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Observer

Openness Momentum Remains Strong

By Staff Reporters

The fourth session of the 14th National People's Congress and the fourth session of the 14th National Committee of the Chinese People's Political Consultative Conference (hereinafter referred to as Two Sessions) were held recently.

The Two Sessions highlighted some themes: sci-tech development, openness and cooperation. As the nation outlines its strategic roadmap for scientific and technological advancement, the narrative is about its domestic growth and its role in integrating global talent and fostering international cooperation.

Dr. Md Altab Hossin arrived in China from Bangladesh 15 years ago for higher education. He found an advanced, innovative and globally oriented research ecosystem. Today, he is a foreign expert at the School of Innovation and Entrepreneurship at Chengdu University in southwest China.

In his view, "China is not only attracting global talent but also giving equal and stable access to foreign talents for research funds, enabling us to integrate into the country's scientific fabric and promote the shared progress of science and technology."

Youshaa Danyal, a third-year PhD candidate from Pakistan specializing in wheat genetics and breeding, echoed him, saying China's research environment offers more than just resources. It provides a platform where science translates directly into public benefit.

Working in the China-Pakistan Wheat Molecular Breeding International Joint Lab, a collaborative agricultural research initiative based at the Institute of Crop Sciences, Chinese Academy of Agricultural Sciences, and Quaid-i-Azam University in Islamabad, Pakistan, Danyal says one of the most powerful demonstrations of science translating into public benefit is the integration of high-throughput genomics with large-scale breeding programs.

His research focuses on wheat biofortification to improve grain zinc concentration. It is a critical issue for Pakistan, where wheat is a staple for over 220 million people and micronutrient deficiency remains a serious challenge.

See page 2



Farmers work in a wheat field of Yumin village, Tongzhou district in Nantong city, Jiangsu province, March 11. With the arrival of warmer weather, farmers are busy with agricultural production in the farming season. (PHOTO: XINHUA)

STI Frontier

Robots Handle Tough Workplaces With Ease

By LU Zijian & YANG Lun

With no cables visible on its body, an innovative cleaning robot specifically developed for the casting and engine manufacturing industries can withstand harsh industrial conditions like acid and alkali corrosion, high temperatures and humidity.

Developed by Shenyang Feyoo Special Robot Co., the robot is the first of its kind in China. In just three years, the company has already become an important link in the robot industrial chain in Shenyang, northeast China's Liaoning province.

Overcoming technical challenges

Back in 2021, the domestic industrial robot market was extremely competitive, and the profit margin for developing general purpose robots was negligible. To find an edge over others in the industry, the co-founders of Feyoo chose a

different path: robots working in harsh environments.

Domestic high-end robots have long been absent in harsh operational environments, such as flammable and explosive scenarios, vacuum conditions, sterile settings and highly corrosive environments.

If production companies have such needs, they usually buy foreign general purpose robots and then "customize" them manually, according to Chen Guijun, co-founder and deputy general manager of Feyoo. However, this approach is not only costly, but it also makes it difficult to acquire explosion-proof verification certificates, and overcome after-sale issues.

Feyoo therefore decided to design and develop robots to cope with harsh working conditions while benchmarking against major international manufacturers. Technically, this was a huge chal-

lenge, but one that Chen embraced with confidence.

Shenyang is the birthplace of China's robot industry, generating many firsts such as the country's first industrial robot and the first underwater robot. The city's industrial foundation and talent pool played a big part in Feyoo sourcing skilled technical personnel.

Rebuilding hardware and software

With technical talent gathered, Feyoo began tackling the hardware and software challenges.

Taking explosion-proof robots as an example, volume and heat generation are key factors for entering explosion-proof workshops and vacuum chambers. The research team developed a new type driver by replacing traditional modules with new type materials.

This new driver has a very low heat generation volume and very large power density. See page 3

International Cooperation

Wind Power Aids Africa's Green Transformation

Edited by WANG Xiaoxia

Africa's industrialization and urbanization development has long been hampered by limited electricity supply. However, China's mature wind power technology now provides a solution for the continent's growing energy demand.

The first phase of the Aysha II Wind Power Project, built by China's Dongfang Electric Corporation, was officially inaugurated in the Somali Regional State in eastern Ethiopia. Guests of honor at the ceremony were Ethiopian Prime Minister Abiy Ahmed, Djiboutian President Ismail Omar Guelleh and Somali President Hassan Sheikh Mohamud.

The project boasts a total designed installed capacity of 120 megawatts (MW), and comprises 48 wind turbines, each with a single unit capacity of 2.5 MW. The first phase of 32 turbines with a capacity of 80 MW is operational and has been connected to the national grid, transforming the region's energy grid.

The wind farm will provide continuous power to the Somali Regional State, the Dire Dawa Industrial Park and the Addis Ababa-Djibouti Railway. This will ensure a steady energy supply to the economic corridor along the railway and stabilize the eastern Ethiopian power grid.

The leaders of the three countries praised the successful cooperation between China and Africa in the fields of clean energy and green development. Abiy stressed that the project's annual generation capacity of 467 GWh provides reliable and scalable power infrastructure needed for a technology-driven economy.

In addition to increasing the proportion of renewable energy, the project also improved local grid stability and the management skills.

Dongfang provided mature and sustainable solutions throughout the project's ongoing operation. This included early-stage planning and engineering design, equipment manufacturing and construction, and grid connection function and subsequent maintenance.

See page 4

WEEKLY REVIEW

Chinese Researchers Advance Solar-driven Biosynthesis

A Chinese research team has developed a strategy to rewire energy flow in biohybrids. It enables industrial microorganisms to directly harness solar energy to drive efficient biosynthesis of high-value energy-rich long-chain compounds. Their study was published in *Nature Sustainability*.

Promising New Treatment for Alzheimer's Disease

Clearance of abnormal Aβ deposits is a promising Alzheimer's disease therapy, but current anti-Aβ immunotherapies have safety issues. Chinese researchers have developed a new treatment called SPYTACs (synthetic peptide-programmed lysosome-targeting chimeras). It shows fewer side effects and has great therapeutic potential. Their study was published in *Cell*.

