ASIA INSIGHTS

DIGITAL MAGAZINE

DECEMBER 2022 • ISSUE #1

INTO THE METAVERSE

FANTASY OR REALITY?

AGRICULTURE

– THE AI REVOLUTION

PAVING THE WAY FOR AI

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A MESSAGE FROM THE EDITOR

Welcome to the inaugural issue of AI Asia Insights! This quarterly publication will ensure you are up to date with all the developments in Artificial Intelligence and Machine Learning taking place in our region.

From advances in theory to product development to practical applications, from private sector start-ups to government-led initiatives, AI Asia Insights will cover the news that matters in this fast-moving sector.

There are hardly any aspects of life that will not be affected by AI. For this month, we look at healthcare and agriculture, as well as a view on how the region's small and medium enterprises can take advantage of AI to improve their operations. We also take a peep at the Metaverse – will this 3D virtual world really be our future?

Our vision is to serve as the focal point of the Artificial Intelligence community in Asia – that means we need to provide you, our readers, with the information and insights that you want. We'd love to hear from you – we value your feedback and suggestions. Please e-mail us at **subscription@aiasiainsights.com**

TABLE OF CONTENTS


4 A New Realm of Possibilities with AI in Healthcare


7 AI in Governance: Making Citizens' Lives Easier


10 How Small and Medium Businesses Can Take Advantage of Artificial intelligence


12 Agriculture: The AI Revolution


15 The Metaverse: Fantasy or Reality?


17 AI Asia Expo Brings Experts And Innovators Together


19 Thai Farmers Adopting Ai To Modernise The Sector And Improve Outcomes

A New Realm of Possibilities with AI in Healthcare

By William Laws

Singapore's healthcare system, like those of all deve loped countries, is swamped with data. The challenge - and the opportunity - is to use that data to become a more effective premium healthcare provider. This can be achieved through the use of Artificial Intelligence (AI). AI lets medical professionals analyse and derive insights from the huge datasets created by healthcare organisations, a feat that is just not possible for humans.

AI analysis of clinical and operational data can result in the improvement of individual diagnosis, hospital administration, and even the production of drugs and other healthcare products. At a macro level, AI can be used to analyse demographic data, providing population-wide healthcare insights.

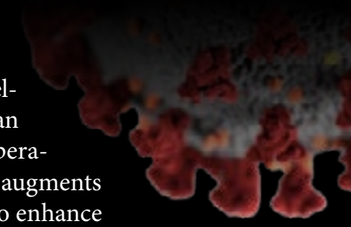
Singapore's National University Healthcare System (NUHS) deploys multiple AI and automation tools as microservices on its ENDEAVOUR AI platform. These AI tools incorporate multi-domain patient information, such as demographics, text, images, lab data, and medications prescribed to provide a synthesis of a patient's condition. This translates into significant cost savings, from a patient's care at admission, to predicting a patient's length of stay, therefore optimizing scarce bed resources.

The application of AI has helped companies like Pfizer revolutionise their supply chain to adapt and predict any winds of change. According to Hamid Mehdizadeh, Pfizer's Director of Manufacturing Intelligence, "Pfizer researchers are able to shatter physical, chemical and biological limits to mass-produce life-preserving medication by making data-driven decisions through the digitisation and simplification of everyday tasks."

Fighting COVID-19 with AI

The COVID-19 pandemic has proven to be an important test-bed for AI. Applications around the world have included dynamic, predictive heatmaps to help prevent the virus from spreading, and building predictive models of the citizens most vulnerable to the impact of the virus. Law enforcement has used AI to help enforce isolation measures, and AI has even been used to integrate weather reports with other demographic and medical data to predict a rise in cases due to higher ambient temperatures.

In Singapore, AI and genomics helped the Ministry of Health to understand the spread of COVID-19 infections. The Ministry used AI to "identify the spikes" in respiratory infections, using natural language processing to analyse the notes made by staff at emergency clinics. The AI could identify symptoms of respiratory conditions by picking out key phrases in these notes.



Another Singapore example is VigilantGantry, developed by GovTech. This is an AI-driven automated temperature screening gantry that augments existing thermal systems to enhance the rate of contactless screening, saving time and manpower. The solution can interface with facial recognition software to enable contact tracing.

As we move into the endemic phase, the use of AI and machine learning (ML) solutions can be used to check how ready employees are to return to the office. Employees with symptoms can provide daily updates and get advice on whether they can come back to the office or must continue working from home.

Keeping the cost of healthcare in check

The application of AI in healthcare does more than just provide added health benefits. The efficiency of AI is also required for Singapore to rein in the rising cost of medical care and treatments.

