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'Next New Three' Industries Thrive

By LU Zijian & ZHANG Jiaxing

Dubbed the "next new three," China's AI, robotics and innovative pharmaceuticals industries are gaining momentum rapidly.

AI: No longer isolated tech breakthroughs

In March, Milkyway, an agent system independently developed by China's Zhongguancun Academy and Zhongguancun Institute of Artificial Intelligence (ZGCI), topped FutureX, a dynamic and live evaluation benchmark specifically designed for large language model agents performing future prediction tasks.

Xu Xueyin, deputy director of ZGCI, said domestic research teams have developed the capability not only to train high-level general-purpose foundation models from scratch, but also to respond rapidly to emerging fronts in AI competition.

From large models to AI agents, and from end-to-end models to world models, China has progressed from catching up to competing on equal footing with global leaders — and, in some areas, taking the lead. Chinese AI is moving beyond isolated technological breakthroughs toward the development of integrated, system-level capabilities.

Apart from the software, China's AI new infrastructure also shows strong competitiveness. Yang Jinzhe, CEO of Tecorin, a high-performance computing and AI chip company, said the high performance and stable operation of Chinese AI chips and supercomputer systems is attracting clients from the Middle East. "They want to switch from traditional energy center to digital infrastructure hub," Yang said.

Yang's company is working with partners to deploy compute-power and power coordination solutions at large local computing centers, enabling the autonomous and intelligent scheduling of both computing resources and the power grid. China's hard-tech innovations are tailored to local energy resources and use cases, helping Chinese AI gain a stronger global foothold.

Robots deliver around the globe

Once, at the 246-room Oasis Avenue Hotel in Hong Kong, it used to take more than half an hour to get a bottle of water. But now a robot delivers the water in two to three minutes.

Xie Yunpeng, chief development officer of Beijing Yunji Technology Co., Ltd., said the company has equipped the hotel with a team of robots coordinated by its self-developed AI agent application system. The company's robots made 750 million deliveries in hotels around the globe last year. *See page 2*



The WONTANARA, a 41,800-tonne self-unloading bulk carrier, sails from Jiangdu district of Yangzhou, east China's Jiangsu province, on July 29, 2026. It will be put into operation on international routes. (PHOTO: XINHUA)

STI Frontier

Submarine Cable Laying Gets Smart

By Staff Reporters

In the Bohai Sea, a robot slowly crawls on the seabed to find exposed submarine cables and bury them again.

This is the new smart way to lay submarine cables and maintain them, developed by a research team from Dalian Jiaotong University, focusing on intelligent sensing and control technologies of rail transport.

Accurate analysis of complex under-sea environment

Called the veins of ocean engineering, submarine cables are used to transmit electricity and information. However, they can become exposed, suspended or ruptured due to erosion caused by ocean currents, changes in the seabed geology,

and fishing activities, according to Meng Qingxin, a member of the research team.

The traditional methods for laying submarine cables and their maintenance have low efficiency and high risk. In 2017, the team began to develop an underwater robot that can efficiently and accurately detect and lay submarine cables in low visibility and high disruption, particularly in the transitional waters between the shallow and deep seas of the Bohai Sea.

There is a degree of discrepancy between the actual position and preset routes of submarine cables, resulting from factors such as silt coverage, murky sea water and complicated submarine topography. The work therefore requires an extremely high degree of equipment stability.

To prevent the robots from getting lost or operating unstably, the researchers developed an intelligent system to detect the cables by innovatively integrating electromagnetic and sonar detection technologies.

Electromagnetic sensors detect cable signatures to quickly identify the target cable, while the sonar system simultaneously acquires information on its submarine topography and surrounding environment to continuously track and conduct positioning for the submarine cable route.

By integrating multi-source information and intelligent analysis, the system can accurately tell the position, direction and laying condition of the cables, providing data support for construction.

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Exploring an Innovative Path for Desert Green Power

— China-Egypt Belt and Road Joint Laboratory on Renewable Energy

By LI Linxu & WANG Xiaolong

On Karaman Island in Sohag, southern Egypt, rows of photovoltaic (PV) panels cover the roofs of the PV R&D base of Egypt's Academy of Scientific Research and Technology (ASRT). The PV modules absorb sunlight, converting it into green electricity.

This is the work of the China-Egypt Belt and Road Joint Laboratory on Renewable Energy. Speaking of the major achievements made by the joint lab so far, Mohamed Zahran, a professor at the ASRT, listed several "firsts."

In October 2023, Egypt produced its first locally made half-cut solar cell. One month later, Egypt fabricated its first locally made high-efficiency half-cell solar module.

"The joint lab is the core driver behind these achievements, providing comprehensive support for our technological breakthroughs and independent production," Zahran said.

Building an R&D and production system

"Before the joint lab was launched for establishment, Egypt's PV sector faced numerous constraints," Zahran noted.

There was a lack of standardized R&D facilities, complete sets of production equipment, and mature fabrication processes or technical systems. Since all solar cells relied on imports, local research teams had no means to conduct hands-on R&D or test trial-mass production.

The joint lab changed all of that.

"It established a complete PV cell R&D and production system for Egypt," Zahran said. The system covers core processes of PV cell manufacturing, a complete set of professional production and testing equipment, and a standardized, clean R&D and production facility tailored for desert climates.

"Over the years, the joint lab has truly become a standout 'Chinese business card' locally," said Zhou Meng, deputy director of the research department at the 48th Research Institute of China Electronics Technology Group Corporation (CETC). Moving forward, the two sides will further promote joint R&D and transformation of advanced PV technologies, enabling local residents to enjoy more technological dividends from renewable energy.

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Progress in Integrated Computing Network Construction

By Staff Reporters

Like water conservancy in the agricultural era and electricity in the industrial era, computing power is the core foundation for the development of the digital economy and new quality productive forces in the digital era.