OpenAI Launches GPT-5.4, Its Most Powerful Model

OpenAI recently released GPT-5.4, calling it "our most capable and efficient frontier model for professional work." The model combines advanced reasoning, coding, and agentic workflows into a single frontier model, which greatly reduces factual errors compared to GPT-5.2. Also, GPT-5.4 introduces native computer-use capabilities, marking a major leap for developers and autonomous agents.

Coastal Sea Levels Higher Than Assumed

A *Nature* study by researchers from the Netherlands reveals global coastal sea levels are significantly underestimated, averaging about 30cm higher than assumed in some areas. Analyzing 385 publications, they attribute this error to overreliance on geoid models instead of actual measurements, leading to widespread misjudgments of flood risks relative to coastal terrain.

New Graphic

IN 2025

China's Total R&D Investment
>3.92 trillion RMB

R&D **2.8 %** of GDP

Basic Research Funding
nearly 280 billion RMB
7.08 % of total R&D investment

Source: National Bureau of Statistics
Designed by SONG Ziyan / Science and Technology Daily

WECHAT ACCOUNT



E-PAPER



Sci-tech Central to Consumption Upgrades

By LU Zijian & SUN Yu

From immersive experiences to intelligent services, frontier science and technology is deeply integrating into the daily life of Chinese consumers. The integration is now widespread in consumer goods, and driving continuous exploration of new consumption scenarios, ultimately upgrading the consumption industry.

During China's recent Spring Festival holiday, intelligent home appliances became popular shopping choices. A recent survey showed a 121 percent month-to-month surge in robotic vacuum cleaner sales in county-level and rural markets, while built-in microwave-convection-oven combos sales grew by 114 per-

cent. Sales of smart appliances such as dishwashers and tea makers also increased by over 70 percent.

Science and technology are reshaping consumption into an intelligent, green and more personalized experience. For example, technological upgrades have become the main development path for the home appliance industry, according to Cao Dianlong, director of the institute of environment and interior design at CABR Technology Co., Ltd.

The rapid development of AI technologies has not only enhanced users' experience, but also triggered demand for immersive, active and interactive intelligent homeware, Cao noted.

Intelligent home appliance systems that sense, analyze and make decisions

based on user behavior data are already a reality. Huawei has developed a healthy air solution, which monitors air indexes like temperature, humidity and formaldehyde 24/7, by connecting AI technology with air quality monitoring in the entire home.

Should air quality deteriorate, the system automatically activates the fresh air system and air purifier, ensuring the air at home remains comfortable.

According to a report released by the China Household Electrical Appliances Service Association, whole-home smart systems are predicted to become the core platform for household intelligence, with the market size projected to reach 280 billion RMB by 2026.

See page 2

Code Spurs Innovation for Green Development

Policy Express

By HU Dingkun & TANG Zhexiao

On March 12, China's Ecological and Environmental Code was adopted at the closing meeting of the fourth session of the 14th National People's Congress, the nation's top legislature. It is a landmark document integrating and consolidating China's existing ecological and environmental legal frameworks, mechanisms and regulatory norms.

A key focus of the code, which is China's second formal statutory code, is its strong emphasis on empowering environmental protection through advanced technology, unlocking new drivers for green development by activating sci-tech innovation.

The general provisions section of the code suggests establishing state-backed support for research, development, application and talent cultivation in eco-environmental science and technology.

Numerous clauses across its chapters on pollution prevention, ecological conservation and green-low-carbon development encourage or mandate the adoption of new technologies such as advanced processes, cleaner production and ecological monitoring.

Additionally, the code makes forward-looking arrangements for cutting-edge areas. They include controlled thermonuclear fusion, hydrogen energy, carbon footprint management, as well as emerging technologies like digital



Scenery of the Weishan Lake National Wetland Park in Jining, Shandong province. (PHOTO: XINHUA)

systems and AI.

The high priority on technological innovation stems from innovation's fundamental and strategic role in advancing green development.

On one hand, technological innovation is profoundly transforming the concepts, tools and methods of ecological governance.

For instance, traditional ecological monitoring, using labor-intensive practices, is inefficient and costly. In contrast, the application of satellites and unmanned aerial vehicles enables efficient large-scale monitoring. The integration of AI and image recognition technologies facilitates automatic monitoring

and intelligent decision-making.

On the other hand, technological innovation creates new opportunities for the green economy. It accelerates industrial green transformation and fosters emerging green tech sectors.

The new energy vehicle industry is a prime example. Continuous advancements in battery technologies have extended driving ranges and shortened charging times, leading to the vehicles' strong market acceptance.

China has made remarkable progress in green tech innovation, leading the world in numerous fields. Legally safeguarding and promoting advanced technologies is therefore, an inevitable trend.

In 2025, China's newly installed wind and solar capacity historically surpassed that of thermal power. According to *Science* magazine, China produces approximately 80 percent of the world's solar panels and 70 percent of the wind turbines.

The code's provisions to promote the remanufacturing of high-end wind and photovoltaic equipment align perfectly with China's industrial reality.

With the legal safeguards provided by the code, China's innovation environment in eco-environmental protection will be optimized, laying a solid foundation for the green transformation of social development.

New Regulation Unveiled for Great Wall Protection

By LIN Yuchen

The Great Wall, one of the most iconic symbols of Chinese civilization and a UNESCO World Heritage site, represents both a historical monument and a living cultural landscape. In recent years, a shift in cultural heritage conservation has emerged placing an increasing emphasis on preventive protection, scientific restoration and sustainable management.

To align with this shift, the Standing Committee of the 16th Beijing Municipal People's Congress adopted the Beijing Great Wall Protection Regulation, effective from March 1, establishing a comprehensive institutional framework aimed at safeguarding the Great Wall through stronger governance, technological innovation and regional cooperation.

Central to the regulation is the concept of "holistic protection." Rather than

focusing solely on the Great Wall's physical structure, protection includes related cultural relics and the surrounding environmental landscape in which the Great Wall exists. This shift toward integrated heritage conservation recognizes that the historical authenticity and integrity of the Great Wall depends not only on the masonry but also on its broader ecological and cultural context.

