

February 2025

This Month In China

Bringing you the latest innovation news from China



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HOW CHINA MADE A DIFFERENCE THIS MONTH

The Rise of the Dancing Robots

At this year's Spring Festival Gala, China's most-watched television show, Unitree showcased 16 H1 humanoid robots performing a meticulously choreographed Chinese folk dance. These robots didn't just move—they walked, ran, and jumped on stage with remarkable agility, demonstrating a new level of precision and control in robotics.

For global audiences watching the performance on YouTube, it may have seemed like a playful display—perhaps even pre-programmed or remotely controlled to mimic real dancing. But that misses the real significance. In China, the performance went viral, not just as a technological feat but as a symbol of the country's advancement in AI and robotics, a moment that reinforced the belief that China is surpassing the U.S. in technological innovation.

Last month, I wrote about how DeepSeek was a Sputnik moment for Silicon Valley, shaking perceptions of China's AI capabilities. But this Unitree performance might have an even bigger impact—not just for China but for the world. While the implications of DeepSeek's AI breakthroughs are still sinking in, the sight of humanoid robots performing synchronized movements, mimicking human agility, and effortlessly spinning handkerchiefs left no room for doubt. The message is clear: China's AI and robotics revolution isn't coming—it's already here.

Unitree's H1 humanoid robots showcase the next leap in AI-driven motion technology. Equipped with 360° panoramic depth perception and AI-powered full-body motion control, they can interpret music and adjust movements in real time. Their maximum joint torque of 360 newton meters enables fluid and dynamic motion, while high-precision 3D laser SLAM technology allows them to navigate complex environments with ease.

But the real significance of this moment goes beyond the technical details. For over a billion Chinese viewers, this was not just the "rise of the machines"—it was the rise of China, powered by machines.

This marks a pivotal moment for China. Already known as the factory of the world, China has perfected the art of producing affordable, high-quality consumer electronics at scale. Now, we are entering a new era—one where AI merges with hardware to bring humanoid robots into everyday life.

Think of it as DeepSeek AI meeting Unitree robotics. By combining China's world-leading AI models with its expertise in robotic hardware and manufacturing, China is poised to make humanoid robots a mainstream reality. Humanoid robots are no longer just futuristic prototypes—they are about to become an essential part of industry and everyday life.

According to Unitree founder Wang Xingxing, robotics today is where electric vehicles (EVs) were a decade ago—a competitive battleground waiting to be claimed. By the end of 2025, humanoid robots will reach an entirely new level, making them China's biggest innovation trend of the year.

China already dominates the global humanoid robotics supply chain, with 65% of key components produced domestically. Additionally, 56% of publicly traded humanoid

robotics companies are based in China, and 45% of global robot integrators are Chinese. While China has already mastered robotic hardware, the next phase is about perfecting AI integration—ensuring that these robots move beyond labs and showcases into real-world applications.

It is no coincidence that China's top EV companies—BYD, Xpeng, Nio, Chery, Seres, Geely, Xiaomi, and GAC—are heavily investing in humanoid robots. These companies have a deep understanding of hardware, sensors, AI algorithms, and large-scale production, making them ideal leaders in humanoid robotics. Moreover, they will be among the first large-scale users of these robots, deploying them on automobile assembly lines for tasks such as wiring cars, transporting parts, and assisting other fixed robots.

China's key advantage in the humanoid robotics market lies in its ability to acquire and utilize data—a strategy similar to how Tesla and Chinese EV makers perfected self-driving technology. The more humanoids in use, the smarter they will become. As EV firms and robotics companies like Unitree, Agibot, UBTEch, and DeepRobot begin mass production, China is poised to dominate. Not only will it offer the most affordable humanoid robots, but also the most intelligent and practical for real-world applications. By 2030, expect Chinese robots capable of cooking meals, washing dishes, and doing laundry to become a reality. Will you miss doing chores?

Today, the Unitree G1 humanoid costs \$13,600, while the more advanced H1 robot, showcased at the Chinese New Year Gala, is priced at \$90,000—less than half the cost of Boston Dynamics' Atlas robot. By 2027, humanoid robots are expected to become 40% cheaper, making G1-type robots affordable for factories and the service industry. With China's workforce shrinking by 1.4 million workers annually due to demographic decline, the demand for humanoid robots will surge—not only in manufacturing but also in elderly care and domestic services. China is not just building robots—it's shaping the future of automation.