Singapore's Health Minister, Ong Ye Kung has said that the national healthcare expenditure has more than doubled from SGD 10 billion in 2010 to SGD 21 billion in 2018 and is expected to triple to SGD 59 billion by 2030. This exponential rise needs to be addressed, and AI can play a significant part in helping drive cost-saving efficiencies through increased diagnosis accuracy, earlier detection of diseases, boosting of life-saving decision making and the reduction of repetitive day to day tasks.

A three-year collaboration between SingHealth and SGInnovate will offer resources and opportunities that deep tech startups need, to develop AI applications to enhance healthcare services. The partnership will drive the adoption of AI and other emerging technologies to improve diagnostics and treatment, as well as healthcare delivery and clinical outcomes for Singapore, said Health Minister Ong Ye Kung at the recent signing of the Memorandum of Understanding.

In 2021, the government announced that it will invest SGD 180 million (USD 133.31 million) in the national research and innovation strategy to tap the technology in key areas, such as healthcare and education.

AI's role in healthcare is ever-changing, and medical practitioners need insights from data to make life-saving decisions. Making these insights widely available is essential for people, processes and systems to act without delay. The rewards of overcoming this challenge are transformative. AI can do much of the heavy lifting for healthcare professionals – identifying gaps and freeing up resources, with the result of a better focus on patients and improved outcomes.