In terms of conservation practices, the regulation emphasizes the principles of maintaining the original state of cultural relics and minimum intervention. This means authorities will adopt tailored protection measures such as routine maintenance, emergency reinforcement, restoration work or the installation of protective facilities, depending on the preservation status of different Great Wall sections.

One of the regulation's great innovations is the application of technological tools in heritage protection. Authorities

encourage the use of digital monitoring systems, electronic fencing, and other technological means to detect risks, issue warnings, and discourage illegal climbing on unrestored or "wild" sections of the Great Wall. Complementing more traditional manual patrols, the technologies enable more efficient and proactive management.

The regulation also introduces stricter measures against activities that may damage the Great Wall. These include outlawing removing bricks or soil, carving graffiti, lighting fires, or driving vehicles across the Great Wall. Planting trees that could weaken its structure is also banned. Violators face penalties, providing clearer legal grounds for enforcement agencies.

While implementing more stringent regulations, there is also the need to balance protection with public access and cultural transmission. Sections of the Great Wall will therefore only be opened

to visitors after thorough assessments evaluating preservation conditions, feasibility of opening and visitor carrying capacity.

In addition, the regulation encourages cultural interpretation and public engagement. Authorities will develop thematic interpretation systems, promote digital exhibitions, and support activities such as cultural performances, heritage education programs, and cultural creative industries related to the Great Wall. International exchanges and cooperation are also encouraged to deepen global understanding of the Great Wall's historical and cultural significance.

Experts note that technological empowerment is one of the most significant highlights of the new regulation. This will lead to more scientific and effective protection efforts while also benefiting the public more directly from conservation management.

Case Study

Dongguan Seizes Opportunities from Composite Demands

Edited by YAO Yan

Dongguan in Guangdong, dubbed the "World's Factory," has not only maintained its high order volumes and robust production at the beginning of 2026 but also shows a convergence of cross-industry integration and innovation across multiple sectors.

Unlike the traditional post-holiday work resumption with bursting firecrackers and performing lion dances, Dongguan Guangliang Holding Group Co., Ltd. started the new year with a high-tech ceremony: a drone-delivered "red envelope rain."

Starting out as a geographic surveying firm, the company has leveraged its strength in data resources to expand into two emerging business sectors: AI plus and low-altitude economy plus.

"This year, the government has stepped up efforts to promote the commercialization of application scenarios, which gives us the perfect stage to fully demonstrate our capabilities," Liu Xianqing, vice president of the group, said.

Home to more than 220,000 industrial enterprises, including 14,000 industrial enterprises above the designated size, Dongguan boasts world-class industrial clusters in electronic information and high-end equipment manufacturing, as well as numerous "hidden champions" in niche segments.

Cross-sector exploration, built on enterprises' existing production capabilities, is driving a new round of supply-side upgrading in the manufacturing hub.

In the workshop of Shini Plastics Technologies (Dongguan), Inc., injection molding machines, die-casting machines and automated production lines are running at full capacity to meet orders.

"We also plan to step into the low-altitude economy and humanoid robot sectors, developing more businesses tailored to new consumer demands," Wu Junrui, general manager of the company, said.

Despite global market fluctuations and weakening demand, Dongguan's manufacturing sector demonstrated strong resilience in 2025. The city's annual GDP crossed the new threshold of 1.2 trillion RMB, with the total output

value of industrial enterprises above the designated size exceeding 2.6 trillion RMB, a milestone driven by the transformation of local manufacturers.

Dongguan Finecables Co., Ltd. is another enterprise that has grown through continuous innovation. On the first day of work resumption, the company landed overseas orders worth nearly 10 million RMB, with its production schedule packed until June.

Low-altitude economy products have to be lightweight, waterproof and highly stable. The company's core strategy is developing high-performance connectors to meet evolving consumer needs.

Forward-looking planning and cross-sector breakthroughs have made Dongguan enterprises highly popular among domestic and foreign buyers alike. In 2025, the city's total foreign trade volume hit a record high of 1.58 trillion RMB, up 13.8 percent year on year. It marked 21 consecutive months of positive growth with improvements in both scale and quality.

During the 2026 Spring Festival holiday, the HKIA Dongguan Logistics Park maintained round-the-clock operations, handling 42 import and export flights. They carried about 800 tons of goods worth over 150 million RMB.

Mo Meixin, deputy general manager of Dongguan Port Industrial Investment Co., Ltd., said the proportion of high-end manufacturing and cross-border e-commerce goods, which have high air freight service requirements, has risen significantly. The park is now connected with more than 60 countries and regions, with a growing share of shipments bound for Europe and Belt and Road Initiative partner countries.

The park plans to increase the frequency of charter flights to India, Spain and Belgium. Over 90 percent of the wharf is set to be completed this year and its full operation is scheduled for next year.

By breaking industrial barriers on supply sides and seizing new opportunities from composite consumer demands, Dongguan's manufacturing enterprises are embracing 2026 with strong confidence and clear growth expectations.



A view of Dongguan Port Terminal in Dongguan, Guangdong province. (PHOTO: VCG)

Openness Momentum Remains Strong

From page 1

With genomic selection, haplotype analysis and other technologies, Danyal and his colleagues are shortening breeding cycles and enhancing precision. They are dissecting the genetic architecture of zinc accumulation and using marker-assisted selection to pyramid beneficial alleles.

The result is improved wheat lines that enhance nutritional quality without sacrificing yield.

Danyal expressed strong confidence in China's ability to attract and empower global talent.

After completing his Master's in Pakistan, he moved to China to work on modern genomics with practical breeding objectives. He emphasized the bilateral nature of their work: "Importantly, our breeding strategy serves both countries."

International collaboration, particu-

larly between China and the U.S., remains pivotal.

"From an American scholar's perspective, China's sci-tech advances are no longer peripheral to global progress. They are structurally embedded in it," Denis Simon, a senior fellow at the Quincy Institute, an American foreign policy think tank, told *Science and Technology Daily*.

He identified three key areas where China contributes globally: scale-based solutions, scientific output and the provision of global public goods.

Regarding scale, Simon said in sectors like renewable energy, battery production and electric vehicles, "China's scale lowers global cost curves. This accelerates global decarbonization, even for countries politically distant from China."