In the 14th five-year plan (2021-2025) China set the goal of becoming a centre of excellence for robotic innovation. China also has plans to have a secure, reliable industrial and supply chain by 2027. The most remarkable confirmation of this new trend came from Xi Jinping himself this month when he held a summit with China's top technology founders. The last time this happened was in 2018. This time Xi Jinping invited the founders of well-known technology firms like Huawei, Tencent, BYD, Xiaomi, CATL and Meituan. The most surprising appearance for international media was that of Jack Ma. Jack is back!

For me, however, the most powerful message was not Jack Ma being invited, but the presence of DeepSeek and of Unitree. The six founders sitting opposite of Xi Jinping (see graph below: #5 to #7) delivered a speech to provide suggestions on promoting the development of China's private sector. What stood out for me is that the 35-

year-old founder Wang Xingxing from Unitree spoke, and that four out of the six tech founders who spoke were all active in humanoid robots!

As part of China's 14th Five-Year Plan (2021-2025), the country has set a clear goal: to become a global hub for robotic innovation. By 2027, China also aims to establish a secure and reliable industrial robot supply chain, reinforcing its technological independence. A major sign of this commitment came this month when Xi Jinping hosted a summit with China's top tech leaders—his first such gathering since 2018. Attendees included the founders of Huawei, Tencent, BYD, Xiaomi, CATL, and Meituan. However, the biggest surprise for international media was the return of Jack Ma, marking a significant moment in China's business landscape.

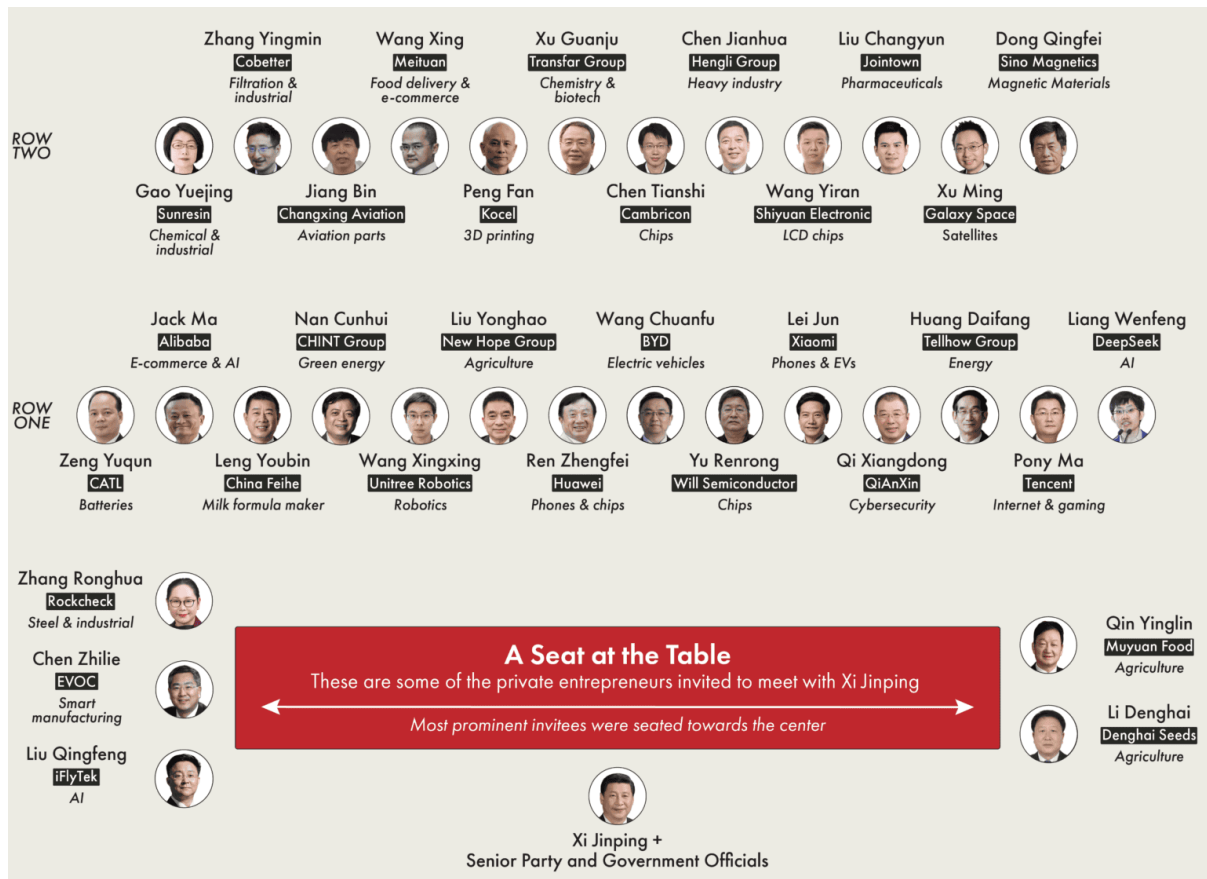
For me, though, the most powerful takeaway was the prominent role of humanoid robotics. Among the six tech founders seated opposite Xi Jinping, four were deeply involved in humanoid robot development, including Wang Xingxing, the 35-year-old founder of Unitree. These executives provided direct input on strengthening China's private sector and driving AI-driven industrial growth.