The first year of the 15th Five-Year Plan period (2026-2030) is witnessing a more efficient computing power network with the construction of intelligent computing centers, more optical cables and innovative application scenarios.

Integrating computing capacity

In March of this year, the explosive growth of AI applications drove China's daily token volume to exceed 140 trillion — over 1,000 times the volume two years ago. However, most computing infrastructures have been built in different regions, resulting in numerous "computing silos" with scattered resources and disparate standards. Today, a stable, inclusive, and accessible supply of computing power is urgently needed.

"Using computing power should be as convenient as using electricity," said Gao Wen, an academician of the Chinese Academy of Engineering. The computing power network therefore is connecting data centers, supercomputing centers and intelligent computing centers scattered across the country with high-speed networks for on-demand use. Moreover, it is not merely about connecting infrastructure. The network is also integrating scattered computing power resources.

The "East Data, West Computing" initiative was launched in 2022 to relocate data centers from the busy eastern cities to rural western provinces, pairing high-tech data centers with cheap, green renewable energy. Since then, several departments have jointly started constructing a national integrated computing power network, which is also stressed in the 15th Five-Year Plan.

A computing power spatial layout has taken form, with eight national computing power hubs and 10 national computing power clusters. The national integrated computing power network monitoring and distribution platform is connected to approximately 70 percent of the country's intelligent computing resources.

Coordinating electricity and computing

Behind computing power lies electricity. Last year, the total electricity consumption of computing centers across the country was close to the annual power generation of two Three Gorges hydropower projects. It is imperative to have coordinated development of computing capacity and electricity supply.

This has led to new infrastructure projects that integrate computing infrastructure with power systems via digital technologies and intelligent algorithms to enable dynamic resource optimization, according to Liu Liehong, head of the National Data Administration. *See page 4*

New Graphic



WECHAT ACCOUNT



E-PAPER



A technician inspects PV modules at the China-Egypt Belt and Road Joint Laboratory on Renewable Energy. (PHOTO: LI Linxu / Science and Technology Daily)

AI Cooperation Priorities Outlined for Asia-Pacific

Policy Express

By CHEN Chunyou & CUI Shuang

A roadmap for future AI cooperation among APEC economies has been set out around four key priorities: secure AI development and deployment, responsible adoption, innovation-friendly environment, and inclusive cooperation. That's according to a document — the APEC High-Level Forum on AI Statement on Promoting AI Development in the Asia-Pacific Region, released at the 2026 APEC High-Level Forum on AI, a key event of the 2026 APEC Digital Week, held in Chengdu, Sichuan province in southwest China, on July 24.

The statement consolidates consensus on deeper regional AI collaboration and provides a concrete framework for future joint efforts.

APEC's 21 member economies were home to three billion people and accounted for 61.6 percent of global real GDP in 2025, according to official APEC statistics. Their capabilities span several areas of the AI value chain, from model development and semiconductor production to manufacturing.

Acknowledging the diverse and dif-



The APEC High-Level Forum on AI takes place on July 24. (PHOTO: XINHUA)

ferent demands of APEC member economies, the statement encourages experience-sharing to foster responsible development and adoption of AI across the Asia-Pacific.

It urges member economies to prioritize security in AI advancement, and foster innovation that mitigates risks and benefits the public. It also encourages exchanges of best practices

in building reliable, accessible, scalable, trustworthy, secure and resilient AI infrastructure, as well as improving access to digital infrastructure.

For the responsible and popular adoption of AI, the statement advocates empowering economic growth through diverse AI applications and creating a favorable environment for AI integration into all economic and social sectors. It

also calls for promoting accessible education and training resources for all social groups to improve public AI literacy and skills.

To foster a robust AI innovation ecosystem, APEC members are advised to adopt balanced policies that address potential risks while enabling responsible AI application. While upholding security standards, data protection and intellectual property rights, member economies are encouraged to support open-source AI models and projects equipped with robust security safeguards throughout development and deployment.

To advance inclusive and shared APEC cooperation, the statement welcomes strengthened capacity building and knowledge exchange, as well as technological innovation and inclusive economic growth boosted by open dialogue and coordinated efforts involving public and private sector partnerships.

At the forum, China announced it would establish a China Center for APEC Cross-border Data Flow Cooperation. The center will serve as an open and comprehensive platform for policy research, regulatory alignment and industrial services, contributing to digital and intelligent development across the Asia-Pacific region.



Plan to Improve Eco-environmental Monitoring

By GONG Qian

Eco-environmental monitoring underpins ecological and environmental protection. China's Ministry of Ecology and Environment and the National Development and Reform Commission have jointly issued a plan to improve eco-environmental monitoring during the 15th Five-Year Plan period (2026-2030).

The plan states that notable progress will be made in building a modern eco-environmental monitoring system by 2030. By 2035, this system will be basically established, with China's comprehensive capacity in eco-environmental monitoring reaching an internationally advanced level.

Five key tasks have been laid out: improving the integrated space-air-ground-sea monitoring network, boosting the quality and efficiency of monitoring support services, strengthening quality management, accelerating the digital and intelligent upgrading of monitoring technologies and equipment, and enhancing law-based monitoring.

Capacity building in six major

fields has been emphasized: operation and management of the national ecological and environmental monitoring network, coordinated monitoring of new pollutants, biodiversity monitoring, national greenhouse gas monitoring, self-monitoring supervision, and digital and intelligent upgrading project.

The plan highlights technological empowerment. It identifies technological innovation and digital and intelligent empowerment as the fundamental driving forces for high-quality development during the period. It promotes the deep integration of new technologies such as

AI into the whole workflow.

Moreover, organized R&D in eco-environmental monitoring will be deepened by leveraging the major national science and technology project for comprehensive environmental management in the Beijing-Tianjin-Hebei region.