Furthermore, China has become one of the largest producers of high-

quality STEM research, often setting the pace in fields such as materials science and applied engineering.

He also highlighted China's role in shaping alternative innovation pathways for the Global South through digital infrastructure and health cooperation. "If this promotes more global integration, it is a good thing."

However, he has questions about the future: "The critical issue is whether knowledge flows remain bidirectional in the midst of geo-political tensions."

Simon has been studying sci-tech cooperation between China and the U.S. for a long time. Despite competitive dynamics and security concerns, he believes that a complete technological decoupling is neither likely nor desirable, a view supported by policy signals from the Two Sessions.

China's development strategy, Simon said, still assumes continued par-

ticipation in global scientific networks. Climate change and clean energy serve as prime examples where cooperation is essential.

"Both China and the United States have strong incentives to cooperate in advancing renewable energy systems, battery innovation and carbon-reduction technologies," he said. Public health and biotechnology also represent valuable areas for collaboration, particularly in disease surveillance and vaccine development.

Simon concluded with a reminder of the enduring value of partnership: "Even in basic science, collaboration between Chinese and American researchers has historically produced some of the most influential research outcomes. While security concerns are creating new constraints on such partnerships, the underlying scientific incentives for cooperation remain strong."

Sci-tech Central to Consumption Upgrades

From page 1

Current smart home products are evolving toward autonomous control through "perception + reasoning, decision-making + execution," Cao noted. As big data and AI large model technologies become more widespread, smart home products will transition from "individual smart devices" to "whole-home intelligence."

The technology shift is also influencing the domestic service industry. Large models enabling precise matching of nannies to "maid robots" are already handling basic tasks and providing emotional companionship. Meanwhile, digital intelligence technologies such as AI are quietly reshaping diverse family service scenarios — from childcare to eldercare — unlocking new forms and frontiers in domestic service consumption.

In the transportation sector, tech-

nology is providing robust support for services such as self-driving tours. Integrated "photovoltaic-storage-charging" service stations across the country offer tourists more convenient and efficient charging services.

Liu Dong, deputy director general of the Department of Comprehensive Planning of the Ministry of Transport, said that efforts will be made to advance the construction and upgrading of charging facilities at highway service areas, increasing the number of high-power charging stations.

Over 10,000 charging guns are planned to be installed nationwide at highway service areas in 2026, with high-power charging guns accounting for no less than 25 percent of the total. This initiative aims to significantly enhance the reliability and capacity of charging services.

Excluding China from 'Horizon Europe' Backfires

Clear Voice

By ZHONG Jianli & HU Dingkun

The European Union (EU) has barred Chinese research institutions from participating in most projects under its Horizon Europe program starting this year, according to recent reports in *Nature* and some other media. Horizon Europe is the EU's key funding program for research and innovation.

Chinese entities are now limited to applying for projects in specific areas such as climate change, biodiversity, and food and agriculture. They are explicitly excluded from fields deemed "sensitive" by Brussels, including AI, telecommunications (such as 5G), healthcare, semiconductors, biotechnology and quantum technologies.

The EU justifies the restrictions by citing concerns that sharing advanced technologies with China could compromise regional security. However, this rationale appears contradictory. The European Commission's own website reports that Horizon Europe is focused on civilian applications, and does not involve technologies that could threaten security. Critics believe the ban effectively creates a barrier inside one of the world's largest research initiatives, excluding Chinese partners from areas where Europe itself needs guidance.



A worker showcases a pair of AI glasses at an AI demonstration street in Nanjing, east China's Jiangsu province. (PHOTO: XINHUA)

Launched in 2021 with a seven-year budget of 95.5 billion euros, one of Horizon Europe's core objectives is to enhance Europe's competitiveness and economic growth by addressing major scientific challenges and global issues. However, by limiting collaboration with Chinese scientists, who are increasingly leading many of these fields, the EU risks undermining its own goals and missing out on critical opportunities for joint breakthroughs.

China has rapidly emerged as a global powerhouse in science and tech-

nology. In AI, Chinese models such as DeepSeek and Seedance enjoy international acclaim. By 2025, China became the world's largest holder of AI patents, accounting for 60 percent of the global total. In telecommunications, companies like Huawei and ZTE continue to lead global 5G deployment, while China holds over 40 percent of all 6G-related patents. In January 2026, a report by the U.S.-based Center for Strategic and International Studies confirmed that China leads the world in both scientific output and patent filings in quantum

computing, communication and sensing.

In recent years, Sino-European scientific cooperation has flourished yielding mutual benefits. By the end of 2025, Chinese institutions were involved in approximately 107 Horizon Europe projects.

A December 2025 report by Clarivate, a leading global provider of transformative intelligence, titled "Research Collaboration in a Changing World," noted a steady rise in collaborative papers between Chinese and EU researchers, which may possibly surpass those between the U.S. and China. Furthermore, the citation impact of China-EU co-authored papers now equals that of U.S.-EU collaborations.

However, the EU's new restrictions contradict this positive trend and ignore the reality that global scientific challenges require inclusive, borderless cooperation. As two of the world's major scientific forces, China and the EU share a responsibility to advance human civilization through science.

Rather than yielding to geopolitical anxieties and securitizing research, the EU should adopt a balanced perspective of China's technological progress, dismantle these unwarranted barriers, and reopen the door to equal, open and high-level scientific partnership. Only through joint efforts can both sides collectively solve shared challenges and deliver scientific achievements that benefit not just Europe and China, but the entire world.

Chinese Power Equipment Gains Global Traction

Opinion

By LIANG Yilian & LI Jun

As global computing-power infrastructure expands and major energy projects increase, demand for power equipment is surging worldwide. Keeping pace with this surge, China's power-equipment manufacturing industry has established a competitive landscape, thanks to breakthroughs in core technologies and a fully integrated industrial chain.

A fully integrated industrial chain
China has built the world's most complete and efficient transformer industrial chain. This includes upstream copper and silicon-steel smelting, electromagnetic wire processing, core manufacturing and insulation-board production, and further downstream to finished-product assembly, customized design and scenario-based deployment. This deep integration has fostered tightly

coordinated industrial clusters with strong economies of scale.