Ren Zhengfei, the founder of Huawei said "I firmly believe that a stronger China is rising at an accelerated pace". Lei Jun, founder of Xiaomi, said "there is nothing that cannot be overcome" in China's progress, despite the "changes in international winds and clouds". Wang Chuanfu, founder of BYD, shared his experience of building the industry "from ground zero". Wang Xingxing, founder of Unitree told Xi that the humanoid robot developer and its team were "born and raised in China".

The inclusion of DeepSeek and Unitree at Xi Jinping's summit sends a clear signal: China is making AI and humanoid robotics a national priority. The enthusiasm surrounding these companies has reignited the "animal spirits" of China's private sector, bringing renewed confidence and momentum to innovation.

The Year of the Snake is proving to be more than symbolic. Unitree's robots embody the snake's agility, precision, and advanced navigation skills, while DeepSeek's AI mirrors the snake's patience—waiting for the perfect moment to strike.

If you want a glimpse into which industries Beijing sees as transformative for China's future, look at who was invited and their sectors in the graph below: Agriculture, Food, EVs, Energy, Cleantech, Batteries, Chips, Cyber, Telecom, AI, Space, Aviation, Robotics, Biotech, Chemistry, Pharmaceuticals, New Materials, smart manufacturing and big tech platforms.



Source: CCTV

CHINESE INNOVATION NEWS – FEB 2025

1. Chinese research generates oxygen, rocket fuel in major space exploration leap
2. Chinese scientists achieve breakthrough in integrated photonic quantum chips
3. China builds extreme "super lab" to assist scientists in probing mysteries of matter
4. Chinese scientists create new superconducting material based on nickel
5. China dreams of building a world-class jumbo jet to take on Airbus and Boeing
6. China develop 'injection' to make smartphone and EV batteries last longer
7. Chinese scientists decode 'blueprint' of human brain
8. China Generative AI updates February 2025

(Click the links in titles below to read a larger news article on each topic)

1. China's Tiangong research generates oxygen, rocket fuel in major space exploration leap

Imagine a future where humans are not just exploring space but living there. China has taken a significant step toward this reality. For the first time, experiments aboard China's Tiangong space station have successfully produced artificial photosynthesis, generating oxygen and key ingredients for rocket fuel.

If you recall from your childhood biology classes, plants convert carbon dioxide (CO_2) and water (H_2O) into oxygen (O_2) and glucose using sunlight—an essential process that provides the air we breathe. Now, Chinese astronauts have replicated this natural process in space using engineered physical and chemical methods. By employing semiconductor catalysts, they have converted CO_2 and water into oxygen while simultaneously producing ethylene, a hydrocarbon that can be further processed into spacecraft propellants.

What makes this experiment groundbreaking is that it operates at room temperature and normal atmospheric pressure. This is a stark contrast to the traditional electrolysis methods used on the International Space Station (ISS), which require about one-third of the ISS's solar energy just to sustain life support. Such energy-intensive systems are impractical for long-duration missions to the Moon or Mars.