These efforts aim to build clusters of digital and intelligent monitoring equipment, driving the systemic transformation of monitoring networks and the iteration of technological paradigms.



'Next New Three' Industries Thrive

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Customs statistics show that in the first five months of this year, China exported over 10 million robots with a total value of nearly 20 billion RMB to more than 150 countries and regions.

Selling the robot bodies is not enough. Yunji Technology and the School of Hotel and Tourism Management of The Hong Kong Polytechnic University have established the Hong Kong Polytechnic University and Yunji Technology Hotel Digital Intelligence Joint Innovation Lab, which explores the pain points of robot application and their solutions to guide robot iteration and development.

Powered by an agent "brain" capable of understanding the physical world and optimized algorithms, some of Yunji Technology's robotic services today operate in a stable, closed-loop manner without the involvement of human operators.

Rise of Innovative pharmaceuticals

Phase II trial results for a three-drug regimen based on disitamab vedotin, China's first homegrown antibody-drug conjugate, were published in the *Journal of Clinical Oncology* in June, setting a new benchmark for median overall survival among patients with advanced gastric cancer.

Disitamab vedotin, independently developed by Chinese innovative biopharmaceutical company RemeGen Co.,

Ltd. (Yantai), was licensed overseas in 2021 in a deal valued at up to 2.6 billion USD.

Wen Qingkai, executive director of RemeGen, said the company has established three R&D centers in Yantai, Shanghai and California in the U.S., creating an integrated and end-to-end systematic drug development framework. "From the very beginning, we have focused our R&D efforts on 'filling gaps,' and over the years, our annual R&D investment has exceeded one billion RMB on average."

Computing plays an important role in drug development. During the 2026 Zhongguancun Forum Annual Conference, a computing system named "MegaDFT" was released, which calculates the interaction between atoms via quantum mechanics equations, rather

than existing structural databases.

Traditional density functional theory (DFT) methods, limited by computational complexity, can only handle systems consisting of thousands of atoms, and often struggle with the extremely large biomolecules found in living organisms, said Xia Huanhuan, deputy director of ZGCL. "Through the coordinated optimization of underlying algorithms and system engineering, we have achieved hybrid functional calculations at the scale of 100,000 atoms."

This means that more than 99 percent of known protein systems can now be brought within the reach of quantum chemistry-level analysis. "In the future, we will open-source the system to promote the broad application of MegaDFT in fields such as life sciences and pharmaceutical innovation," Xia said.

operators to gain a more direct understanding of the overall operation, further improving construction efficiency and operational safety.

To cope with the common problem of inaccuracies in the laying positioning above three meters, the team is also developing a new-generation ultra-deep detection system to enhance the capability of identifying and positioning submarine cables in complex submarine conditions and deep burial.

The marine environment is complicated and volatile. Only after repeated verification in real submarine conditions and engineering scenarios can technological achievements from laboratories form core capabilities to serve industrial development, Chen said.

Submarine Cable Laying Gets Smart

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"It's like equipping the robot with a pair of complementary eyes," said Chen Shaohua, in charge of the research team.

With the two approaches combined, the positioning error can be controlled within five percent, even when the cable is buried in silt, Chen said.

Application in real-world projects

Offshore engineering sites are the most direct platforms to test the maturity of technology. The research team has formulated an integrated solution incorporating submarine cable detection and positioning, route tracking, installation guidance and post-lay burial operations.

This has been adopted in multiple national ocean engineering projects.

In 2021, the team undertook post-lay burial for the landfall section of the Hainan Wenchang international optical cable, overcoming the challenges of cable burial in complex reef areas.

In the same year, the team completed the post-lay burial task for the landfall section of the submarine cable on Nanji Island, Zhejiang in east China. The robotic equipment developed by the team successfully carried out submarine cable detection and post-lay burial operations in the strong currents of the East China Sea, demonstrating its operational

stability under complex marine conditions.

In 2023, the team participated in the construction of a main cable burial project for an offshore wind farm in Guangdong province, achieving an industry-leading burial speed of 11.6 meters per minute.

The intelligentization of ocean engineering equipment is an irreversible trend, Chen said. The research team is developing an intelligent and visualized operation system to realize dynamic sensing and visualized management of underwater construction.

The system displays the position, route and burial condition of the cable relative to the cable-laying robot via real-time 3D animation. This enables

an aerial drone photo taken on June 24, 2026 shows a view of the Sino-German industry-education integration industrial park and surrounding areas in Taicang, east China's Jiangsu province. (PHOTO: XINHUA)

Case Study

How a Small Chinese City Turns into German Firms' Hub

By LONG Yun

Six hundred years ago, Taicang, a small city on the south bank of the Yangtze River in Jiangsu province, east China, was the starting point of Admiral Zheng He's voyages to Southeast Asia and beyond. Even back then, Taicang was a gateway for China to connect with the outside world. Today, that spirit of openness continues, but in a different form. The city has become home to a large number of German companies.

The story of one couple explains why so many German businesses choose this place. Christopher Praetzas is an expert in aviation manufacturing and artificial intelligence. His wife Jiang Xiaohua worked in China's automotive industry. For years they had dreamed of starting their own company. They traveled between Germany and China, looking for the right location.

In early 2023, they spent a month visiting cities across China. "But after arriving in Taicang, we immediately knew that we wanted to start our company here," Praetzas told *Science and Technology Daily* (*SET Daily*).

What convinced them? Praetzas recalled their first visit, when the government gave them a warm welcome, showed them around the city, and explained the available support policies. At that time, they hadn't even founded their company and were just two people with a vision. Yet they immediately felt welcomed and, as he put it, "We were treated not as who we were then, but as what we could become."