Industry data show that China houses approximately 3,000 transformer manufacturers, accounting for about 60 percent of global production capacity. Furthermore, in 2025, China's transformer exports reached 64.6 billion RMB, up nearly 36 percent year on year. Consequently, China has emerged as the world's largest transformer producer, with independently controllable capabilities across the entire value chain.

'Made in China' gains trust through reliable delivery

Industry insiders say that amid persistent supply-chain constraints in Europe and the United States, China's ability to deliver reliably has become a "lifeline" for international buyers, creating sustained growth opportunities for Chinese manufacturers.

At Jiangsu Yawei Transformer Co., Ltd. in the Yangtze River Delta, China's first domestically produced 345-kilovolt fully insulated ultra-high-voltage, large-

capacity transformer rolled off the production line recently, and was shipped off to the United States. The company secured the order in an international tender last April, due to its technical solution, rigorous quality control, and strong delivery capabilities.

To meet rising global demand, companies are also accelerating overseas capacity deployment. Leading transformer manufacturer Eaglerise Electric & Electronic (China) Co., Ltd. has established production facilities in Thailand, the United States and Mexico.

The Mexico plant is expected to reach full capacity by mid-2027, when monthly output of new-energy transformers could exceed 500 units. "Once the Thailand plant reaches full capacity, monthly output of new-energy transformers could reach around 700 units," said a representative of the company.

Technology upgrades driven by computing demand

New demands for power equipment are on the rise, as construction of

computing-power centers, data centers and supercomputing clusters accelerate nationwide, alongside the continued rollout of the "East Data, West Computing" initiative.

However, these supercomputing clusters place extremely high requirements on power stability, precision and efficiency. Chen Jianwei, a senior engineer at Shanghai Huadian Minhang Energy Co., Ltd., said that voltage fluctuations exceeding three percent could lead to computing losses, reduced energy efficiency, shortened hardware lifespans, and in extreme cases, the scrapping of chip clusters worth tens of billions of RMB. Meanwhile, large-scale national projects such as UHV transmission and nuclear power are raising the bar for equipment adaptability and reliability.

In response to the simultaneous demands of computing-power and major energy projects, Chinese power-equipment manufacturers are pursuing targeted technological breakthroughs, according to Chen.

Robots Handle Tough Workplaces With Ease

From page 1

With the same power of five kilowatts, the driver has a volume that is one third smaller than traditional products, thus it can be integrated inside the robot body. This greatly enhances market competitiveness, Chen said.

The transformation of controllers also matters. Feyoo developed a controller named "Y-River 2," which integrates motion control, interface display and teach pendant operation. More importantly, the controller operates at extremely low energy levels and will not ignite explosions even in extreme dust or gas environments.

With this hardcore technology, Feyoo acquired explosion-proof verification from national institutions, and now plays a crucial role in dangerous scenarios like specialized manufacturing, petroleum refining and chemical processing,

and fireworks production.

Hardware helps build strong bodies for robots and software injects "soul" into them.

In the spraying industry, the shape of machine parts is complicated, and traditional robots can only be taught by manual dragging, but the workshop is flammable, explosive and pungent.

Feyoo designed an AI-driven, intelligent and teaching-free spraying solution. An extremely precise point cloud 3D module will be generated for a part using 3D visual sensors. The robot can recognize the part regardless of the irregular shape or position.

The AI "brain" then starts functioning automatically: calculating the distance and overlapping ratio of the spraying gun based on the coating type and requirement for film thickness, planning for an optimal trajectory where collision

will never happen in a complex six-axis space.

Winning the market

In the first two years of operation, Feyoo earned no revenue, and spent many millions of RMB in the development of robots, aiming to generate refined principled sample machines.

But as in all businesses, the market is the ultimate test. In 2024, Feyoo managed to generate sales of five to six million RMB when the company began testing the waters with its sample machine. In 2025, with construction of their self-owned factory complete and the production capacity improved, sales surged to between 40 and 50 million RMB.

Some cautious clients bought one or two robots for trial purposes at first, but then ordered 10 to 15 more after usage. It is estimated that orders will double or triple in 2026.

Besides the significant gap in the market for robots operating in harsh working environments, another reason for Feyoo's success is that their products are robust.

The company's dual-engine architecture has opened up an atomic instruction set based on the underlying layer, enabling downstream clients to introduce the technical "skills" of their industry into the robot. This made Feyoo's products spread rapidly across spraying and coating, laser cutting, explosion prevention and vacuum welding sectors.

In the next step, the company plans to deeply integrate robots with visual sensing and large model learning, "[With just] one glimpse of the new part, the robot can generate its own working path to meet new production demand," Chen said.

Voice of the World

International Observers Laud Rural Revitalization

Edited by QI Liming

China's agricultural modernization has progressed steadily, fueling the expanding achievements of poverty alleviation. International observers have seen that in recent years, China's rural industries have flourished, leading to improved living conditions in rural areas and increases in villagers' incomes. China's practical experience in promoting comprehensive rural revitalization and building livable and prosperous rural areas provides valuable lessons for developing countries.

Currently, China's 5G coverage in local administrative villages is over 90 percent, while basic public services such as education, healthcare and elderly care continue to improve. The coverage rate of sanitary toilets in China's villages has reached approximately 77 percent, while the sewage treatment rate is 55 percent. Meanwhile, total mileage of rural roads exceeds 4.64 million kilometers.

Vansay Tavinyan, editor-in-chief of *Pasaxon* newspaper in Laos, has visited China's villages many times. "I remember in September 2024, I visited the villages and towns in Deyang and Guangyuan of Sichuan province in southwest China. The local houses are beautiful and comfortable, the roads are smooth and wide, with public facilities such as convenience service centers, cultural halls and health clinics." Tavinyan added that China is promoting the modernization of rural areas, allowing villagers to enjoy high-quality services.

Vladimir Milton Pomar, an agriculture expert at the Federal University of Santa Catarina in Brazil, said, "After two decades, I revisited the rural areas in China that I had previously visited. The changes are earth-shattering: the villagers live in neat and beautiful buildings, the transportation network is well-connected, and digital services such as online medical care have been integrated into their daily lives." Progress has also been made in the governance of rural ecological environment in China, he noted.