China's breakthrough not only enables a sustainable oxygen supply for deep-space missions but also paves the way for producing valuable compounds like methanol and formic acid, which can be used for fuel or even synthesized into sugars—the fundamental building blocks for sustaining life in space.



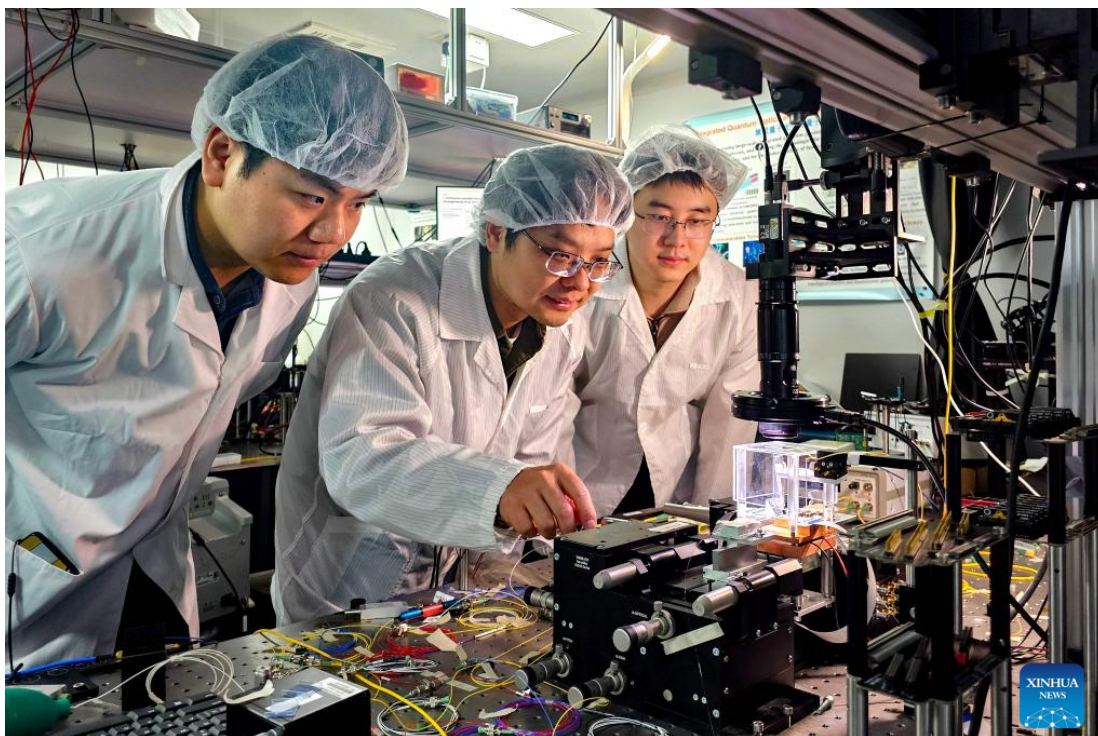
China's Tiangong space station. Photo: China Manned Space Agency

2. [Chinese scientists achieve breakthrough in integrated photonic quantum chips](#)

You may have heard about Microsoft's new quantum chip, [Majorana 1](#), designed to store up to a million qubits while resisting the errors that typically hinder quantum computing. Despite skepticism from the scientific community, media coverage was abuzz with excitement over Microsoft's claim of a "holy grail" breakthrough—potentially enabling millions of qubits to work together on a single chip.

On the same day, China achieved a breakthrough in integrated photonic quantum chips, yet it received little attention. Chinese researchers successfully demonstrated the first continuous-variable quantum multipartite entanglement and cluster states on a chip. Using light, they created and controlled a network of interconnected quantum states, showcasing the potential to build a quantum network on a chip.

By developing technologies for coherent pumping, control, and measurement of continuous-variable cluster states, Chinese scientists prepared multiple cluster states in a deterministic and reconfigurable manner. This breakthrough paves the way for large-scale quantum entanglement—crucial for the advancement of quantum computing and quantum networks. While America basks in the spotlight, China is quietly using light to secure its place in the future of quantum technology.