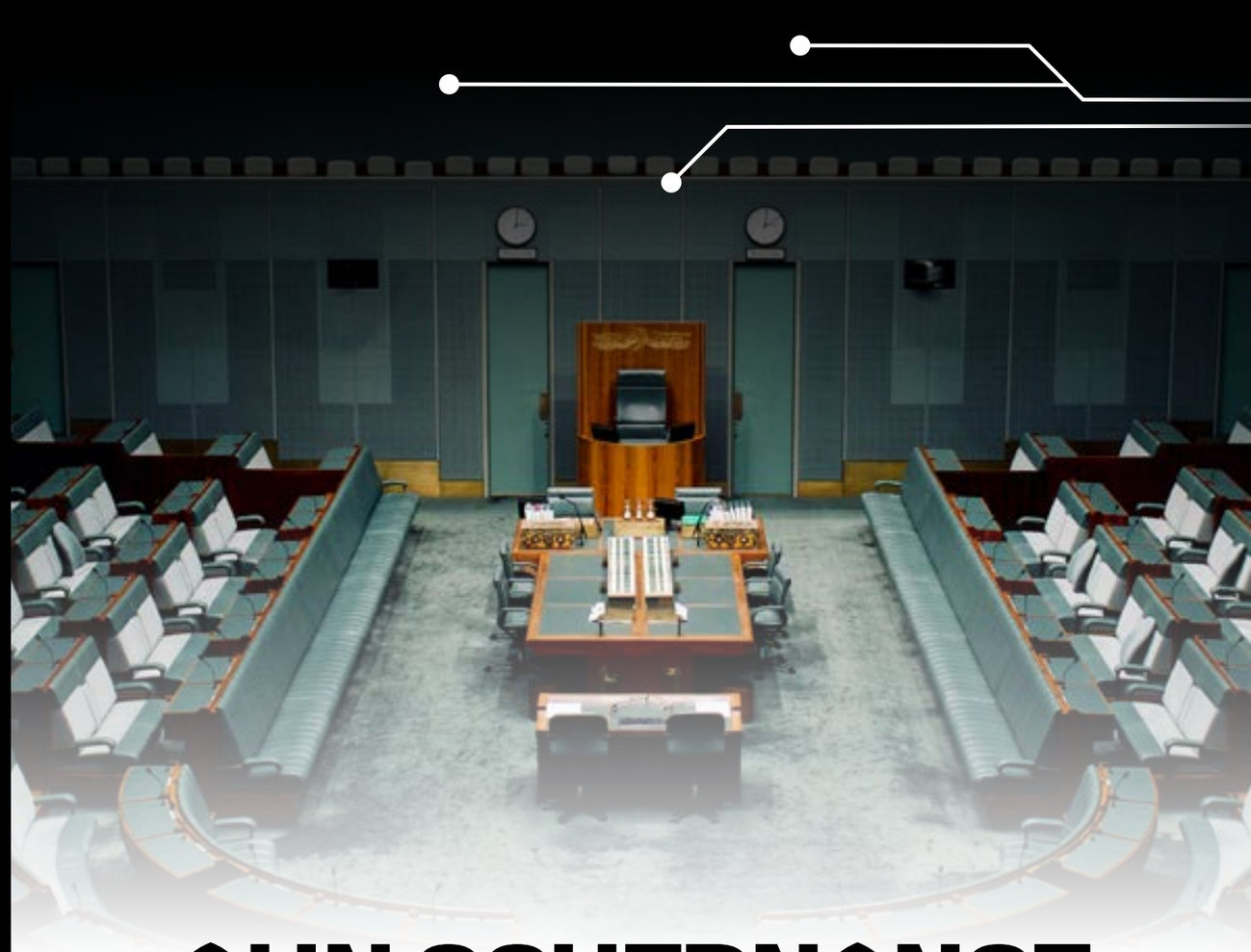
Regulatory hurdles for healthcare AI

All facets of the healthcare industry are highly regulated, and it will be the same with healthcare AI. Technological capabilities are just the start of actualising AI's benefits - the same as every technology used in healthcare.

Singapore's Ministry of Health, Health Sciences Authority (HSA), and the Integrated Health Information Systems (IHiS) have co-developed the MOH Artificial Intelligence in Healthcare Guidelines (AIHGle) (read as 'agile'). The AIHGle aims to support patient safety and improve trust in the use of AI by sharing good practices with Developers (e.g. AI Medical Device manufacturers) and Implementers (e.g. Healthcare Institutions), complementing HSA's regulations for AI Medical Devices and periodically being updated as a 'living' document.

Still, there are potential biases in AI programming. It's important that algorithms are seen to be free from bias. And as AI in healthcare will involve sensitive and personal data, it is essential that best practices in data governance and security be put in place. As enterprises deploy and integrate AI into everyday activities, it is crucial that accountability and best practice be maintained to ensure public trust as businesses actualise the vast potential of their AI programmes.

As patients become more comfortable with digital services for complicated and delicate matters, AI's future potential in healthcare can only grow brighter.



AI IN GOVERNANCE

MAKING CITIZENS' LIVES EASIER

Daily life in advanced societies requires constant interaction between the government and the governed. Housing, employment, education, healthcare, transportation, public safety, welfare, taxation – these are just some of the matters that the authorities manage on our behalf, and on which citizens need - and are entitled to – information, advice and instruction.

Prompt and efficient transactions in the public sphere are obviously desirable, but significant labour and real estate costs can be incurred when enquiries can only be handled by human officers in physical government offices. The public too can become frustrated by long waiting times and inconvenient office hours – a politically unwelcome situation.

A solution increasingly adopted by authorities around the world is the use of chatbots. These virtual assistants, when trained well on large enough data sets and capable of natural language, are available to answer queries and provide information 24/7. This greatly relieves the burden on government officers and budgets alike.

The pressures of the pandemic greatly accelerated the application of AI to multiple aspects of governance, going far beyond chatbots advising citizens on filling out forms.

Analytics are now being brought to bear on such issues as tax evasion, infrastructure maintenance, prioritizing child welfare payments or predicting outbreaks of disease. Well-designed algorithms can sift through vast quantities of data to deliver actionable insights, saving costs and improving the speed and quality of public services. It must be noted that the pace of adoption of AI by government agencies depends on several factors, including budget, reliance on legacy systems, motivation of the leadership and the availability of the necessary skills.

There is however no doubt that the public sector trend is towards the increasing use of AI technologies. There is a growing use of robotic process automation (RPA) to automate certain back-office functions at government agencies, delivering efficiencies, better quality services and greater job satisfaction among public servants. At the more strategic level, AI and machine learning are helping the process of policy decision-making. The principles are the same – aggregating and analysing mountains of data to help design better policies, deliver more accurate forecasts, make better decisions, and improve communication and engagement with stakeholders.

Another area where AI is helping to advance national agendas is the Smart City concept, where the objective is the sustainable digital transformation of a community. Southeast Asia's smart city initiatives are linked to the ASEAN Smart Cities Network, established in 2018. The network currently has 26 member cities, including Singapore and several cities in Thailand.

As more and more areas of governance are handed over to digital resources, certain issues inevitably arise. It is crucial for the success of any public sector AI initiative to ensure trust, accountability, fairness and an absence of bias. It is increasingly recognised that some algorithms are guilty of bias, particularly if facial recognition is involved.

Indeed, the most concerning risks with advanced analytics in the public sector are those of bias and discrimination, which can disproportionally affect vulnerable sections of the community. Examples are not hard to find, and this could help explain why some public agencies may be hesitant to deploy advanced analytics at scale.

