbolizes more than just a new office; it's a foundation for ongoing strong growth in the region. We are excited to deepen our relationships with customers and partners, and we're confident this move will enhance our ability to drive innovation and deliver value to the industries we serve.".

Strategically positioned in Batu Kawan, known as the 'Silicon Valley of the East,' Bosch Rexroth's new facility will play a pivotal role in fostering regional industrial growth and innovation. The site will provide a more collaborative environment for the team and serve as a base for further expansion in Malaysia's dynamic and fast-growing economy.

Darren Chan, CEO of Bosch Rexroth Malaysia, echoed this sentiment: "Penang has long been a key hub for industrial advancements, and our move to Batu Kawan is a testament to the importance we place on the region. This new office enables us to better support our customers and partners in Malaysia, delivering automation and control solutions that meet their evolving needs." Michel Gunawan, President & CEO of Bosch Rexroth East Asia & Oceania and Dr Maksim Sonnykh who heads Factory Automation in Malaysia based in the new office alongside regional leaders were also present to commemorate the occasion.

The new office is located at:
Bosch Rexroth Sdn Bhd
9, Jalan Vervea 1, 14110 Bandar Cassia, Pulau Pinang, Malaysia.

Bosch Rexroth invites customers, partners, and community members to visit and experience the new space.

As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile and Industrial Applications as well as Factory Automation. With its intelligent components, customized system solutions, engineering and services, Bosch Rexroth is creating the necessary environment for fully connected applications. Bosch Rexroth offers its customers hydraulics, electric drive and control technology, gear technology and linear motion and assembly technology, including software and interfaces to the Internet of Things. With locations in over 80 countries, around 33,800 associates generated sales revenue of 7.6 billion euros in 2023.

L – R: Mr Darren Chan, CEO of Bosch Rexroth Malaysia, Mr Michel Gunawan, President & CEO of Bosch Rexroth East Asia & Oceania, Dr Maksim Sonnykh, Head of Factory Automation and Mr Roland Bittenauer, Board Member of Bosch Rexroth responsible for Sales and Marketing at Bosch Rexroth new office in Batu Kawan, Penang

The Bosch Group is a leading global supplier of technology and services. It employs roughly 429,000 associates worldwide (as of December 31, 2023). The company generated sales of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which nearly 48,000 are software engineers.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com

Schaeffler and SD Guthrie International Sign MoU to Enhance Mechanization and Digitalization Solutions and Services for Advanced Control & Predictive Maintenance

- Schaeffler and SD Guthrie International sign memorandum of understanding in the field of advanced control and predictive maintenance
- Memorandum of Understanding focuses on introducing advanced control and predictive maintenance solutions to support SD Guthrie International's digital transformation agenda

Schaeffler, the motion technology company, and SD Guthrie International have signed a Memorandum of Understanding (MoU) to explore the use of advanced control and predictive maintenance solutions to support production reliability and machinery operations.

The signing ceremony was attended by Kelvin Chong, Managing Director, Malaysia, and Dr Shariman Alwani, Chief Executive Officer, SD Guthrie International. The memorandum of understanding will see Schaeffler leveraging its technical expertise, industrial knowledge, and Lifetime Solutions portfolio to support SD Guthrie International's global digital transformation agenda for its plant operations.

"In this decade of efficiency, industry operations have taken a transformative shift toward digitized solutions to minimize disruptions through smarter operations," says Kelvin Chong. "By bringing together our ever-growing store of digital expertise and industry know-how, our goal is to support SD Guthrie International in maximizing their operation productivity with cost-effective solutions."

Eliminating Downtime with the OPTIME Ecosystem

The OPTIME Ecosystem is designed to minimize downtime in manufacturing operations through various integrated components. At the heart of this system is the OPTIME Digital Service, which includes an intuitive mobile app, a dashboard, and an export viewer, allowing users access to essential information and a comprehensive overview of all machines and lubrication points anytime and anywhere.

This is made possible through the OPTIME Cloud, which boasts unlimited processing power and capacity, allowing vast amounts of data to be processed and analyzed. The data is sourced directly from various OPTIME vibration sensors and intelligent lubricators that are transmitted securely to the OPTIME gateway – a stand-alone device that supports secure cloud connectivity and IT infrastructure integration.

A pivotal element of the OPTIME ecosystem is its automatic and self-healing OPTIME mesh network that connects the various OPTIME devices. The easy-to-set-up mesh network allows machines to be remotely monitored. Additionally, machine lubrication is now simplified with OPTIME C1, the world's first smart lubricator, which helps maintenance managers monitor the filling levels of each lubricator and any potential lubrication problems.

The agreement follows a project collaboration with SD Guthrie International to provide predictive maintenance solutions at its plant in Port Klang, Malaysia, to detect emerging damage to machinery at an early stage. The implementation of Schaeffler's condition monitoring and intelligent lubrication solutions saw minimized unplanned downtime in 5 months, leading to more than 50,000 euros in savings.