That impression made the decision easy. Praetzas said since starting the company, he has had many rewarding surprises. "The most rewarding one is how well the government and business work together in Taicang," he remarked. He feels the government's strong economic focus every day, something he would never experience back in Germany.

By early 2024, their company, CIT (Taicang) Automotive Technology Co., Ltd., was running at full capacity in the Sino-German Life Science Park. It produces air-suspension compressors for new-energy vehicles. Now in their fourth year in Taicang, the couple are busy with production line upgrades and new growth plans. "We fully located our R&D center here, with a highly skilled mixed Chinese-German team," Praetzas said. "For example, we are the technology leader in central air supplies for automotive, a new industry trend, and this product was fully developed in Taicang."

Their story is not unique. Today, this city hosts a large cluster of German companies, including many "hidden champions" — global leaders in their specialized fields. Over more than three decades, Taicang has worked hard to build its reputation as a model for Sino-German cooperation. It combines

government support, vocational training, and strong R&D partnerships.

German companies in Taicang do more than produce goods. A significant number has set up R&D centers in the city, and most take part in innovation activities like process improvement. Their R&D spending is substantial. Major platforms have also set up operations here.

In 2025, Taicang signed a cooperation deal with Germany's Fraunhofer Society. This allows local companies to work with many of the society's research institutes on specific projects. The model works like this: Companies raise technical problems, institutes provide solutions, and the government offers policy support.

To make cooperation easier, Taicang has set up a network of liaison offices in Germany. It has also opened a dedicated data link between China and Germany, created special service windows for German firms, and solved mobile payment problems for German nationals. These steps form a complete service system for German businesses.

A key reason for Taicang's success is its talent pool. As Praetzas said, "We decided to pursue R&D in Taicang because innovation needs talents, and in Taicang many talented employees can be found. Taicang built a lot of different educational systems, which provides us with a big pool of potential employees." German nationals now make up a significant portion of foreign professionals working in Taicang.

The city introduced Germany's dual-system vocational education model in 2001, the first in China. It set up the country's first training center that follows German standards, and the only AHK (German Chamber of Commerce Abroad) dual-system demonstration base in China. Since then, Taicang has launched China's first dual-system undergraduate program and created the first national standard for this type of education. Today, it is a major examination and training base for German professional qualifications in China. It has trained a large number of skilled managers and technical workers.

This strong talent foundation has been key to Taicang's success, but local officials say there is more to come. Wang Weifeng, director of Taicang's Bureau of Science and Technology, told *SET Daily* that their work is guided by a constant process of exploration, exchange, and implementation. The cooperation models and matchmaking channels are being refined through practice.

He stressed that substantive outcomes come from frequent, in-depth, face-to-face dialogue, not from signed agreements alone. "Our current priority is to make cross-border cooperation more tangible and results-oriented, ensuring that joint efforts deliver concrete technical solutions and foster genuine two-way innovation between China and Germany."



An aerial drone photo taken on June 24, 2026 shows a view of the Sino-German industry-education integration industrial park and surrounding areas in Taicang, east China's Jiangsu province. (PHOTO: XINHUA)

Kimi K3 Distillation Claim Exposes U.S. Politicians' AI Blind Spot

Clear Voice

By LIANG Yilian & HU Dingkun

On July 22, Michael Kratsios, director of the White House Office of Science and Technology Policy (OSTP), suddenly claimed on social media that Chinese AI company Moonshot AI had developed its Kimi K3 model by distilling Fable, a model developed by U.S. AI company Anthropic. Just hours later, U.S. Treasury Secretary Scott Bessent threatened that Washington would use sanctions and "Entity List restrictions" to respond to what he described as Chinese companies' use of distillation.

The sequence is familiar: First throw out accusations of "intellectual property theft," then impose restrictions on Chinese entities. In recent years, this has become a recurring pattern in U.S. efforts to curb China's technological development — portraying itself as the victim to take measures against others.

Such rhetoric may appear convincing to those unfamiliar with the technical details. Yet this time, the narrative is likely to fall flat, because the claim that Kimi K3's capabilities were achieved through distilling a U.S. model reveals a fundamental misunderstanding of how modern AI systems are developed.

One obvious issue is that, just as copying homework won't earn you good grades, Kimi K3's advanced performance simply cannot be achieved through distillation alone. Nathan Lambert, a promi-



The photo shows a full-process unmanned picking demonstration at an exhibition in Shanghai on July 19. (PHOTO: XINHUA)

nent U.S. AI technology expert, has pointed out that Kimi K3 ranks second globally on the Vals AI Index, third on the Artificial Analysis Intelligence Index, and first on the Frontend Code Arena.

Lambert stated, "AI observers who followed the distillation panic and came away with the wrong conclusion that Chinese AI labs are only producing good models due to IP theft are in for an awakening — that Chinese companies are extremely good at building models in the same way the leading American companies are."

Lambert has also praised the Kimi research team's engineering culture. After

visiting China and meeting some of the company's core researchers, he wrote, "It was clear to me that they had incredible culture, some would say aura, and a freedom to express it — within the constraints of a GPU-limited environment."

Another key point is that Kimi K3 is an open-source large language model. Unlike closed-source models developed by companies such as OpenAI and Anthropic, whose internal technologies remain largely inaccessible to the outside world, Kimi K3's technical details have been publicly disclosed.

In its technical report, the Kimi team introduced several architectural

innovations, including a hybrid linear attention and Attention Residuals, which reportedly improved overall scaling efficiency by approximately 2.5 times compared with the previous-generation Kimi K2 model. The model reportedly contains 2.8 trillion parameters.

Some U.S. politicians fail to understand these technical advances — or choose to ignore them — when accusing Kimi K3 of relying on the distillation of U.S. models for its development. But researchers around the world can distinguish between genuine technological innovation and simple imitation.

