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WHAT'S HOT

AI PREDICTS THE SHAPE OF HUMAN PROTEINS AND OPENS NEW ERA IN BIOLOGY



HEADLINE NEWS IN A FLASH

- Artificial intelligence that increases capabilities
- Acquisition to Fuel Transformative New Usage-Based Auto Insurance Offering
- Open up the AI and cloud market in Malaysia
- China to advance int'l cooperation in digital economy, technology
- Quantum computing market is anticipated to surge over the next decade

SECTOR FOCUS

MODERNIZING MANUFACTURING : HOW TECHNOLOGY CAN DRIVE INNOVATION



ARTIFICIAL INTELLIGENCE PREDICTS THE SHAPE OF HUMAN PROTEINS AND OPENS NEW ERA IN BIOLOGY

Scientists announced thursday in the journal Nature the availability of the largest database of proteins that form the structures of life, which "will fundamentally change research in biology," according to specialists. Fundamental pieces of life, the structure of each protein, which depends on the amino acids that compose it, defines what it does and how it does it, so determining it to provide valuable information to understand biological processes, advance various fields of research and could serve for the development of drugs.

GOOGLE DEEPMIND

DeepMind and the European Molecular Biology Laboratory (EMBL) have used the AlphaFold artificial intelligence system to publish the most complete and accurate database of predictions of human protein structures. Each cell of a living organism performs its function with the help of proteins that permanently give instructions to maintain good health the cell and fight infections. Unlike the genome – the sequence of genes that encode cellular life – the human proteome changes permanently in response to genetic instructions and external stimuli. Understanding the functioning of proteins, through the form they take within cells, is a real challenge.

ONLY 17% OF THE COMPONENTS OF THE HUMAN PROTEOME ARE KNOWN.

Scientists have applied themselves to determine through experiments its precise function. But after 50 years of research, only 17% of amino acids, or components of the human proteome, are known. Researchers from Google DeepMind and the European Molecular Biology Laboratory (EMBL) on Thursday revealed an open-access database of 20,000 proteins manifested by the human genome. To which are added 350,000 proteins from 20 organisms, such as bacteria or mice, used for research.

ALPHAFOLD: MACHINE LEARNING PROGRAM

This basis was obtained thanks to a machine learning program capable of accurately predicting the shape of a protein from its amino acid sequence. The AlphaFold program was trained based on 170,000 known protein structures and then predicted the shape of 58% of all proteins in the human proteome, more than doubling the number of precisely known human protein structures. Of these, the position of a subset of 35.7% was predicted with a "very high" degree of confidence, which is double the number covered by the experimental structures, the journal explained.

PREDICTION OF LARGE-SCALE STRUCTURES

The researchers believe that the prediction of large-scale and accurate structures will become "an important tool that will allow to address new scientific questions from a structural perspective", and AlphaFold's predictions will help to further clarify the role of proteins.

"We believe this is the most significant contribution artificial intelligence has made to the advancement of scientific knowledge to date, and it's a great example of the kinds of benefits artificial intelligence can bring to society," according to DeepMind founder Demis Hassabis, a British firm owned by Alphabet, parent of Google.

The use of artificial intelligence, with its ability to computationally predict the shape of a protein from its amino acid sequence, allows it not to have to be determined experimentally with the use of laborious and sometimes expensive techniques.

RESEARCH ON GENETIC DISEASES

Potential applications of this data range from research on genetic diseases to engineering drought-resistant crops. According to Paul Nurse, nobel laureate in medicine and director of the Francis Crick Institute, this breakthrough is "a big step for innovation in biology." John McGeehan, director of the Enzyme Innovation Centre at the University of Portsmouth, stressed that "what took months and years to meet was done in a weekend by AlphaFold".