ASEAN has already developed region-wide master plans and strategies to promote and develop the digital economy involving AI, and many ASEAN member states have established and continue to develop national AI strategies and governance frameworks. Among these Singapore, with its AI Singapore (AISG), has the most advanced national policy designed to drive AI readiness and regulate its deployment. Specifically, in 2019, Singapore's Infocomm and Media Development Authority (IMDA) launched the AI Ethics and Governance framework at the Model AI Governance Framework gathering in Davos. Thailand, by contrast, has its National AI Ethics Guidelines, which derives from Digital Thailand, the country's 20-year national strategy for digital transformation which includes AI adoption.

The other ASEAN states are at different levels of AI maturity, but we can be sure that the adoption of AI technologies in our region will continue to transform government decision-making and enhance engagement with citizens.

How Small and Medium Businesses Can Take Advantage of Artificial Intelligence

By Colin Koh

December 2022

With the rapid development of artificial intelligence (AI), businesses of all sizes are wondering how they can use this technology to improve their operations. For small and medium enterprises (SMEs), the opportunities presented by AI are particularly exciting. Here's a look at some of the opportunities – and challenges - of AI for SMEs.

Challenges

The first challenge that SMEs face is a lack of data. In order to train an AI system, businesses need a large dataset to work with. This can be a challenge for SMEs, which generally have smaller amounts of data than their larger cousins. However, there are a number of ways that SMEs can get around this issue, such as partnering with other businesses to access their data or using public datasets. In Singapore, SMEs are able to tap into a vast set of public data provided by various government agencies to merge with their internal data set from their ERP, MES, CRM, Inventory, and WMS to improve their business processes, create new products and enhance their go-to-market strategies. (https://data.gov.sg)

Another challenge is a lack of expertise. While there are many AI tools available, they can be daunting for businesses that don't have experience in this area. This is where partnerships can be helpful; by teaming up with another business or an AI expert, SMEs can gain the skills and knowledge they need to get started with AI.

Opportunities for SMEs

Despite these challenges, there are many opportunities for SMEs to take advantage of AI. One area where AI can be particularly helpful is automation. By automating tasks that are currently being done manually, businesses can free up time for employees to focus on more important tasks. For example, customer service tasks such as responding to emails or social media messages can be automated using AI chatbots.

Many RPA (Robotic Process Automation) vendors are incorporating AI into their platforms and allowing deeper automation for efficiency, productivity and improved profitability for SMEs.

In addition, AI can be used for predictive maintenance, which can help businesses avoid costly downtime due to equipment failures. By monitoring equipment data and identifying patterns, AI systems can predict when maintenance is necessary and send alerts to employees so that they can take action before a failure occurs.

Finally, AI can help businesses personalize their products and services for customers. By analyzing customer data, businesses can identify trends and preferences that can be used to tailor their offerings in a way that meets customer needs and expectations.

Conclusion:

AI offers SMEs many challenges and opportunities. While lack of data and expertise can be hurdles, there are many ways around these obstacles. Automation, predictive maintenance, and personalized products and services are just some of the ways that small and medium businesses can take advantage of artificial intelligence.

COLIN KOH

Senior Manager – Business Development

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Colin has more than 30 years of experience pioneering the latest technology within the ASEAN region, involved in the Industrial IoT/M2M, automation, 3D printing, connectivity, energy & environmental business since the mid-'80s. Colin provides mentorship and advisory services to the industry, especially focused on regional SMEs implementing digital transformation in line with the emerging Industry 4.0 concepts.

Colin is a certified Digital Transformation Management professional, certified IoT specialist and alumni of MIT Sloan School of Management Executive program in Artificial Intelligence and IoT. Attained National Infocomm Competency Framework (NICF) Industry approved competencies in Enterprise Architecture and Competency of Singapore Smart Industry Readiness Index (SIRI) implementation.

Colin held the role of President of the Singapore Industrial Automation Association from 2001-2005 and was Vice-Chair of Industry Committee of Energy Efficiency (ICEE) under the Sustainable Energy Association of Singapore (SEAS), sub-committee under the National Climate Change Committee in Singapore. Current member of the IoT Technical Committee of IT Standards Committee (ITSC). He is also a member of the International Society of Automation (ISA), the Singapore Water Association (SWA), and a former committee member of IoT Asia Conference and Exhibition.

Colin is a technology evangelist and driving force of Industry 4.0. Delivering dozens of insightful industry papers and influential speeches in the key regional conferences and business forums. He was featured in Channel News Asia (CNA) Start-Up series 6 as an industry expert and Member of Advisory Committee of Ngee Ann Polytechnic's electrical engineering department, Colin is helping guide the future of technological development and the next generation of technologists in the region.

AGRICULTURE THE AI REVOLUTION

Given the growing pressure on global food supplies today, plus the need to feed an estimated 2 billion more people by 2050, it is no surprise that the world is looking to AI for potential solutions.

