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China's AI Solutions for Better World

By Staff Reporters

The 2025 World Artificial Intelligence Conference (WAIC), themed "Global Solidarity in the AI Era," was held in Shanghai from July 26 to 28. The Chinese technologies and AI solutions displayed at the conference demonstrated the country's innovative efforts and initiative to make the world a better place with AI.

The WAIC brought together more than 1,500 participants from over 30 countries and regions. The accompanying exhibition, with an area exceeding 70,000 square meters for the first time, attracted some 800 enterprises. It displayed more than 3,000 frontier technologies, including over 100 global and Chinese debuts.

The exhibition also showcased many industrialized innovative achievements. Shanghai Zhiyuan Innovation Technology Co. has manufactured more than 1,000 embodied robots, facilitating scenarios like logistics. The "Tianqing" robot developed by the State Grid can autonomously replace circuit parts on high-voltage power lines. The steel large model developed by China Baowu Steel Group Co. and Shanghai Bao-sight Software Co. has been deeply integrated into 105 classical scenarios in the steel industry, covering over 85 percent of key processes.

The *Global AI Governance Action Plan* was released during the conference, calling for concrete and effective actions to advance global AI development and governance.

It proposes 13 feasible actions including advancing AI empowerment across industries, accelerating digital infrastructure construction and creating a diverse, open, and innovative ecosystem. It seeks to address energy and environmental issues and promote the supply of high-quality data as well as common understanding on standards and norms.

Strengthening international cooperation on AI capacity building and building an inclusive multi-stakeholder governance model are also on the agenda.

China has proposed the creation of a global AI cooperation organization, and is tentatively considering establishing its headquarters in Shanghai.

Guo Jiakun, spokesperson of the Ministry of Foreign Affairs of China, said this is a practical move taken by China to practice multilateralism and echo the aspiration of the Global South, as well as another international public good contributed by China. *See page 2*



China Mobile's self-developed robot dogs and humanoid robot dance in the company's booth during the 2025 World AI Conference in Shanghai, July 27, 2025. (PHOTO: XINHUA)

STI Frontier

Rail Travel Races to New High

By LIN Yuchen & HE Liang

On a breezy July morning in Beijing, international guests stood in awe outside the National Railway Test Center. What caught their attention wasn't just China's engineering prowess — it was the hum of history in motion: the CR450, the world's first high-speed train designed for a commercial speed of 400 km/h, quietly preparing to redefine the future of rail travel.

Inside the facility, the CR450 prototype crouched on the track — a product of years of engineering breakthroughs, system overhauls, and bold experimentation. As part of the 12th World Congress on High-Speed Rail, the train offered a rare glimpse into China's next leap in rail innovation. Behind its streamlined silhouette lies a story of relentless problem-solving and frontier research that has pushed China's railway science into what experts call an "uncharted innovation zone."

Entering the "permanent magnet era"

To increase operational speed by 50 km/h compared to the previous CR400 model, engineers first had to fundamentally rework the train's traction system. The CR450 marks China's entry into what local researchers call the "permanent magnet era" — a shift powered by high-efficiency, domestically developed permanent magnet synchronous motors.

However, integrating this motor type posed risks. "If a short circuit occurs between motor windings, the motor doesn't stop due to the magnetic field," explained Zhao Hongwei, chief researcher at China Railway Academy. "This could threaten operational safety."

To address this, the team developed a groundbreaking three-phase active short-circuit protection mechanism. Within 0.2 seconds, the system detects a fault and redirects current through a closed loop, preventing mechanical dam-

age. After months of lab trials, the on-track breakthrough was made during a critical speed test in June 2023.

On the cross-sea Meizhou Bay Bridge, two CR450s were launched on trial runs. The test confirmed that the CR450 can reach a peak single-train speed of 453 km/h, a 1.6x increase in power over standard levels, while maintaining safety and reliability.

Reducing air drag by 22%

At 400 km/h, 95 percent of resistance comes from the air. This presented another hurdle — how to reduce aerodynamic drag while maintaining structural integrity.

Early in the development, engineers believed the shape of the train's head had been optimized to the limit in the CR400 series. But inspired by the beak of falcons and the shape of arrows, the team revisited the head design through biomimicry. The resulting model trimmed drag by 2.6 percent. *See page 3*

Observer

Technology Powers Smart Consumption

By Staff Reporters

Whether it's smart healthcare making care more timely, intelligent elder-care giving families peace of mind, or seamless smart homes ensuring effortless living, technology is enhancing a good life, driving consumption that is sustainable, personalized, and full of potential.