The ability to predict with a computer program the shape of a protein from its sequence of amine acids is already being applied in some areas of research.//

Source: CE NoticiasFinancieras



ARTIFICIAL INTELLIGENCE THAT INCREASES CAPABILITIES

To be able to converse in dozens of languages and without speaking more than one! That has probably been the dream of many travellers for centuries, especially those with little facility to learn new languages. And now that skill is available to everyone through artificial intelligence-based speech recognition and translation systems. To show a button: the Translator Vasco M3, a technological device of pocket, allows to understand in more than 70 different languages with an agility of response of half a second in the translations, according to its developers. That of automatic translators is just one example of how that artificial intelligence that we have been hearing about for some time now begins to be translated into utilities that increase human capabilities, in this case that of speech. There are many others. Like Oticon More, a hearing aid with a deep neural network that emulates the way the brain works when it comes to processing the sounds it receives and allows its user to hear all the relevant sounds, improving their hearing and attention span.//

Source: *CE NoticiasFinancieras*



ACQUISITION TO FUEL TRANSFORMATIVE NEW USAGE-BASED AUTO INSURANCE OFFERING

Earnix, a global provider of advanced rating, pricing, and product personalization solutions for insurers and banks, announced it has acquired AI-powered telematics provider Driveway Software Corporation's assets and will be joined by Driveway's strong and highly capable team of domain rich experts. The assets, including a state-of-the-art telematics app, will serve as a cornerstone in establishing a new and transformative offering in Usage-Based Insurance (UBI) and Behavior-Based Insurance (BBI). Thanks to the technology, insurers are now able to leverage intelligent telematics for best-in-class risk modeling, pricing and rating to enhance the customer experience by identifying and delivering the right personalized UBI and BBI offers in real-time.//

Source: *Korea Newswire*

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OPEN UP THE AI AND CLOUD MARKET IN MALAYSIA

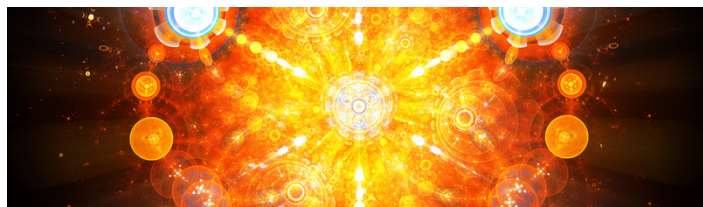
CloudMile, Asia's leading cloud and AI company, announced today that it has successfully raised US\$10 million in Series B funding to open up the AI and cloud market in Malaysia. "The market is optimistic about AI and cloud technology, we are investing into Malaysia to find new tech talents and expand the business roadmap in the ASEAN digital hub," said Spencer Liu, founder and CEO of CloudMile.//

Source: *The Hindu Business Line*

CHINA TO ADVANCE INT'L COOPERATION IN DIGITAL ECONOMY, TECHNOLOGY

Chinese authorities on Friday 23/7 released a guideline on overseas investment and cooperation in the digital economy, detailing major tasks to actively engage in the global development of digital technology. The guideline, jointly released by several government departments including the Ministry of the Commerce, pledged active integration with the global industrial chain of the digital economy. More efforts will be made to enable digital economy enterprises to accelerate the deployment of overseas research and development centers and product design centers, and strengthen cooperation with overseas technology companies in fields such as big data, 5G, artificial intelligence, and blockchain for joint development of cutting-edge technologies, according to the guideline. Domestic companies will also be encouraged to tap opportunities in the overseas digital market to invest in smart infrastructure.//

Source: *Xinhua News Agency*



QUANTUM COMPUTING MARKET IS ANTICIPATED TO SURGE OVER THE NEXT DECADE

As per the findings of a revised market research by Persistence Market Research, the worldwide quantum computing market insight reached a valuation of around \$5.6 billion in 2020, and is anticipated to surge at a CAGR of 33.7% over the next ten years. The South Asia & Pacific region is expected to create lucrative growth opportunities for players in the market due to increased use of advanced technologies in the manufacturing sector. Key players in the market are focusing on acquisitions to complement their product portfolios, so as to cater to the needs of a variety of customers. Market participants are also focusing on providing products directly to end users to improve direct customer relations. Major quantum computing providers are investing more in their research & development and resources with the objective to tap commercial opportunities of quantum computing in private and government sectors. Market growth in China, Japan, and India is expected to be much higher, at CAGRS of around 36.9%, 41.8%, and 50.2%, respectively.//

Source: *helpnetsecurity.com*

MODERNIZING MANUFACTURING

HOW TECHNOLOGY CAN DRIVE INNOVATION

Source: HNGN & PCNVB



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Innovation is the mainstay of business success, and organizations that are quick to modernize gain a competitive advantage that takes them ahead. Even traditional domains like manufacturing have to adopt the latest technologies to enhance processes, address challenges, and boost productivity.