From left: Dr Shariman Alwani, Chief Executive Officer, SD Guthrie International, with Kelvin Chong, Managing Director, Malaysia. Photo(s): Schaeffler

To learn more about the OPTIME Ecosystem and how it can transform manufacturing operations, please visit https://medias.schaeffler.my/en/monitor/optime-ecosystem

Schaeffler Group – We pioneer motion

The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for over 75 years. With innovative technologies, products, and services for electric mobility, CO_2-efficient drives, chassis solutions and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. Schaeffler describes its comprehensive range of products and services in the mobility ecosystem by means of eight product families: From bearing solutions and all types of linear guidance systems through to repair and monitoring services. Schaeffler is with around 120,000 employees and more than 250 locations in 55 countries, one of the world's largest family-owned companies and one of Germany's most innovative companies.

Integrated Multi-Modal Sensing and Learning System Could Give Robots New Capabilities

To assist humans with household chores and other everyday manual tasks, robots should be able to effectively manipulate objects that vary in composition, shape, and size. The manipulation skills of robots have improved significantly over the past few years, in part due to the development of increasingly sophisticated cameras and tactile sensors.

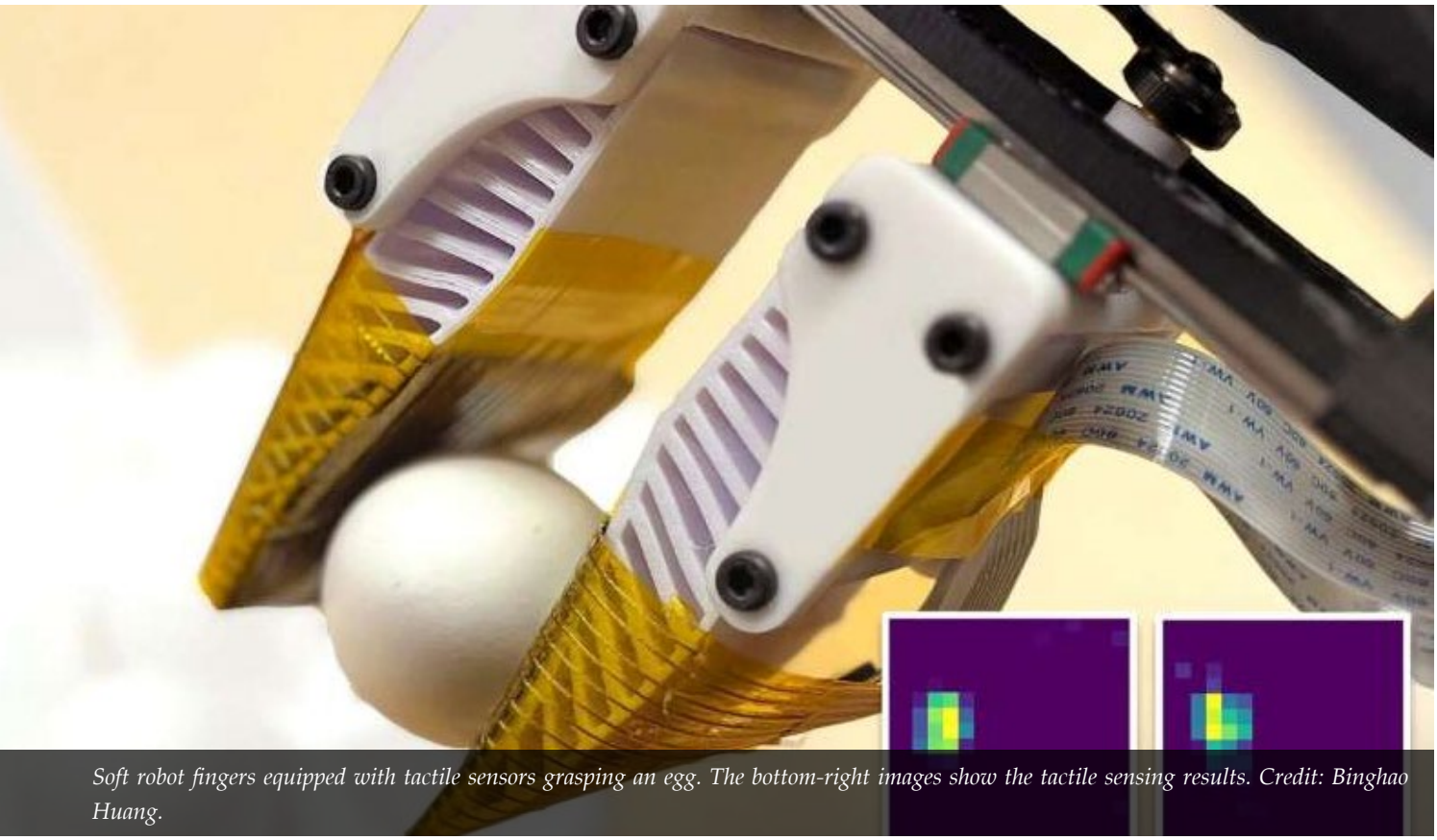
Researchers at Columbia University have developed a new system that simultaneously captures both visual and tactile information. The tactile sensor they developed, introduced in a paper presented at the Conference on Robot Learning (CoRL) 2024 in Munich, could be integrated onto robotic grippers and hands, to further enhance the manipulation skills of robots with varying body structures.