Professor Wang Jianwei tests an integrated photonic quantum chip with students

3. [China builds extreme "super lab" to assist scientists in probing mysteries of matter](#)

The Synergetic Extreme Condition User Facility (SECUF) in Beijing is unlocking new frontiers in materials science, providing scientists with a unique platform to study the strange behavior of matter under extreme conditions. Led by the Institute of Physics, SECUF consists of a cluster of precisely controlled "extreme environment generators", making it a "super lab" for cutting-edge research. Construction began in 2017, and the facility is now complete, integrating advanced experimental capabilities, including ultra-low temperatures, ultra-high pressures, strong magnetic fields, and ultra-fast optical fields.

SECUF can cool materials to 1 millikelvin, an astonishing 1,000 times colder than the cosmic background temperature. It can generate a steady 30 Tesla magnetic field, which is 600,000 times stronger than Earth's magnetic field. The facility also achieves ultra-high pressures of 300 GPa, comparable to the pressure found at Earth's core. It also produces ultra-fast laser pulses lasting just 100 attoseconds, enabling scientists to observe electron dynamics in real time.

With these capabilities, SECUF is expected to drive breakthroughs in superconducting materials, microscopic structures, and dynamic material behaviors. It also supports advanced experiments in material synthesis, quantum control, and ultrafast dynamics. Open to scientists worldwide, SECUF stands as a global hub for pioneering discoveries at the extreme limits of physics.



Experimental station of SECUF in (Xinhua/Yin Gang)

4. [Chinese scientists create new superconducting material based on nickel](#)

Chinese physicists have developed a new high-temperature superconductor at ambient pressure using nickel-based compounds. This breakthrough makes nickel the third class of materials—after copper oxide-based and iron-based compounds—to exhibit superconductivity above -233°C under normal pressure conditions.

Superconductivity is a phenomenon where a material has zero electrical resistance and repels magnetic fields when cooled below a critical temperature.

Superconductors have vast potential applications, including power transmission, fusion reactor magnets, and levitating trains. This discovery enables the new superconductor to be cooled using liquid nitrogen, which is more cost-effective and efficient than previously required coolants.

Another [breakthrough](#), announced in February, came from a collaboration between Chinese and Austrian researchers. They developed a unique alloy with practically zero thermal expansion over an extremely wide temperature range, from -270°C to 167°C —spanning from cryogenic temperatures to well above boiling point. This alloy, composed of zirconium, cobalt, iron, and niobium, has potential applications in aviation, aerospace, and high-precision microelectronics.

China is poised to lead the world in materials science, particularly in nanotechnology, solidifying its position as a global innovator in advanced materials research.



A metal alloy barely expands over a vast temperature range. Photo: TU Wien

5. China dreams of building a world-class jumbo jet to take on Airbus and Boeing

The global aviation industry is being dominated by two giants: Airbus and Boeing. However, China is making significant strides with its entry into the commercial jet market. COMAC (Commercial Aircraft Corporation of China), founded in 2008, has already received hundreds of regional orders for its narrowbody aircraft, the C909 and C919. Since its launch in 2023, the C919 has carried over 1 million passengers.

Now, COMAC is accelerating its plans to develop two widebody models: the C929 and C939. The C929 is expected to accommodate up to 440 passengers and offer a range of 12,000 kilometers, making it a competitor to the Boeing 787 Dreamliner and Airbus A350 in terms of performance. Meanwhile, the larger C939, still in the early design phase, is projected to be comparable in size to the Boeing 777 and 747. Both aircrafts are expected to be commercially available within the next decade.

However, the timeline for their release depends on several external factors, including certification processes, engine supply, and export licenses for critical components. The C929 and C939 will be even more dependent on Western technology than the C919. That said, Boeing and Airbus widebody jets also rely on foreign components, highlighting a broader industry issue. If successful, China could brake the Western duopoly in commercial aviation, making the C929 and C939 serious competitors.

Notably, Air China has already placed an order for a C929 by the end of 2024, marking a significant milestone. Now, the challenge remains to get the aircraft airborne and certified for commercial use.