While the popular imagination may perceive AI as belonging more to the realms of white-coated technicians developing computer theory in sterile laboratories, the truth is that agriculture is one of the fastest-growing and most exciting areas for the application of AI and Machine Learning. Several research studies support this conclusion.

BI Intelligence Research predicts that global spending on smart, connected agricultural technologies and systems, including AI and machine learning, will grow threefold by 2025, reaching $15.3 billion.

Spending on AI technologies and solutions for Agriculture will grow from $1 billion in 2020 to $4 billion in 2026 - a Compound Annual Growth Rate (CAGR) of 25.5% - according to Markets&Markets.

And PwC finds that IoT-enabled Agricultural (IoTAg) monitoring is the fastest-growing technology segment of smart agriculture, predicting a market size of US$4.5 billion by 2025.

What can AI do for agriculture?

Since time immemorial, the successful growing of crops has depended on data. Generations of accumulated experience, passed down within farming families, taught the best times to plant and harvest, the warning signs of inclement weather, and the most effective use of fertilizers. This institutional human knowledge was augmented by early technology, when weather forecasting and other relevant information became widely available through radio and TV broadcasts.

Now, we're in a position to dramatically improve the aggregation and analysis of data through AI and Machine Learning.

In fact, machine learning is the perfect means of developing insights into factors that affect crop yields – accumulating and interpreting vast amounts of data on weather patterns, the behaviour of animals and birds, fertilizer and pesticide use, planting and irrigation cycles.

Ten Ways AI Can Improve Agriculture

Forbes magazine listed ten ways in which AI can positively impact agriculture. They range from surveillance systems that monitor real-time video feeds of crop fields to identify and alert farmers to breaches by animals or unauthorised humans, to improving crop yield prediction through real-time data from sensors and drones.

In the latter case, we now have access to new data sets we've never had previously. For example, in-ground sensors can monitor and report data on moisture, fertilizer and natural nutrient levels, which machine learning technology can use to analyse crop growth patterns over time and under different conditions.

Another application is yield mapping. It's actually possible to know the potential yield rates of a given field before a vegetation cycle is ever started. This depends on using machine learning techniques to analyse 3D mapping, social condition data from sensors and drone-based data of soil colour. Drone data and in-ground sensors can also identify and prevent pest infestations before they occur.

Livestock is another area of farming that can benefit from AI, by monitoring the herd's health and food consumption.

At the end of the day, agriculture is a business, and produce must be delivered to market at the right time and at a price that makes sense for both producer and consumer. AI can improve the track-and-traceability of agricultural supply chains as well as price forecasting based on yield rates.

AI for Agriculture in Thailand

At the Agritechnica Asia 2022 event in Bangkok in May this year, the Digital Economy Promotion Agency (DEPA) together with a number of partners presented case studies on the application of AI to agriculture in Thailand. The innovations in digital technology presented were particularly relevant to the agricultural circumstances of Thailand and Southeast Asia, as they included applications for rice farming, durian orchards and shrimp farms.

One of the solutions presented was laser field adaptation technology, which shows the data on rice field plots and the distribution of water. This technology is equally applicable to other areas such as fisheries or even livestock.

DEPA also presented its "Fah Fon" mobile application that provides farmers with vital information on weather conditions. The Fah Fon intelligent weather station can measure weather, light and pollution.

Moving on from sensors and drones, AI holds the promise of solving agricultural labour shortages with AI and machine learning-based smart tractors, agribots and robotics. Self-propelled robotics machinery can, for example, spread precise qualities of fertilizer on each row of crops, helping reduce operating costs and improving yields.

In the area of pest control, agricultural AI applications can now detect the most infected areas of a given field. Machine learning algorithms can then define the optimal mix of biodegradable pesticides to be applied only to the areas that need treating.

Irrigation is another vital aspect of agricultural practice, especially given the unpredictability of rainfall and water availability these days. AI can find irrigation leaks, optimise irrigation systems and measure how frequent crop irrigation can improve yield rates.

Additionally, DEPA put forward a massive database system that acts as a big data platform for smart agriculture. This system has been pushed and supported by DEPA as part of its subsidy measures for the growth of the sector.

The Future for Agricultural AI is Bright

It is clear that AI and Machine Learning are going to transform agriculture across the world. Happily, Thailand is taking all the right steps to ensure the country is in the vanguard of this AI revolution.

DEPA's and other local agencies' main objective is the application of technology and digital innovation to farmers. They are also establishing operational guidelines that will encourage farmers in the region to understand the advantages and get access to digital technology and innovation applications. With their technological initiatives, Thailand's agricultural sector has a bright future.

THE METAVERSE
FANTASY OR REALITY?

