

INSIGHTS

China's Humanoid Robot Market on the Rise

Voice of the World

By GONG Qian

In an analysis of the global humanoid robotics industry, Morgan Stanley released *The Humanoid 100: Mapping the Humanoid Robot Value Chain* report in February, highlighting China's impressive progress in this rapidly evolving sector.

Morgan Stanley's report reveals that Chinese companies hold a 63 percent share of the global humanoid robot supply chain. Of the companies confirmed to be developing humanoid robots, 73 percent are based in Asia, with Chinese companies accounting for 56 percent of this group.

In the past decade, China has seen robust growth in humanoid robots. According to *The World Robotics 2024 Report* released by the International Federation of Robotics (IFR), China is by far the world's largest market for robotics, with 276,288 industrial robots installed in 2023, making up 51 percent of global installations.

As of July 2024, China's official data indicates that the country boasted more than 190,000 effective robot-related patents, accounting for about two-thirds of the global total.

Notably, one highlight is 16 humanoid robots performing a Chinese folk dance Yangge at the 2025 Spring Festival Gala. They wowed audiences in China and overseas with their incredible agility and synchronized dance moves, with on-



People enjoy a performance by robots at a Spring Festival science and technology temple fair in Haidian district of Beijing, January 30, 2025. (PHOTO: VCG)

line users marveling at how advanced they were, the *Strait Times* said.

In the coming April, for the first time, a group of humanoid robots are expected to join a half-marathon to be held in Beijing, marking a significant milestone in China's push for AI and robotics development, Electropages said.

"Tien Kung," a humanoid robot developed by China's Embodied Artificial Intelligence Robotics Innovation Center, is one of the most anticipated participants.

The human-robot marathon will serve as a public showcase for advancements in AI and machine learning. By enabling robots to navigate dynamic environments alongside human participants, the event showcases notable advancements in real-time decision-making and sensor integration, Electropages said.

China has its own strength in humanoid robots, *Foreign Policy* said. Its big edge is manufacturing at scale. China leads in several major robot markets, including drones, with DJI accounting for

70 percent of the global drone supply in 2023.

This view was also echoed by other researchers. "China's dominance of downstream supply chain inputs, such as batteries, cements it as the world's manufacturing hub for humanoids," said Ylli Bajraktari, CEO of the Special Competitive Studies Project.

Meanwhile, Arjen Rao, an analyst at China-based LeadLeo Research Institute, told Reuters that "China's humanoid robot industry demonstrates clear advantages in supply-chain integration [and] mass production capabilities."

With more favorable policies and technological breakthroughs, China's humanoid robot market is expected to further expand.

China previously announced to establish a preliminary innovation system for research and development for humanoid robots by 2025, the *Strait Times* reported.

This year China seeks to establish a world-class innovative ecosystem for humanoid robots, with plans to integrate them into manufacturing supply chains, scale their use, and expand their presence across society by 2027, according to *Foreign Policy*.

IFR's report said in the longer term, there is still a lot of growth potential in Chinese manufacturing, referencing a possible five to 10 percent average annual growth until 2027.

Morgan Stanley's research estimates by 2050 China's humanoid robot market could reach a market size of six trillion RMB, with an estimated 59 million robots in operation.

Opinion

Open Source Propels Global AI Innovation

By YU Haoyuan

With DeepSeek launching its large language models V3 and R1, the global AI landscape is becoming transformed. Developed in China, these models perform well with high cost-effectiveness. Through its open-source approach, DeepSeek has reduced the entry barriers for AI application. The success of DeepSeek demonstrates not only China's leading role in the global democratization of AI, but also a vision of openness and collaboration.

Recently, Clément Delangue, co-founder of Hugging Face, the world's largest open-source platform, called DeepSeek-R1 the most popular model on the Hugging Face platform. DeepSeek-R1, with numerous modified derivative models created from it, has been downloaded more than 10 million times. This illustrates DeepSeek's technological capability and popularity, and the demand within the open-source community for efficient, cost-effective AI solutions.

DeepSeek's open-source nature exemplifies China's open cooperation globally. Unlike some closed ecosystems, DeepSeek embraces technological democratization.

The training cost of DeepSeek-V3 is approximately USD 5.57 million, much lower than ChatGPT-4's billion-dollar cost. By being open source, DeepSeek has accelerated innovation and brought significant benefits to emerging markets.

Indonesia's educational company, Ruangguru, is an example. Its AI-driven robot products help students to address study challenges. Through DeepSeek, Ruangguru has made its chatbot more effective. It can answer various questions, retaining more user learning history at a much lower cost.

"In the past, our AI might have only been able to remember two to three paragraphs of learning context due to high costs. However, with DeepSeek, AI can remember more learning history because it is cheaper. This is very useful because when students interact, AI can provide recommendations for appropriate learning materials and methods," Alvin Francis Tamie, the company's chief technology officer, said during a panel discussion with East Ventures, a leading venture capital firm.

This illustrates how Chinese software, by being open source to the world, has broken traditional barriers, facilitating technological progress and contributing novel solutions to challenges.

Additionally, the success of DeepSeek has boosted global technology sovereignty. Distinct from the closed systems and monopolies of Western AI technologies, it is promoting technological democratization.

Besides Chinese enterprises and global tech giants, enterprises like Russia's Yandex and India's Yotta Data Services have also developed localized models

under the DeepSeek framework. This signals a shift from a "giant monopoly" to a "multipolar symbiosis" for AI, indicating that open source not only enables technological breakthroughs but also drives balanced global technological development.