Sudheendra Kulkarni, founder of the Forum for a New South Asia in India, said, during the progress of modernizing agriculture and villages, the Chinese government showed an extremely strong political determination and policy execution capability. From eradicating poverty to achieving comprehensive revitalization

of rural areas, the Chinese government formulates policy and focuses on implementation. Other developing countries can emulate China's practices and take action to eradicate poverty and enable rural areas to develop and become prosperous.

After conducting research in Shibadong Village, Xiangxi, Hunan province in central China, Antonio Segura, vice president of Spanish non-profit association Fundación Cátedra China, expressed his admiration. A village that was once deeply mired in poverty has undergone a transformation under the guidance of the targeted poverty alleviation strategy. Industries such as specialty farming, rural tourism and Miao embroidery are booming, providing substantial income for villagers. China's poverty reduction has always been people-centered, adhering to the scientific concept of targeted measures, and working together to win the battle against poverty. "This remarkable achievement serves and benefits the people," Segura said.

In 2025, during his first visit to rural areas in China, Muhammad Asif Noor Farooqi, director of the Institute of Peace and Diplomatic Studies in Pakistan, was impressed by the high level of modernization and the living standards of villagers. "When I conducted an investigation in a rural area near Urumqi in Xinjiang autonomous region, northwest China, a villager told me that thanks to local government policies and technical support, he has grown fruits such as grapes and strawberries. Now, his products are sold throughout the country," Noor said.

Omumbedha Esther Mirembe, a public relation specialist of the Busoga Consortium for Development in Uganda, observed villagers in Yunnan province in the southwestern border region of China, to experience techniques such as rubber tapping, beekeeping and winter vegetable cultivation. "Here, the villagers are not passive beneficiaries but active participants," said Mirembe.

From developing tropical agricultural bases to creating tourism platforms, local governments across China have implemented precise policies and used innovation to stimulate the entrepreneurial spirit of locals, creating a favorable environment for people returning to their villages from cities to start their own businesses and improve their lifestyles.

6G Quadruped Robots Debut at MWC 2026

Hi-Tech

By QI Liming

At the Mobile World Congress (MWC) 2026 in Barcelona, Spain, Shanghai-based AgiBot and China Telecom showcased their joint innovation, "6G plus Quadruped Robots," for the first time.

Using the integrated communication, sensing capabilities and extensive connectivity of 6G networks, the operational radius of the intelligent robots has been expanded from the ground to underground areas, uninhabited regions and other extremely complex environments.

Currently, quadruped robots are widely applied in various fields such as industry, security, emergency rescue, entertainment and commerce. Combined with 6G, they will have even more extensive application scenarios, especially in areas unsuitable for human access.

The 6G mobile communication technology supports higher transmis-

sion rates and extremely low latency. Unlike previous generations of communication upgrades, 6G is deeply integrated with artificial intelligence. The embodied intelligent agents can operate in areas that are difficult for humans to reach or where it is impossible for them to stay for prolonged periods, such as nuclear facilities, deep-sea oil platforms and lunar surface bases.

AgiBot's "6G plus Quadruped Robots" series is expected to accelerate its first wave of commercialization in 2029 or 2030. By that time, the intelligence of the robots will be significantly improved and the price will drop significantly.



The 6G plus quadruped robot. (PHOTO: AgiBot)

China a Global Pacesetter in AI Simulation

Dialogue

By Staff Reporters

"The integration of AI and simulation is one of the most powerful trends of our time — it's transforming how we design, manage and live in cities," said Professor Mohammed S. Obaidat, a computer scientist and past president and chair of board of directors of the Society for Modeling and Simulation International (SCS).

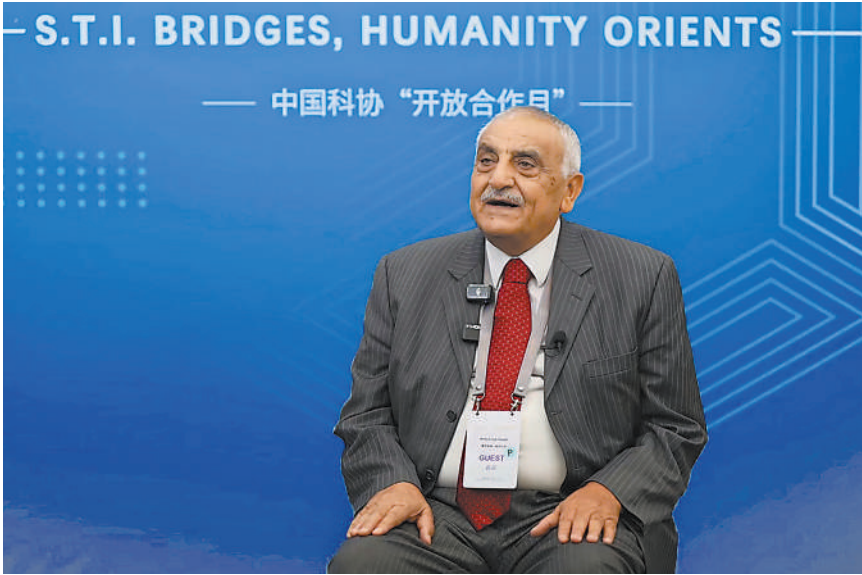
As a prominent expert in modeling and simulation since the 1980s, Obaidat has witnessed this field evolve from academic curiosity to urban necessity. In a recent interview, he noted that the convergence of AI, high-fidelity simulation, and digital twin technology is now reshaping megacities worldwide, with China emerging not just as a participant but as a global pacesetter.

Real-time intelligence for cities

In the past, simulation models were used to test scenarios pending decision making. Urban planners might simulate traffic flow using different road layouts, or energy engineers might model grid pressure during peak demand. But as Obaidat explained, AI has turned simulation into a living, responsive system.

Traditional simulation helped people make predictions. However, "AI-enhanced simulation helps us act. It creates dynamic, data-driven models that learn from real-time inputs — traffic cameras, IoT sensors, weather forecasts and continuously optimize outcomes," he said.

This shift is particularly vital in transportation. In a megacity like Beijing, where over 20 million people generate billions of mobility events daily, and static models quickly become obsolete.