What is the Metaverse? Mark Zuckerberg is betting the farm on it, but there is still a great lack of clarity over what exactly it is, what it can do and how it will affect everyone's lives.

There is no shortage of gushing predictions, of three-dimensional virtual worlds where your actions and experiences are limited only by your imagination. There are proposals of more serious practical applications such as virtual meeting rooms, digital replicas of apparel, furniture and household goods stores, and even sports – in this brave new world, you could be playing a round of virtual golf or lining up for your favourite football team.

Merging Technologies

Mr Zuckerberg is said to be ploughing billions of dollars into what he believes will eventually become our new normal, combining technologies like video-conferencing, immersive multi-player games, social media and live-streaming. Crypto tokens would inevitable be involved and the metaverse would be the perfect platform for Central Bank Digital Currencies – in itself a technology that can be seen as both liberating and menacing.

The idea is that you would both work and play in the metaverse. You will create a 3D avatar of yourself in Microsoft Teams for example, and use it to attend virtual meetings. After work, your avatar meets up with your virtual friends and heads off to a virtual concert, sports event or social gathering. All the elements you would expect at a real-life version of such activities will be available digitally, like merchandise stores or ticket agencies. Your avatar browses the schwag on show at the booths and makes a virtual purchase with virtual currency.

Is it making sense so far? This whole new world will only work, of course, if metaverse providers make every element cohesive, compatible and interchangeable with the services of its rivals. Even the basic technological challenges are head-cracking – today's internet connections can only just handle typical multiplayer games; imagine the bandwidth, speed and latency requirements to run thousands of simultaneous but separate data streams, in terabytes.

Let's take a positive view. In this scenario the metaverse could eventually become a technological leap equal to the way the web evolved from static images taking hours to load, to a billion-dollar e-commerce marketplace, to somewhere to collaborate on anything from product design to movie-making. For now, however, metaverse pioneers are subject to derision when they post images of cartoonish avatars, cut off at the waist. It is however early days, and it would be foolish to underestimate the determination of the tech world's CEOs, and the brilliant capabilities of their engineering teams.