The success of Kimi K3 ultimately comes from technological breakthroughs. As Stephen Hsu, a professor of Computational Mathematics, Science, and Engineering at Michigan State University, wrote on social media, the Kimi model's breakthrough "lies in fundamentally re-architecting the model's computational paradigm through innovations."

China's progress and achievements in AI have become increasingly visible to the global community. For U.S. policymakers holding influential positions in technology and national security debates, a deeper understanding of AI development would be preferable to making technically inaccurate accusations.

Attempts to dismiss China's advances as the result of "distillation" or imitation do not weaken China's AI capabilities. Instead, they make the accusers themselves appear disconnected from the realities of technological innovation.

Voice of the World

China's Edge in Autonomous Driving Tech Wins Recognition

By DU Xuanyi & ZHONG Jianli

"In Beijing's Yizhuang district, driverless vehicles have become a common sight," says a BBC report. "Robotaxis weave through traffic alongside ordinary cars, while autonomous delivery vans glide along the inside lane as they carry packages to collection points." This is a recognition of the rapid development of autonomous driving technology in China.

In 2025, China's intelligent driving market crossed 450 billion RMB, with Level-2 assisted driving penetration exceeding 60 percent, and Level-3 autonomous driving entering pilot testing in some areas.

China's edge in autonomous driving lies in its complete industrial system. "China's autonomous driving companies already have a powerful advantage — the industrial ecosystem that helped turn the country into the world's largest EV (electric vehicle) market," the news report says.

It analyzes China's self-driving industry as built around a network of automobile companies. There is already an enormous scale of automobile supply chains, including batteries, sensors, chips and onboard computers, so companies can develop technology faster and at a lower cost.

Kyle Chan, a foreign policy fellow at the Brookings Institution, said that

"What you see is a pace of innovation and adaptation in the Chinese EV industry that I don't think is matched anywhere else around the world."

The CBT News, an EV industry news platform, said China is making advanced driver assistance systems standard on affordable vehicles, giving it a data advantage.

It noted that some vehicles capable of hands-free driving from one parking spot to another cost only around 30,000 USD, adding that China's large engineering workforce, tech-savvy customers, and robust EV infrastructure give it a structural advantage in scaling autonomous driving technology.

In addition, the Navigate on Autopilot (NOA) penetration rate is continuously increasing in China. According to a research by CIC Consultancy, the NOA penetration in Chinese cities reached 11 percent in 2025, and is expected to hit 62 percent in 2030.

Government policy support plays a role in these achievements. Pilot programs in several Chinese cities allow companies to test the autonomous driving technology on selected public roads.

The growing international media attention reflects this broader reality: China's autonomous vehicles are stepping onto the global stage, driving multiple industrial chains forward and setting the pace for the future of autonomous driving technology.

Hi-Tech

Wheeled Dual-arm Robot Adapts to Diverse Tasks

By DU Xuanyi & LI Linxu

During the 2026 World AI Conference in Shanghai, Chinese robotics company Fourier released its first high-pay-load wheeled dual-arm robot, the GRW.

The GRW has an innovative "long-arm, narrow-shoulder" design, measuring 720 × 618 × 1160-1650 mm and weighing approximately 160 kg. Its shoulder width is only 585 mm, and the main body features 29 degrees of freedom (excluding the end effectors), enabling it to maneuver flexibly through narrow working spaces such as indoor corridors, office areas, warehouse aisles, and manufacturing workstations.

In terms of power assistance, the GRW is equipped with high-performance joint modules delivering a maximum torque of 500 N · m and offers a stable load capacity of up to 16 kg. A single robot can handle a variety of high-load tasks, including material handling, transfer assistance, and rehabilitation training.

The robot's dual arms have a maximum span of 1,970 mm, covering a

horizontal working radius of 895 mm and a vertical working space from zero to two meters. This enables it to easily meet a wide range of operational needs, from low-level carrying and high-level picking and placing to cross-workstation collaboration.

Its shell is made of skin-friendly materials, with a warm tone for a more friendly and natural human-robot interaction experience while maintaining industrial-grade reliability.

Its modular end-effector design has an intelligent quick-change interface, supporting rapid swapping of dual-arm modules and end effectors. This allows the robot to flexibly adapt to diverse tasks such as item sorting, goods handling, loading and unloading, sorting operations, rehabilitation therapy, and daily living assistance.

The robot also integrates an autonomous navigation system that supports rapid mapping, autonomous localization, path planning, and 360° dynamic obstacle avoidance, enabling the robot to operate safely and efficiently in open environments such as factories, communities, and commercial spaces.



Fourier unveils its first wheeled dual-arm robot, the GRW, at the 2026 World AI Conference. (COURTESY PHOTO)

Allegation of China's 'Excess Capacity' Unfounded

Opinion

By Staff Reporters

In recent years, some countries and economies, worried about their industrial competitiveness and market position, have politicized economic and trade issues. Hying the so-called excess capacity of China, they have been propagating narratives such as "China Shock 2.0," using them as an excuse to ramp up restrictions on China and stoke up protectionism. Such practices will only disrupt the global economic and trade order and the stability of industrial and supply chains, escalate conflicts and differences, and pose long-term risks to world economic growth.

On July 28, China's Ministry of Commerce (MOFCOM) released a document

to clarify the facts and elaborate its policy stance on the so-called excess capacity issue.

There is no broad consensus in the international community on the definition of excess capacity. As a dynamic phenomenon in a market economy, it is linked to shifts in supply and demand and is also affected by industrial life cycles, said Lin Weilong, director general of the MOFCOM policy research office, at a press conference.

There is no necessary connection between industrial subsidies and excess capacity, according to Han Yong, director general of MOFCOM's department of World Trade Organization (WTO) affairs. Many countries introduce tailored industrial policies. For example, R&D subsidies for emerging industries and risk management subsidies for the agricultural sector are legitimate industrial and trade policy tools for WTO members.