Professor Mohammed S. Obaidat. (COURTESY PHOTO)

AI-simulation systems can now detect problems, such as a multi-vehicle collision on a ring road, and within seconds traffic can be rerouted, emergency services alerted and adjustments of signal timings made across adjacent districts.

The same logic applies to energy. As cities integrate solar, wind and battery storage into their grids, variability becomes a major challenge. AI-simulation platforms can forecast renewable output, anticipate spikes in demand, and simulate thousands of control strategies in milliseconds to maintain stability.

China's urban development, a global benchmark

Few places illustrate this transformation as dramatically as China. Obaidat credited China's success to a rare combination of top-down policy coherence, massive infrastructure investment, and bottom-up technological adoption.

But perhaps the most striking example is urban mobility. "Today, Beijing operates over 800 kilometers of metro, the

longest network in the world, and integrates buses, ride hailing, bike sharing and high-speed rail into a single digital ecosystem," he said. This integrated transport layer provides the perfect data foundation for AI-simulation platforms to optimize everything from bus frequencies to last-mile delivery routes.

What makes China's approach globally relevant, he argues, is its scalability. "Cities like Jakarta and Lagos face similar pressures, rapid urbanization, limited public transit, and aging infrastructure. They don't need theory, [but] proven solutions. And China has them, and its experience is transferable."

Obaidat has another vision. "A smart city isn't just one with sensors and algorithms," he said. "It's one that learns from its citizens, adapts to crises, and distributes benefits equitably." In this vision, China's role is pivotal. Its ability to deploy technologies at scale, iterate rapidly, and align public and private sectors offers a template the world can study and adapt. "The future of urban life will

be shaped by those who can turn data into dignity, efficiency into equity, and simulation into sustainability," he said. "And right now, China is writing some of the most important chapters of that future."

Shifting to a global ecosystem

As international scientific organizations increasingly establish offices in China, Obaidat sees both opportunity and responsibility.

"The geographic center of science is shifting toward Asia," he said. "With 1.4 billion people, world-class universities, and leadership in 5G, electric vehicles and fintech, China is a natural hub for international sci-tech cooperation."

In terms of the rapid development of AI, he cautioned that technical excellence must be matched by ethical discipline.

"One of my biggest concerns is data bias," he explained. "If an AI traffic model is trained only on data from wealthy districts, it may ignore congestion in informal settlements. If facial recognition systems lack diversity in their training data, they fail to serve marginalized groups. We need inclusive, transparent datasets and global standards to ensure them."

He therefore called for deeper institutional collaboration, praising China's growing participation in international bodies but urged reciprocal openness.

Obaidat's own collaborations reflect this vision. Over the past two decades, he has collaborated with researchers at Beihang University, Beijing University of Posts and Telecommunications, Chongqing University of Posts and Telecommunications, and other Chinese universities, publishing papers in top journals such as *IEEE Transactions*, co-editing books, and organizing joint workshops on cybersecurity, smart grids and digital twins.

In ancient China, the celestial north pole was considered to be the center of the sky. According to Chinese astrology, this is the most important part of the cosmos, housing the "three enclosures."

As well as its historical significance, the atlas is important for modern astronomers because of its accuracy and graphic quality. Like the Earth, the sky is spherical and appears to us as a dome. The process of converting points from a spherical object onto a flat piece of paper is known as "projection" in map making and involves complicated mathematics.

Experts warn that the health value of a food is not solely dependent on its GI value, and that it is essential to consider its fat, sodium, dietary fiber, vitamin and mineral content too. Determining a food's health value based solely on its low GI label is neither comprehensive nor scientifically sound.

Sun Yu, director of the Department of Endocrinology at Xuanwu Hospital of Capital Medical University, advises consumers to carefully check the ingredient list and nutrition facts label when purchasing food, as well as paying attention to whether it has a low GI label.

"If a low GI food has butter, cream and white sugar high on its ingredient list and its nutrition facts label shows high levels of fat and sodium, this means its calorie content is likely to be excessive. Therefore, even if it has a low GI value, it cannot be considered a healthy food," Sun added.

Tech+Culture

Tech Shines Light on Ancient Mysteries

By Staff Reporters

The Chinese Academy of Social Sciences (CASS) has announced its first batch of major research achievements in 2026, demonstrating how modern scientific methods are fundamentally reshaping the understanding of early Chinese civilization.

Animal bones tell stories of coexistence

The construction of China's national animal specimen library has made substantial progress since its launch in 2025, and is now home to over 100,000 specimens collected from 121 archaeological sites across 26 provinces. Including both ancient animal bones and modern reference samples, the library forms precious resource for unearthing the co-evolution of humans and animals.

Among its most significant items are the oldest known domestic dog remains in China, dating back to approximately 10,000 years ago, whose carbon and nitrogen isotope ratios reveal that early humans shared their food with their canines. The earliest domestic cattle bones were found in central China, dating back to approximately 4,500 years ago, showing a move toward the use of livestock in daily life. The skeletal remains of the extinct sacred buffalo (*Bubalus mephistopheles*) from 8,000 years ago, helps to understand the role of biodiversity and ecological change.

Silk whispers rewrite textile origins

A tiny silk fragment from the Xuewei No.1 Tomb, part of the Reshui Tomb Cluster in Dulan county, northwest China's Qinghai province, has rewritten global textile history. Through radiocarbon dating calibrated with dendrochronological data, researchers confirmed the fabric was woven no later than 750 CE, making it the world's earliest scientifically verified resist-dyed textile.

Further analysis identified the presence of *Phellodendron chinense*, a dye plant native to Sichuan, linking the fragment to historical records of "banbu" (spotted cloth), a luxury textile listed as a regional tribute during the Tang dynasty. This discovery definitively proves

that Sichuan and its surrounds were the origin of this resist-dyeing technique and not India as some have thought.

Millet maps the rise of farming society

Multi-disciplinary research has also clarified the timeline of dryland agriculture in northern China. Excavations at the Sitai site in Hebei province revealed semi-sedentary settlements dating back to around 10,000 years ago, coinciding with early evidence of millet use at the nearby Donghulin site. This supports the hypothesis that the mountainous zone near 40° N in north China may have served as a cradle of Chinese agriculture.