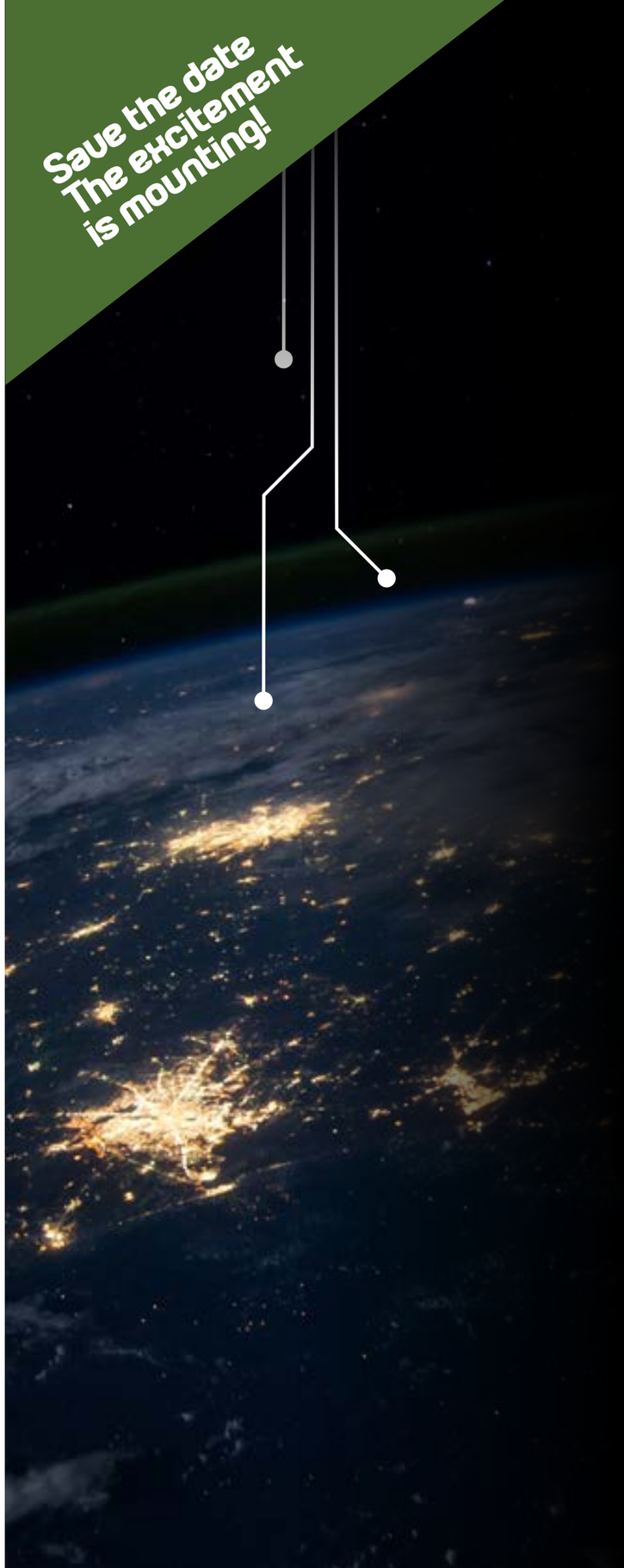
The Downside

Every technological step forward so far has proven a bonanza for criminals, and unfortunately the metaverse will be no different. AI is already capable of creating "people" that look and sound indistinguishable from the real human original. Letting such figures deliver malign messages in virtual political environments, for example, could be catastrophic, to say nothing of the potential for stalkers and blackmailers.

Interpol, the global police agency, has warned that the metaverse could allow existing crime to take place on a larger scale and even create new kinds of cybercrime. Phishing attacks and scams could take on new dimensions in a virtual world, and there are understandable concerns over child safety.

Also, given the geo-political volatility of today's world, it is frightening to consider how terrorist groups might use the metaverse for planning attacks as well as propaganda, recruitment and training.

History has shown that technological advances are pretty much unstoppable. The risks are certainly there - but we can be sure that the world's cybersecurity specialists are already working on defences. Despite the risks, it is reasonable to imagine that for better or worse the metaverse is going to happen – and it will change our lives.



AI ASIA EXPO BRINGS EXPERTS AND INNOVATORS TOGETHER

February 2023 will see Asia's premier Artificial Intelligence Expo and Conference series launch in Bangkok, Thailand. The luxurious Centara Grand at Central Plaza Ladprao Bangkok will be the venue for this ground-breaking Expo, scheduled for February 21st and 22nd, 2023.

AI Expo Thailand will be hosted by Thailand's Ministry of Higher Education, Science, Research and Innovation (MHESI) and the Singapore Industrial Automation Association (SIAA). According to Expo Director Catherine Ho, the Bangkok event will bring together local and international businesses to create a platform to explore the opportunities in the AI industry, in the burgeoning Thai market.

The key features of the event include hybrid showcases for the exhibition, networking and collaboration zones for businesses to meet and explore opportunities together, and conferences for leadership sharing on four main verticals: Agriculture, Healthcare, eCommerce and Smart Warehousing, and Metaverse, together with the AI Asia Hackathon that will gather the best ideas in the region.

Thailand has seen tremendous growth in its technology sector over recent years. The local government is invested in the development of Al and together with the rest of ASEAN, is developing a roadmap for the Al sphere to continue to flourish as an emerging key driver of Industry 4.0 cyber-physical systems.

Ms Ho said: "AI Expo Asia Bangkok will feature more than 90 speakers at over 11 panel sessions. We anticipate that the event will attract more than 8,000 visitors from at least 15 countries."

The Agriculture track will highlight the progress made to date, and the opportunities ahead, in the development of smart farming through advanced technologies in order to improve the overall crop yield. Given the pressure on global food supply, and the agriculture sector's labour shortage, AI is proving to be an essential technology for more sustainable use of available resources. AI in agriculture presents several enticing benefits, and it is expected for countries within the region, especially those that rely heavily on agricultural practices, to explore this technology on a larger scale.

Agriculture is a vital sector for the ASEAN community accounting for over 25% of GDP in some member states. In Thailand, agriculture occupies 40% of the country's land area and contributes 10% of Thailand's GDP. ASEAN countries are the world's leading suppliers of commodities like rubber and palm oil, and coconuts, pineapples, rice

The Healthcare track at the Expo will reflect the extraordinary growth of AI applications in the sector. Healthcare is one of the biggest and most challenging responsibilities for every government. Controlling costs while delivering excellent services is paramount, in the face of an ageing population, increased consumer demand for better care, and the possibility of future pandemics. AI is the key to revolutionising the industry to deploy more precise, efficient, and impactful interventions in a patient care.

E-Commerce is probably the sector in which AI directly impacts most people – even if they are not fully aware of it! While the demand is constantly expanding, suppliers have also been keeping up with the pace by leveraging AI in the supply chain process, especially warehousing. AI Asia Expo will showcase a variety of artificial intelligence technology applications in eCommerce and smart warehousing, along with some real-life industry examples and a conference focusing on this vertical.