It is even more crucial for this sector because legacy technologies, outdated processes, and poor visibility into the supply chain slow down growth. Everything boils down to implementing the right technologies that deliver real benefits without disrupting your budgets.

Here are some ways technology can drive innovation for manufacturing companies.

RAMPING UP PRODUCTION

Businesses looking to modernize manufacturing processes can leverage a range of technologies to ramp up production and go a notch higher with product quality. These include cutting-edge tools such as robotics and 3D printing that can speed up processes, eliminate errors, and minimize dependence on human labor.

Additionally, modern methodologies like LEAN, Kaizen, and Six Sigma can reduce bottlenecks and streamline systems to a significant extent. These technologies are valuable because they go beyond only enhancing the quality of the final product. They also boost the efficiency and productivity of the entire production process, thus opening opportunities for profitability and growth.

MANAGING DATA

Modernizing manufacturing is all about making the processes data-driven because it increases productivity and curbs errors in day-to-day operations.

It is vital to gather and analyze data, derive actionable insights from it, and use these insights to make better decisions across processes, supply chain, and consumer life cycle. But when you have to manage such massive volumes of data, you need to have the best devices for data storage and handling, and Mac emerges as an apt choice. You also have to keep the devices clean and clutter-free to manage data effectively. There are plenty of free apps for cleaning up Mac storage if your team uses these machines for storing and managing manufacturing data. Proper data handling helps with the creation of smart workflows for better manufacturing.

ENABLING AUTOMATION

Automation is perhaps the most significant element of manufacturing modernization because it allocates repetitive and cumbersome tasks to machines and software applications. The workload of human workers is reduced when machines take over common tasks, and they can focus their attention on ones that require intelligence. Since intelligent automation solutions handle processes, there is hardly a chance of error, and things go on smoothly.

Further, automation becomes even more crucial in the pandemic era when manufacturing concerns want to limit the number of people on the shop floor to ensure safety through social distancing. Automation is driven by new and complex technologies such as machine learning, artificial intelligence, predictive analytics, and IoT.

LIGHTS-OUT SETTING IS REDEFINING MANUFACTURING

The rapidly falling price of robots and continually increasing labor costs will accelerate manufacturers' shift toward a lights-out setting. The manufacturing process is fully automated in a lights-out environment, with minimal human intervention required to run day-to-day operations. Companies have an opportunity to optimize their human capital and potentially save up to 20% of labor costs and generate a 30% increase in productivity output by switching to a lights-out operations model.

In addition, they can achieve their sustainability and zero-carbon emission goals by saving energy during production hours. Automotive, general manufacturing, electronics and electrical components, and logistics and warehousing are four major industries expected to make rapid advancements toward a fully automated lights-out environment in the short term.

'Globally, the COVID-19 outbreak has further expedited the shift to automated lights-out manufacturing processes. This enables companies to expand their production capacity beyond traditional shift hours and take on additional work orders to ramp up productivity to pre-COVID-19 levels,' said Vinay Venkatesan, Program Manager, TechVision at Frost & Sullivan. 'Artificial intelligence (AI) will be the most critical tool enabling the lights-out toolkit. It will fuel several key technologies such as robotics, cybersecurity, digital twins, generative design, cloud computing, 5G, and 3D printing, all of which will play a key role in achieving lights-out operations.'

Venkatesan added: 'Additionally, the manufacturing industry will increasingly rely upon an ecosystem of technology experts, system integrators, and service enablers to achieve agility and customization. In fact, more than 45% of manufacturing applications are expected to implement robotics-as-a-service (RaaS) by 2030.'



Modernizing manufacturing processes requires significant investment in new technologies, but it is completely worthwhile. Innovation helps your business gain a competitive edge today and makes your business future-ready as well.

The best approach would be to assess and evaluate your options in technologies and pick ones that match your need and fit into your budget. Innovation also calls for agility because early adoption sets you on the path of progress. //





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Blueprint

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Implementation
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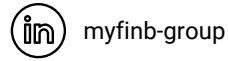


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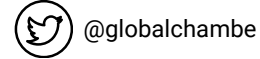
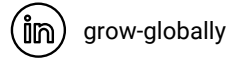
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