Model of the C929 at the Singapore airshow

6. Chinese scientists develop 'injection' to make smartphone and EV batteries last longer

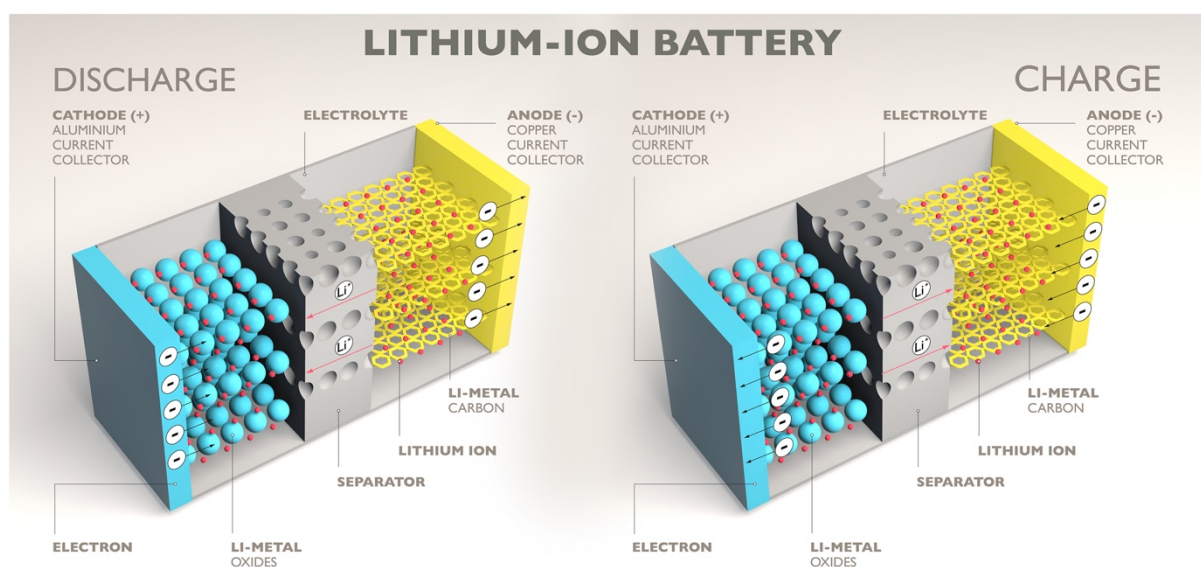
One of the biggest concerns preventing people from switching from combustion engine cars to electric vehicles (EVs) is the battery life cycle, as battery replacement is the most expensive component of an EV.

Lithium-ion batteries rely on advanced materials to generate lithium ions, which move from the positive terminal to the negative during charging and then reverse when discharging power. Once the supply of lithium ions is depleted, the battery—and by extension, the value of the car—is considered expired.

However, while lithium ions diminish over time, the other components of the battery often remain functional. This realization led Chinese researchers to explore whether replenishing the supply of active lithium ions could extend battery life. They have now successfully developed a low-cost, eco-friendly injection repair technology that could extend lithium-ion battery lifespan by more than six times.

The team created a lithium carrier molecule, which can be injected into the battery to regulate and restore lithium ions. It took four years of research to identify the ideal candidate: trifluoromethylsulfonate lithium. For an EV that charges twice daily, this innovation could extend battery life to up to 18 years. The technology could also be applied to smartphones and other electronic devices.

Most importantly, this breakthrough would significantly reduce the need for lithium mining, making EVs more sustainable and environmentally friendly. Could this new method potentially render the battery-swapping concept like from NIO obsolete?