Recent field research by *Science and Technology Daily* reporters reveals innovation is reshaping consumer behavior in China in four major areas: online healthcare, intelligent elder care, digitalized smart homes, and immersive cultural

tourism. These intelligent upgrades reflect a broader transformation toward high-quality, inclusive development — driven by science and technology, and embraced by everyday consumers.

Online healthcare: accessible, efficient and scalable

In Beijing, an AI system named "Zijing Doctor," developed by Tsinghua University, is redefining primary care. With 42 virtual specialists covering 300+ conditions across 21 departments, the AI platform operates 24/7 and delivers diagnoses with over 93 percent accuracy for respiratory illnesses after acquiring "training" from tens of thousands of

simulated cases.

From surgical robots at the Beijing Jishuitan Hospital to AI-assisted traditional Chinese medicine systems in rural Henan, digital technology is transforming access and precision in healthcare. As of December 2024, China had 418 million online medical users — over a third of the nation's Internet population.

By 2030, Internet hospitals are projected to make up 15 percent of total medical expenditure, with 80 percent first visits handled by AI, and e-pharmacy markets expected to exceed 1.5 trillion RMB. *See page 4*

Program for China-EU Young Scientists to Advance Global Science

International Cooperation

By LIN Yuchen & LIU Yin

To mark the 50th anniversary of China-EU diplomatic relations and promote deeper scientific ties, China's Ministry of Science and Technology, in collaboration with the Chinese Academy of Sciences (CAS) and other related institutions, launched the "China-EU Young Scientists Exchange Program" on July 25 in Beijing.

Chinese Minister of Science and Technology Yin Hejun emphasized the program's role as a platform to build "bridges of trust, cooperation and friendship" between China and the EU. He expressed the hope that young scientists from both sides would shoulder the responsibility of advancing global science and contribute to a sustainable future.

China's Special Representative for European Affairs Lu Shaye and CAS President Hou Jianguo also underlined the importance of strengthening youth-driven scientific exchange as a foundation for long-term cooperation.

Sharing memories of his eight years of study abroad, Zhu Yongguan, director general of the Research Center for Eco-Environmental Sciences at CAS and vice president of the International Science Council, stressed the value of international cooperation to foster a comprehensive understanding of the world.

Zied Moumni, French material science professor and recipient of the Chinese Government's Friendship Award, echoed him. Highlighting global challenges such as climate change, pandemics, and AI ethics, Moumni emphasized that scientific collaboration between China and Europe is not only valuable, but essential.

He also mentioned the fruits of China-EU cooperation: Chinese and European physicists working side by side at the European Organization for Nuclear Research, European engineers collaborating in China's deserts on next-gen solar energy, and young researchers exchanging ideas in labs across Berlin, Paris and Shanghai.

See page 4

WEEKLY REVIEW

China Invents Machine to Make Bricks on Moon

The Deep Space Exploration Laboratory located in Hefei city east in China has developed an in-situ lunar soil 3D printing system. It can make bricks by using concentrated solar energy to melt and mold lunar soil, bringing the vision of "building houses on the moon with local materials" closer to reality.

Heavy-ion Accelerator for Cancer Treatment Upgraded

An upgraded new-generation medical heavy-ion accelerator for cancer treatment is now under construction in a hospital in Huizhou city in south China. The home-grown high-end medical facility for more cancer patients is expected to be installed and commissioned this year.

World's First Robot 6S Store Opens in Shenzhen

A robot 6S store, said to be the first of its kind, opened in Shenzhen, Guangdong province in south China, on July 28. Operating on an auto 4S store model of "sale, spare part, service and survey," the robot 6S store provides two new services: on-demand leasing and fully customized products.

Scientists Grow Novel 'Whole-Brain' Organoid

Researchers from Johns Hopkins University in the U.S. have grown a novel whole-brain organoid, complete with neural tissues and rudimentary blood vessels. This will usher in a new era of research into neuropsychiatric disorders such as autism.

Researchers Create AI 'Virtual Lab'

Stanford School of Medicine researchers created a virtual lab backed by AI. Modeled after a well-established Stanford research group, the virtual lab is complete with an AI principal investigator and seasoned scientists, and can help expedite the development of solutions for a variety of problems. A paper describing the findings of the study was published in *Nature* on July 29.

New Graphic



WECHAT ACCOUNT



E-PAPER