Isotopic analysis of human remains from Xinglongwa and Xinglonggou in Inner Mongolia autonomous region, dating back to 7,800-7,500 years ago, shows that foxtail and broomcorn millet made up about 70 percent of the diet, proving the establishment of an agricultural society. Data from later sites, such as Ma'an-qiaoshan in Liaoning province and Zhengjiagou in Hebei province, indicate that 6,200-5,000 years ago, during the Hongshan culture period, millet consumption had risen to approximately 80 percent, showing how farming had become part of daily life and social order.

Scientific validation for the 'hometown of bayberries'

At the Shiao site in Yuyao, Zhejiang province, a key Liangzhu culture settlement dating back to 5,000 years ago, archaeologists uncovered two parallel tree trunks from 2520 BCE. Through comparative wood anatomy and chemical profiling, the specimens were identified as Chinese bayberry (*Myrica rubra*). The ancient samples shared 12 out of 13 major organic compounds with modern bayberry wood, confirming they belong to the same species.

Wang Shuzhi, a researcher at the Institute of Archaeology, CASS, said that this constitutes the earliest proof of bayberry use in China and provides scientific validation for Yuyao's enduring identity as the "hometown of bayberries," suggesting that this fruit was already part of the human diet during the Liangzhu era.



Ripe Chinese bayberries in an orchard in Kuangyan town, Cixi county, Zhejiang province. (PHOTO: XINHUA)

Mapping the Sky: Dunhuang Star Chart

Traditional Eastern Wisdom

By BI Weizi

Dating back to the Tang dynasty (618-907), the Dunhuang Star Chart is one of the earliest known graphical depictions of the night sky in ancient Chinese astronomy. It visually corroborates star-related information recorded in early Chinese texts, and is part of a scroll that includes a series of illustrations found among the Dunhuang manuscripts.

The chart itself is the second part

of a longer scroll measuring more than 300 cm by 24.4 cm, made of 13 panels of fine paper. Read from right to left, the first part of the scroll is a divination manual based on cloud shapes, a practice known as uranomancy. Just as ancient Chinese astrologers used the stars to predict future events, they also observed atmospheric phenomena.

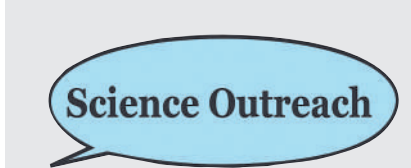
The chart divides the sky into 12 sections representing the months of the Chinese year, beginning with December. These sections are spaced at 30° intervals, moving from east to west. Each section is accompanied by text describing the sky and providing astrological

predictions for events in different parts of the Chinese Empire.

This detailed star atlas shows more than 1,300 stars. The positioning is remarkably accurate for a hand-drawn document and compares favorably with modern charts.

The 13th and final chart depicts the north circumpolar region. This is the area of the sky towards which the Earth is tilted on its axis. As the Earth remains tilted in the same direction throughout its orbit around the Sun, these stars remain visible in the night sky all year round. Other stars are only visible seasonally.

Are Low GI Foods Always Healthy?



By BI Weizi & SUN Yue

In many supermarkets, low glycemic index (GI) foods are prominently displayed, occupying almost half of the shelves. However, *Science and Technology Daily* reporters' investigation found that these low GI foods are generally priced 30 percent to 50 percent higher than similar products.

As the concept of healthy eating is now more widely accepted, low GI has gone from a professional nutritional term to a popular consumer buzzword. However, many consumers have unanswered questions about the health benefits of low GI foods and its masquerading as a marketing gimmick. To address

these questions and demystify these food groups, the reporters sought answers from experts in the field.

The GI ranks carbohydrate-containing foods from 0 to 100, based on how quickly they raise blood sugar. According to China's national standards, foods with a GI of and below 55 can be labelled as low GI. These foods are characterized by a slow rise in blood sugar after consumption and a strong feeling of satiety, which theoretically helps stabilize blood sugar levels after a meal. Examples of low GI foods include legumes, non-starchy vegetables, fruits, whole grains and dairy.

"GI is a voluntary labelling item for food products. The initial purpose of labelling is to protect consumers' right to know and facilitate food choices for specific groups," explained Fan Zhihong, a professor at the College of Food Science and Nutritional Engineering at China Agricultural University.

Businesses cannot simply implement low-GI labelling at will. According to the Technical Specifications for Low GI Product Certification, businesses must submit their products to a qualified national certification body for testing. Consequently, an increasing number of consumers believe that foods labelled low GI are necessarily low-sugar, low-fat and low-calorie health foods.

Is this really the case? "Low GI does not equal low calorie, Fan explained further. The GI value primarily describes foods high in carbohydrates. If a food contains a high proportion of fat or protein and a low proportion of carbohydrates, blood sugar levels may rise slowly after consumption, but the total calorie content may be high.

In other words, a low GI cake that is high in oil and sugar may contain far more calories than a banana with a slightly higher GI that is rich in dietary fiber.

Wind Power Aids Africa's Green Transformation

From page 1

For example, during the construction and commissioning of the Aysha II Wind Power Plant, local technicians gradually mastered wind turbine installation and system operation skills through participation in the technical training.

Professional personnel are vital to the green transformation of Africa, and technical training is an important part of China-Africa cooperation.

The De Aar Wind Farm in Northern Cape, South Africa, is the first wind power project financed, constructed and operated by a Chinese company in Africa. It has a technical team comprising of over 80 percent local technicians, and the project has trained over a hundred young locals, many of whom can now independently handle operation and maintenance tasks.

Apart from technical training, the

company also provides educational and medical support to nearby schools and residents through scholarship programs and community projects, gradually transforming the wind farm into a comprehensive platform for social development.

Meanwhile, the Amunet Wind Power Plant in Egypt has been included in the country's medium- and long-term energy development plan, closely aligning with its port economy and industrial system. Wind power projects provide not only electricity but also the fundamental conditions that support manufacturing, logistics systems and urbanization processes.

The accelerated transition of global energy has seen cooperation between China and Africa on clean energy like wind power, which is driving deeper industrial restructuring and the transformation of development models.