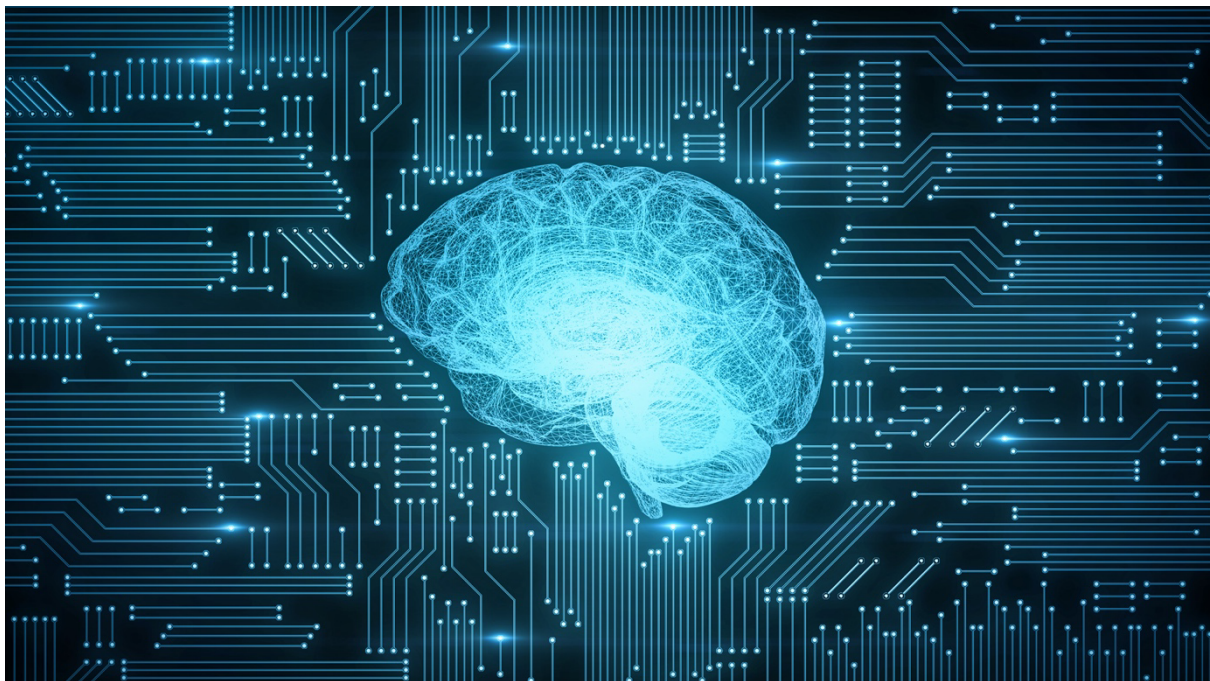
iStockPhoto: Naebllys

7. Chinese scientists decode 'blueprint' of human brain

This title intrigued me. Chinese scientists have made a significant breakthrough in understanding the human brain's complex organization, revealing a deep connection between genetics and neural network formation. By analyzing tens of thousands of brain scans, the research team identified three primary "axes" that dictate how different regions of the cerebral cortex are arranged. They then mapped how these axes are influenced by genetic factors.

For years, scientists have debated whether brain partitioning is determined primarily by inherited genetic instructions or shaped by acquired neural connections. This study provides a clear answer: genes establish the brain's macrostructure, forming a foundational blueprint that guides how neural networks develop through spatial gradients over time.

This discovery has far-reaching implications for understanding brain development, particularly during early childhood, and could offer new insights into neurological disorders such as schizophrenia and autism. Beyond medicine, this knowledge could also advance artificial intelligence, particularly in areas like brain-machine interfaces and brain-inspired chip design.



IstockPhoto: wigglestick

8. China Generative AI updates of February 2025

[Alibaba makes Sora-style video models open source](#)

Alibaba is set to open-source four Sora-style video-generation models from its Wan2.1 series, which was first released in January. Wan2.1 was the first video-generation model to support text effects in both Chinese and English. It currently holds the top ranking on the VBench Leaderboard for video-generation models.

[AI's new frontier: affordable, domain-specific models are coming](#)

Chinese scientists are collaborating with experts from various fields to develop affordable domain-specific AI models. Their goal is to create a platform where domain experts can train small AI models—ranging from 1 billion to 3 billion parameters—that can achieve state-of-the-art reasoning capabilities within 6,000 GPU hours, using entry-level GPUs.

[Alibaba previews new AI reasoning model to challenge DeepSeek R1, OpenAI o1](#)

Alibaba has unveiled a preview of its upcoming reasoning model, QwQ-Max, which could compete with OpenAI's o1 and DeepSeek's R1. The company also announced plans to open-source QwQ-Max along with the base version of Qwen 2.5 Max.

[Alibaba commits US\\$53 billion for AI infrastructure](#)

Alibaba has plans to invest at least 380 billion yuan (US\$52.4 billion) over the next three years in cloud computing and AI infrastructure. This marks China's largest-ever computing project funded by a private company. Following this announcement, other companies are expected to accelerate their capital investment plans.