"Humans perceive the environment from multiple sensory modalities, among which touch plays a critical role in understanding physical interactions," Yunzhu Li, senior author of the paper, told Tech Xplore. "Our goal is to equip robots with similar capabilities, enabling them to sense the environment through both vision and touch for fine-grained robotic manipulation tasks."

As part of their study, the researchers set out to develop a multi-modal sensing system that could be used to gather both visual data, which can be used to estimate the position of objects in its field of view and their geometry, as well as tactile information, such as contact location, force, and local interaction patterns.

The integrated multi-modal sensing and learning system they developed, called 3D-ViTac, could give robots new sensing capabilities, allowing them to better tackle real-world manipulation tasks.

"Compared with existing state-of-the-art solutions, especially optical-based sensors, our sensor is as thin as a piece of paper, flexible, scalable and more robust for long-term use and large-scale data collection," explained Li.



Soft robot fingers equipped with tactile sensors grasping an egg. The bottom-right images show the tactile sensing results. Credit: Binghao Huang.

"Coupled with visual observation, we developed an end-to-end imitation framework that enables robots to perform a variety of manipulation tasks, demonstrating significant improvements in safe interactions with fragile items and long-horizon tasks involving in-hand manipulation."

Li and his colleagues tested their sensor and the end-to-end imitation learning framework they developed in a series of experiments employing a real robotic system. Specifically, they integrated two of their sheet-like sensing devices onto each of a robotic gripper's fin-like hands.

The team then tested the gripper's performance on four challenging manipulation tasks, including steaming an egg, placing grapes on a plate, grasping a hex key and serving a sandwich. The findings of these initial tests were very promising, as their sensor appeared to improve the gripper's ability to successfully complete all tasks.

"We demonstrate that our proposed visuo-tactile imitation learning framework enables even low-cost robots to perform precise manipulation tasks," said Li. "It significantly outperforms vision-only approaches, particularly in handling fragile objects and achieving high precision in fine-grained manipulation."

The new sensor developed by this team of researchers could soon be deployed on other robotic systems and assessed on a broader range of object manipulation tasks that require high levels of precision. Meanwhile, Li and his colleagues plan to develop simulation methods and integration strategies that could make their sensor easier to apply and test on other robots.

"In our next studies, we aim to develop simulation techniques for tactile signals, explore ways to integrate the sensor into dexterous robotic hands and larger-scale surfaces (e.g., robot skin) and democratize tactile sensing in robotics," added Li.

"This will facilitate large-scale data collection and contribute toward multimodal robotic foundation models that better understand physical interactions through touch."

Source: techxplore.com

US Scientists Develop 'Syllabus,' for Robots, Allowing Them to Transfer Skills Without Human Intervention

A teacher training a hoard of robot. AI Generated Image

Scientists at UC Berkeley have unveiled a game-changing tool called RoVi-Aug. This clever framework allows engineers to simplify how robots learn by allowing them to transfer skills between models without needing human guidance. t's a step closer to making robots more independent.

Robots are becoming more common in real-world settings, but there's still a major hurdle — how to get them to adapt to new tasks and environments without endless retraining.

Traditional methods often require heaps of data and customized training for each model, making the process slow and laborious. Now, researchers are shaking things up by crafting frameworks that help robots share skills, skipping the tedious learning curve.

Scientists at UC Berkeley have unveiled a game-changing tool called RoVi-Aug. This clever framework allows engineers to simplify how robots learn by allowing them to transfer skills between models without needing human guidance. It's a step closer to making robots more versatile and independent.

Cracking the code for skill sharing

One of the biggest challenges in robotics is getting robots with different designs and hardware to share what they've learned. Imagine a robot chef teaching a factory bot how to assemble parts — sounds futuristic, right?

This skill-sharing ability could save time and open up countless possibilities across industries.

The problem is that current robotics datasets are pretty lopsided. Popular robots like the Franka and xArm manipulators dominate the data, leaving other models out in the cold. This uneven spread makes it tricky for robots to generalize their skills effectively.

A smarter way to train robots

To tackle this, the UC Berkeley team developed RoVi-Aug. This system uses cutting-edge diffusion models to create synthetic demonstrations, tweaking both the robot types and the camera angles in the process. Essentially, it generates a mix of realistic training scenarios, helping robots learn more flexibly.

RoVi-Aug has two key parts. The Ro-Aug module focuses on generating data for different robot systems, while the Vi-Aug module adds variety by simulating diverse camera perspectives. Together, they create a richer training dataset that helps robots adapt to new tasks more efficiently, breaking down barriers between different models.

A leap toward generalized robotics

The inspiration behind RoVi-Aug stems from advances in machine learning, especially in generative models that excel at generalization. UC Berkeley researchers aimed to replicate this adaptability in robotics, making it easier for robots to function in unpredictable settings.

With RoVi-Aug, the dream of robots learning on the fly without human input is becoming a reality. It's not just a technical win — it's a glimpse into a future where robots truly work smarter, not harder.

Source: www.firstpost.com

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