Sound industrial subsidy policies help advance technology innovation, protect the environment, reduce poverty, and promote balanced development, rather than cause so-called excess capacity.

China's subsidies apply equally to all types of market entities and mainly go to scientific R&D, initiatives on industrial application of technology, and market consumption. For example, its consumer goods trade-in program treats domestic and foreign-invested companies equally.

In addition, robust exports and trade surplus do not mean excess capacity. It is true that exports of many Chinese products have registered rapid growth. This stems from the rising international competitiveness of China's manufacturing sector and reflects its comparative advantages achieved through fair competition, rather than excess capacity.

Western economies also export massive volumes of goods, like Germany exporting more automobiles than its domestic demand, and the U.S. selling surplus IT products overseas. Yet they never label themselves as having "excess capacity." Therefore, the claim that China's export growth is driven by excess capacity holds no water.

The recent U.S. launch of a Section 301 investigation targeting overcapacity is a typical act of unilateralism. The U.S. cannot arbitrarily define production capacity that merely exceeds domestic demand as "overcapacity" and slap on such a label at will, Lin said.

The issue of capacity is a natural outgrowth of industrial iteration, market volatility and evolving division of labor amid global economic development. All countries should focus more on exploring cooperation rather than creating confrontation.

Exploring an Innovative Path for Desert Green Power

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Broadening the scope of collaboration

"Egypt is rich in solar resources, with an average of 3,000 hours of full sunshine per year, giving it uniquely gifted natural conditions for developing renewable energy like solar power. China possesses the world's most mature PV technologies, equipment, and supply chains," Zhou said. The cooperation between China and Egypt in the renewable energy sector represents a textbook case of complementary advantages, making the partnership "a perfect match right from the start."

During the initial construction phase of the joint lab on Karaman Island, the site faced constraints in local power supply and water access.

"In response to these challenges, the joint lab has established a series of PV demonstration systems, including an on/off-grid PV system, a PV water pumping system, and a PV water purification

system," said Lu Yunzhang, a research fellow at the 48th Research Institute of CETC. These "small and beautiful" livelihood projects have effectively mitigated local power and water scarcity, serving as a practical model for regional energy security.

In the eyes of Aref Eliwa, a professor at the ASRT, there is immense potential for China-Egypt cooperation in the renewable energy sector, and the joint lab has a promising future in driving Egypt's energy transition.

"Through the invaluable platform of the joint lab, scientists from China and Egypt can carry out deep cooperation and drive joint innovation," Eliwa noted, citing an example. With collaborative research efforts, the joint lab overcame technical bottlenecks in high-resistance dense-grid solar cell technology. The milestone significantly enhanced PV cell efficiency and laid a solid technological foundation for developing PV products tailored to

Egypt's local solar environment.

Forging a deep friendship

In building and running the joint lab side by side, the two sides have shared thick and thin, leading to a steady deepening of their friendship and collaboration.

"In our day-to-day work, despite differences in language, culture, and habits, we have always been completely aligned, moving forward with a single mind and a shared purpose," Lu said. One memory remains particularly vivid for him. On one occasion, the joint lab urgently needed an industrial component that could not be found locally. Upon hearing this, an Egyptian contractor immediately dispatched a courier to drive more than 600 kilometers through the night from Cairo to deliver it. "This kind of 'we're in this together' solidarity is truly moving."

What remains especially unforgettable for Zahran is that at the initial construction phase of the joint lab,

the temperature inside the joint lab soared past 40 degrees Celsius during the testing and commissioning of the diffusion furnace. Yet, the Chinese staff still worked tirelessly for long hours to ensure the project stayed on schedule.

"It is moments like these that make me say with certainty: we have never been two separate teams, but rather one family tightly bound by a shared mission," Zahran said. This shared mission is to jointly tackle breakthroughs in renewable energy technologies, steering Egypt and the entire African continent toward success in the green energy sector.

"In the future, we plan to upgrade the joint lab into a regional renewable energy innovation center," stated Zhou. Through collaborative R&D, technology demonstration and promotion, as well as technical training, the joint lab will amplify its spillover and driving effects across the region.

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LIFE IN CHINA

'The Speed of Validation in China Is Immensely Productive'

Dialogue

By LONG Yun & BI Weizi

That is how Dr. Imran Mahmood Khan, listed among the World's Top 2% Scientists, and assistant professor in smart food at the University of Nottingham Ningbo China (UNNC), sums up what surprised him most about working in China's research ecosystem: "The speed of validation in China drives immense productivity.

His team develops test strips that detect mold toxins in grain. They also design nanomaterials that kill bacteria with heat, and materials that could be used for cancer therapy. The applications vary, but the underlying principle does not.

One principle, many battlefields
Khan considers his most impactful achievement to be the translation of functional nanomaterials into practical, user-friendly food safety tools. His team has developed a strip-based point-of-care testing (POCT) device that detects aflatoxin B1 and citrinin in cereals and feed samples with the naked eye — no lab equipment required.

"We took sophisticated aptamer recognition and squeezed it onto a paper strip that costs pennies," he says. "That is the real victory — making high-tech invisible to the end-user."

However, his lab does not stop at detection. They have also created nanocomposites that bind to bacteria and inactivate them under near-infrared light. "If you can recognize a target, you can either report it or attack it. We chose to do both."

Looking ahead, he predicts greater convergence between food safety and biomedical technologies — intelligent food packaging with built-in antimicrobial activity, portable devices that both detect contaminants and treat them, and theranostic materials that identify hazards and neutralize them in one go.