[DeepSeek to open-source 5 code repositories for 'full transparency'](#)

DeepSeek has plans to strengthen its commitment to open-source technology by making five of its code repositories public. A code repository is a centralized storage space where developers can access, review, and contribute to software development.

[China's ports adopt DeepSeek AI model to streamline operations](#)

Three major ports in China have already implemented or are planning to adopt DeepSeek to enhance efficiency and service quality. The technology is being used for intelligent gate systems to recognize containers and improve customer services. Additionally, the ports have expansive plans to integrate DeepSeek into cargo handling, gantry crane operations, and security systems.

[China's universities get students up to speed on DeepSeek with new AI classes](#)

Shenzhen University has partnered with Tencent Cloud to launch a general AI course based on DeepSeek. Meanwhile, Zhejiang University, located in Hangzhou, home to DeepSeek, has introduced an online course series focused on DeepSeek.

[Tencent testing to add DeepSeek to its WeChat super app](#)

Tencent is testing the integration of DeepSeek's services into WeChat, allowing users to access DeepSeek's R1 model for free through an "AI Search" option in the search bar. This feature will be available alongside Tencent's Hunyuan foundational model.

[Baidu to offer Ernie Bot service for free as DeepSeek heats up China's AI market](#)

Starting April 1, Baidu will make its Ernie Bot service free to use. On the same day, it will also offer Deep Search, a feature with enhanced capabilities in reasoning, planning, and providing expert-level responses across various scenarios, at no cost.

[China's smartphone brands embrace DeepSeek's as Apple partners with Alibaba](#)

Huawei, Oppo, Vivo, and Honor are integrating DeepSeek, with some using it as a complement to their own AI models. Meanwhile, Apple is collaborating with Alibaba in China, and Xiaomi is incorporating Google's Gemini model for global markets.

[DeepSeek drives AI adoption by local Chinese governments from Shenzhen to Kunshan](#)

An increasing number of local governments in China are rapidly adopting DeepSeek's AI models to improve administration and governance. Authorities are proactively integrating government data into the model to enhance its capabilities.

[Alibaba's Qwen powers top 10 open-source models](#)

The latest Hugging Face rankings reveal that the top-ranked open-source large language models were all trained on Qwen's series. This suggests that Alibaba has now become the preferred source for training open-source models, replacing Meta's LLaMA, which previously held that position.

[China Launches Its First AI Model for Rare Disease Diagnosis](#)

While individual rare diseases are uncommon, their vast diversity presents significant diagnostic challenges. Leveraging China's extensive rare disease research and genetic data from its population, PUMCH-GENESIS has become the world's first rare disease model specifically tailored to the genetic characteristics of the Chinese population.

[Rokid's AI-infused AR glasses wow China with script projection, smart ring control](#)

Rokid gained attention on social media after its founder, Misa Zhu Mingming, demonstrated the real-world application of the company's AI-powered AR glasses. During his speech, he used a smart ring on his finger to flip through virtual pages, with his notes projected directly onto the AR glasses he was wearing.

Rokid Glasses
A I + A R 智 能 眼 镜



RECOMMENDED READING

This is the one China Mega Report you must read to stay updated with all the latest consumer trends, economic shift, digital innovation, technology updates and marketing insights!

The new **China Mega Report 2025**, compiled by Ashley Dudarenok and her ChoZan team is here! Besides the incredible vast content (699 pages) it features a few dozen “real China” experts who lived and worked in China. I am also featured with three quotes in the report as the one below.

Download it here: <https://chozan.co/china-economic-mega-report-2025-tech-digital/>

In 2024, China's tech ecosystem was characterised by a dominance in electric vehicles, batteries, solar, robotaxi deployment, and advancements in the low-altitude economy with drones and flying taxis.

In 2025, Chinese large language models and humanoid robots are expected to become mainstream in B2B markets.

Key trends to watch include Chinese hidden champions expanding globally and the potential unfolding dynamics of a US-China BioTech and Currency War under Trump 2.0.



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If you know of any other breaking China innovation news from February 2025 that I missed, do let me know so I can add it in next month's newsletter!

KEEP TUNED!