Panel sessions at the AI Expo Thailand will offer a deep dive into topics as varied and essential as the impact of AI on telemedicine, microfinance, NFT technology and the Metaverse, as well as the burgeoning issues of ethics and sustainability.

This Expo and Conference is a critically important opportunity to get up to speed with the latest developments in AI, and network with industry leaders. It is an event not to be missed For more info, visit: www.aiasiaexpo.com/thailand)

Mr. Taweesak Wannatipayaporn is recognised internationally as an expert in both the food processing industry and the application of robotics and artificial intelligence in various fields.

He is the Managing Director of C. B. Food-Tech Co Ltd, and a committee member of TARA (the Thai Automation and Robotics Association).

This background positions Khun Taweesak ideally to discuss the application of Al in the Thai agriculture sector.

Mr. Taweesak Wannatipayaporn

THAI FARMERS ADOPTING AI TO MODERNISE THE SECTOR AND IMPROVE OUTCOMES

AI Asia Insights caught up with Khun Taweesak Wannatipayaporn over Zoom, to discuss the use of Artificial Intelligence in the Thai agriculture sector.

AIAI: What is the current status of AI in Thailand's agriculture sector?

TW: AI solutions are increasingly in use in several aspects of the Thai agriculture sector. These include for example accurate weather forecasting, and managing water quality in shrimp farms. One of the most popular, effective and widespread applications of AI in the country's farming sector is the use of drones. Farmers are using drones to monitor the growth of crops and determine the need for pesticides and fertilizer.

AIAI: When did farmers begin to use AI?

TW: AI began to really take off in Thailand around ten years ago, following R&D into Thai language processing and expert systems at university level. AI became a key part of the country's national development plan, and several practical applications emerged in the Thai economy. These included the "Knowledge Engineering and Agricultural Cyber Brain" which is a community-based platform that facilitates the sharing of information and best practices in the agricultural sector, particularly rice.

Members of TARA, the Thai Automation and Robotics Association, have been involved right from the start of projects to use AI applications in the farming sector.

AIAI: You mentioned rice and shrimp farming. Are there other sectors where AI solutions are being put to use?

TW: Yes - pig farming, sugar cane production and durian farming are all making use of AI applications. The Durian Association reports that farmers are using AI to improve the use of pesticides, resulting in more consistent crops of higher quality fruit for export, largely to China. Similarly, sugar cane growers are able to deliver better quality crops to sugar production factories.

AIAI: Agriculture in Thailand covers around 127 million acres of land and employs 12.7 million workers, a third of the country's workforce. How can AI maintain or improve this important sector?

TW: Thailand has a clear vision for the future of agriculture, bearing in mind the growth of the world population and the consequent need to feed billions of people. The farm sector is looking towards future foods, including the development of ingredients and raw materials like soybeans, flour and so on. AI is helping with the process of identifying and cultivating varieties that are more resistant to pests and adverse weather, improving quality and availability, and reducing costs. This deliberate move towards more healthy vegetarian foods will also help the country move away from meat consumption. Raising livestock demands a large area of land and contributes to CO2 emissions - reducing such emissions will align with Thailand's commitment to mitigating the climate crisis.

AIAI: How is the government supporting the adoption of AI in agriculture?

TW: The authorities are very supportive of farmers while recognising the changes that must be implemented as the industry modernises in order to compete. AI applications will help replace younger workers who are not so interested in making their livelihood from farming. Budgets are available for SMEs to access AI solutions and they can also take advantage of educational programmes.

AIAI: What is the status of AI research and development for the farming sector?

TW: R&D for agritech is actively promoted by the Ministry of Industry, via the country's universities. Private sector organisations and associations are also working on the development of AI solutions for farmers, and foreign partners from the US and Australia for example have been invited to contribute.

Agriculture continues to be a vital sector of the economy for Thailand and our neighbours, as demonstrated by the recent APEC summit in Bangkok, which had agriculture as one of its key topics. The adoption of AI solutions will, in my view, be a natural progression for the future sustainability of the sector.

AIAI: Do you think the upcoming AI Asia Expo will benefit the agricultural sector in Thailand and the region?

TW: The Expo will definitely have a positive impact. I am looking forward very much to the presentations and the opportunity for networking.

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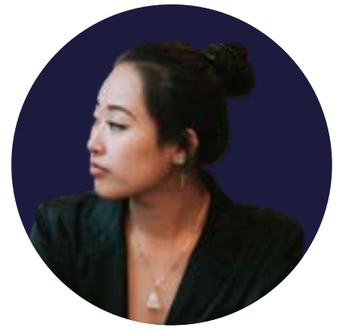

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AI ASIA EXPO

THAILAND 2023

21-22 FEBRUARY 2023

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