Imran Mahmood Khan. (COURTESY PHOTO)

Publish or perish? Solve or serve

Khan supervises a culturally diverse team at UNNC, with members from Pakistan, China, India, Italy and beyond. He sees this diversity as a strength, bringing together different perspectives on materials, food science, engineering and real-world applications. "A culturally diverse team offers a multiplicity of perspectives," he remarks. "Some focus on materials, others on food science, engineering, or application scenarios. Such collaboration often sparks novel ideas."

His mentoring style encourages open discussion and respect for varied communication styles, while keeping the team united around clear objectives and rigorous data standards.

When it comes to the pressure young researchers face between publishing papers and solving real problems, his advice is blunt. "I tell my students three things," he says. "Research questions must originate from real-world needs; data must be reproducible; and publications represent only one form of scientific output. High-quality research does not chase trends or high metrics alone; it

strives to make complex technologies simple, robust, and cost-effective, ultimately enabling end-user adoption."

Speed that surprises

Having moved from Pakistan to China for his postdoctoral training and now serving as faculty, Khan has witnessed first-hand the transformation of China's scientific landscape. What surprises him most is not the funding or the gleaming instruments — though those are impressive — but what he calls the speed of validation.

"In some countries, industry-academia collaboration means a yearly meeting and a report," he says. "Here, companies want to test your sensor in their production line within months. They provide real samples, real operators, and real complaints about cost and stability. That pressure is uncomfortable but immensely productive."

He attributes China's scientific progress to sustained investment, talent cultivation, major research infrastructure, and strong application-driven demand: "China's large market, complete industrial chain, and abundant real-world problem scenarios motivate researchers to test ideas in practical environments

more quickly thereby fostering interdisciplinary collaboration across materials science, engineering, food science, and medicine."

Platforms and the last mile

He singles out China's large-scale interdisciplinary platforms and industry-academia collaboration models as especially effective. "For applied fields such as smart food systems and biosensing, a single laboratory cannot independently address materials, instrumentation, sample handling, algorithm development, and standard validation," he explains. "Large platforms connect these components, while industrial partners help assess whether technology is truly usable, durable, and scalable for production."

He has noticed a shift in research evaluation over the years, with growing emphasis on quality, impact, and practical value, alongside more open and shared lab facilities. That has changed his own approach: "I now consider not only novel materials and high sensitivity, but also sample pretreatment, stability, cost, batch fabrication, and compatibility with existing standards at an earlier stage."

That said, he sees room for improvement — stronger long-term support for fundamental research, more standardized validation systems, and earlier industry involvement. "Design with real samples, real operators, and real costs in mind," he says.

Regarding international collaboration, he reflects that sharing platforms, samples, and application scenarios offers huge opportunities, but communication costs, evaluation differences, and intellectual property norms remain challenges.

He mentions a China-Pakistan project on mycotoxin testing as a case in point: "Our cross-border team applied a strip-based POCT device to address a common challenge — rapid, onsite mycotoxin screening in cereals — delivering a practical, verifiable solution for food safety surveillance."

pathway in brain endothelial cells, which reduces Mfsd2a transcription.

The researchers also found that TGF-β1 levels increased in both the brain and blood during aging. Increasing TGF-β1 levels in young mice replicated key characteristics of an aged BBB, including decreased Mfsd2a expression, increased endothelial transcytosis, and heightened barrier permeability. Conversely, specifically deleting Tgfb2r in endothelial cells or pharmacologically blocking TGF-β signaling in older mice restored Mfsd2a expression, reduced abnormal transcytosis, enhanced BBB integrity, and mitigated neurological impairment.

These results suggest that the age-related breakdown of BBB is not merely a passive consequence of structural decline. Rather, it is actively influenced by signals of systemic aging and by disrupted endothelial transport within the neurovascular unit. This research sheds light on how vascular issues in the brain contribute to cognitive decline and suggests potential strategies for preserving BBB stability in age-related neurovascular conditions.

computing network and the planning and construction of power grids and communication networks.

Empowering intelligent industries

This year's government work report proposed creating new forms of smart economy. With the computing network as the connection, the AI Plus Initiative is being advanced. Deeper integration of digital technology and the real economy is driving the upgrading of the entire industrial chain.

Innovative services such as "computing banks," "computing supermarkets," and "token packages" enable centralized resource allocation and affordable computing, helping small and

medium-size enterprises overcome access barriers. Computing power scheduling supports manufacturers' digital upgrades, such as digital twins and smart inspection. County-level medical communities extend quality services to the grassroots with AI tools.

Exploring application scenarios around AI, advanced manufacturing, sci-tech innovation, government services, medical and health care, will form a virtuous cycle of "promoting construction through application and driving supply through demand," and ultimately promote efficient operation and sustainable development of the computing power network.

My China Story

Numbers and Characters, a Mathematician's China Story

By Staff Reporters

John Pardon, a professor at the Simons Center for Geometry and Physics at Stony Brook University in New York, and also a professor at the university's Department of Mathematics, was one of four recipients of the 2026 Fields Medal, hailed as mathematics' equivalent of the Nobel Prize.

The awards were presented by the International Mathematical Union during the opening ceremony of the International Congress of Mathematicians (ICM) in Philadelphia on July 23. The Fields Medal is awarded every four years to two to four mathematicians under 40, recognizing both their past achievements and promise of future breakthroughs.

Coincidentally, this mathematician took part in the Chinese Bridge competition 15 years ago. He is highly fluent in Mandarin. In a speech, he quoted Confucius and cleverly used a homophone to joke, "Confucius said, 'At 40, I have no doubts.' At 40, you can't win the prize anymore!" He also made a playful reference to Confucius during a Chinese stand-up performance, again joking about the age limit.

Math was not the only difficult class he took in college. He also studied Mandarin and eventually became fluent in it. He recalled, "I was signing up for classes as a freshman in college, and I heard Chinese was pretty difficult, so I wanted a challenge."

After the first year, he attended Princeton University's Beijing Summer Chinese Program at Beijing Normal University. By his senior year, he had become a member of Princeton's Chinese debate team and went on to win the non-native speaker division of the International Varsity Debate, held in Singapore and broadcast across the Chinese-speaking world.

In 2011, he tied for first place with Bradley Roberts in the U.S. Eastern regional competition of the 10th "Chinese Bridge" Chinese proficiency competition, enacting a story from *Shuo Tang Hou Zhuan*, a narrative following Chinese Emperor Li Shimin's western military campaigns. It earned him a spot in the global finals in Changsha, China.

Throughout his college years, he continued taking advanced classes in classical Chinese, reading texts such as the *Book of Han*, the history of early Chinese dynasties; the *Records of the Grand Historian*, an epic history of



John Pardon. (PHOTO: International Mathematical Union)

China; and the *Analects*, a collection of sayings and ideas attributed to Confucius and his contemporaries. He said through these readings, he sought to understand Chinese culture. A photograph from Princeton's website shows him writing the famous Tang Dynasty poem *River Snow* by Liu Zongyuan (773- 819) on the blackboard.

Professor Chih-p'ing Chou, director of Princeton's Chinese language program, observed that Pardon was one of the few students he had ever seen master the language in just four years. Chou, who coached the debate team, praised Pardon's performance as highly eloquent and animated, with a great sense of humor and wit. He added that Pardon effortlessly used several expressions from Confucius' *Analects* and other classical Chinese texts, many of which are normally used only by highly educated native Chinese speakers.

In the video on the Fields Medal presentation, Pardon explained his initial motivation for learning Chinese. The same video showed him quizzing his two sons, Alexandros and Andreas, on the Chinese characters pasted on their bedroom wall. He said, "I talk to them in Chinese a lot. We learn the characters. I read to them. I make them read to me."

He recalled that once Alexandros asked him very seriously, "Dad, were you born in China?" That small family moment illustrated how naturally he has integrated the language into his daily life, even as he now stands among the world's most celebrated mathematicians under 40.

This article is based on information from the ICM 2026 website, Princeton University's website, and China News Service.

Bronze Ice Container, Earliest Refrigerator

The Bingjian was made in three stages.

Craftsmen first used piece-mold casting to make the parts. They made a clay core first, then fabricated mold sections and poured molten bronze inside to create the main structure of the Bingjian.

After that, they used cast-in-place joining, like making pre-cast mortise holes for inserting handles into the body. Or they used brazing technique to fix the structure.

The last step was lost-wax casting, which involved making clay-coated beeswax patterns, then heating them to melt the wax out, leaving a mold for pouring molten bronze. Lost-wax casting was used usually to make *panchi* (coiled dragon) motifs or reliefs.

The Bingjian has become a Chinese symbol on the world stage. At the opening ceremony of the 2008 Beijing Winter Olympic Games, the fou (a traditional Chinese bronze drum) inspired by the Bingjian, was recreated as the 2,008 Olympic Fou, resounding with the profound historical heritage and vibrant cultural identity of China.

How Aging Hijacks Brain's Vascular Shield

Science Outreach

By LUO Yunpeng & BI Weizi

As people age, they face an increased risk of cerebrovascular conditions and cognitive impairments. Understanding the role of early vascular dysfunction in neurological decline is crucial.

A research team led by Cheng Fang and Yinzhong Ma from the Shenzhen Institute of Advanced Technology at the Chinese Academy of Sciences revealed a vital mechanism through which aging compromises the brain's vascular protective system. The blood-brain barrier (BBB) is a selective boundary between the bloodstream and the brain. Deterioration of the BBB has

been increasingly recognized as a major factor contributing to age-related cognitive decline, cerebral small vessel disease, vascular cognitive impairment, and neurodegenerative disorders.

Previously, it was thought that BBB leakage primarily resulted from disruption of the tight junctions between endothelial cells. In this study, the researchers discovered that the leakage with aging begins with the abnormal activation of endothelial transcytosis. This process involves the movement of molecules across brain endothelial cells via intracellular vesicles. Using mouse models, the researchers observed that BBB leakage began in midlife and progressively worsened with age. The leakage first manifested in the hippocampus. During this initial stage, the tight junctions between brain endothelial cells remained largely intact, while caveolae-mediated transcytosis had already increased significantly.

This discovery suggests that the brain's protective barrier may become vulnerable earlier than previously thought. Rather than leaking initially through spaces between cells, the aging BBB appears to lose control over transport routes within the endothelial cells.

Additionally, Mfsd2a was identified as an essential protective factor in brain endothelial cells. It aids in preserving BBB integrity by inhibiting non-specific caveolae-mediated transcytosis. As aging occurs, Mfsd2a expression in endothelial cells decreases and Caveolin-1 (Cav-1) increases. Restoring Mfsd2a expression or decreasing Cav-1 in older mice significantly reduced endothelial vesicle formation and BBB leakage.

To understand why Mfsd2a expression declines with age, researchers found that transforming growth factor-β1 (TGF-β1) inhibits Mfsd2a expression in brain endothelial cells. TGF-β1 stimulates the TGFβR2-SMAD2/4 signaling

Progress in Integrated Computing Network Construction

From page 1

A series of policies have been implemented. The western regions coordinate national computing hubs with renewable energy bases, while the eastern regions plan distributed computing alongside distributed power, microgrids, and virtual power plants. Eligible facilities are encouraged to use direct green power and trade green certificates. Computing loads are optimized based on task-specific power usage and regulation potential.

For computing power to flow freely,

the support of a high-speed, stable and dynamically perceptible communication network is necessary. More efficient and precise matching of computing power demands and resources requires the participation of operators, computing power service providers, industry users, equipment manufacturers and other entities.

During the 15th Five-Year Plan period, greater emphasis will be placed on aligning supply with demand, and strengthening coordination between the