By making its research and its weighting publicly available, DeepSeek has set an example for ethical governance in AI.

As Ambuj Tewari, professor of statistics at the University of Michigan and a distinguished expert in AI and machine learning, stated in an interview with University of Michigan News, the DeepSeek model can be run on servers owned by U.S. companies as its weights are publicly accessible.

In addition to reinforcing public trust in AI technology, such efforts also contribute novel ideas to global AI regulation. The open-source model has significant transparency and accountability, an essential requirement to build a fairer digital world.

Finally, DeepSeek's open-source strategy is also impacting traditional technological hegemony while shaping a new industrial ecosystem. In China, its models are being integrated in various industries like telecommunications, automotive, securities, and education.

By 2025, its intelligent computing power is estimated to exceed 1,037 EFLOPS in China, with open-source models as a major driver. This demonstrates that AI promotes the intelligent upgrade of all sectors, with open source as a transformative force for social progress and global cooperation.

Major international players like Microsoft, AWS and NVIDIA have integrated DeepSeek into their ecosystems rapidly, marking a shift from theoretical discussion to implementation. This highlights the substantial impact of the open-source model globally.

At the recent AI Action Summit in Paris, over 60 signatories released a statement on inclusive and sustainable AI for people and the planet. China was one of the signatories, and not the U.S. and the UK. This shows the scant international support for the self-centered and exclusive logic of AI hegemonic development.

In contrast, China is widely recognized for its open, inclusive, equitable, and beneficial AI governance philosophy.

The success of DeepSeek illustrates that sharing is the true value of innovation. China is playing a vital role in the democratization of global AI by making core technologies open, advancing AI applications worldwide, and providing valuable lessons in addressing various challenges.

This marks a turning point in the history of digital civilization, in which the shared future of humanity is collectively created by three forces: technological accessibility, collaborative innovation and ethical governance.

Humanoid Bots at Key Development Stage

Comment

By WANG Manxi

The innovative dance performance of humanoid robots in 2025 Spring Festival Gala received a wave of media attention from all over the world, as China moves ahead in the robotics development arena at breakneck speed.

Now, a research report from the China Academy of Information and Communications Technology (CAICT) says that humanoid robots are expected to become the new terminal after personal computers, smartphones and new energy vehicles, forming a trillion dollar market.

The humanoid robots sector has entered a key development period of technological breakthroughs and application tests. Its application scenarios in manufacturing, social services, special operations are continuously expanding, according to a report from CAICT.

Xu Xiaolan, president of the Chinese Institute of Electronics, said the effect of AI empowering robots is becoming more obvious. By tapping the application demand of humanoid robots in industries, agriculture, the service industry, special industries, domestic service and other fields, it can stimulate new consumption, generate new industries, and expand new employment.

A humanoid robot industry synergy is being formed, as provinces in China

build platforms for the humanoid robot industry, and companies actively participate in the R&D of the robots.

Shanghai is building humanoid robot manufacturing innovation centers, while Anhui is establishing provincial innovation centers for the humanoid robot industry.

In China's capital, the Beijing Embodied Artificial Intelligence Robotics Innovation Center, or HUMANOID, includes more than 140 robot ecological enterprises with an output value of 10 billion RMB.

Despite the rapid development of the humanoid robot industry, there are still challenges that need solutions. Industry insiders say that humanoid robot companies need more financial support

in research. In addition, the high cost of the hardware may increase the operating pressure of enterprises.

Deep integration of industry, university and research through policy guidance may help address the challenges. Jiao Jichao, vice president of UBTECH, suggests that building a bridge between technological innovation and industrial application could help form a healthy industrial ecosystem.

Meanwhile, the establishment of integration laboratories can help enterprises, universities and research institutions carry out technology research and development, and personnel training. It is also crucial to actively attract overseas talent and provide a better research environment.

Innovation Fuels Private Sector Growth

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On the other hand, the overall efficiency of China's national innovation system is rising, increasingly playing an important part in the global innovation chain.

All this is creating new supply and demand for the private sector, providing a much broader space for its development.

To realize high-quality development, private enterprises need to strengthen their awareness of sci-tech innovation, and seek innovation-driven development instead of the traditional

labor or resource-driven path.

Actually, private enterprises have their unique advantages in sci-tech innovation. They are able to accurately grasp the technological demands and trends with acute market insights, boldly invest in R&D with flexible management mechanisms, and recruit talent with adjustable payment and employment mechanisms, rather than following rules rigidly.

By making full use of these advantages, they can strive for sci-tech innovation faster and better.

Governments at all levels need to

improve their service consciousness and optimize the environment for innovation to facilitate high-quality development of the private sector with sci-tech innovation.

The presence of six Chinese trailblazing tech companies, popularly known as the Six Little Dragons, in Hangzhou has created a saying: "Respond according to request, no intervention without being asked." This means the government should offer help when enterprises need it in a quiet and smooth way, without undue intervention.

The government needs to reinforce support for innovation by private enterprises, improve the allocation of sci-tech innovation resources, and drive the revolution of the way major innovation projects are organized. It should support private enterprises with strong research and development capabilities to take the lead.

To innovate is to develop, and to plan for innovation is to plan for the future. With the help of sci-tech innovation, China's private sector will open up new horizons for development and a brighter future.

AI Diagnosis Model Facilitates Industry Upgrade

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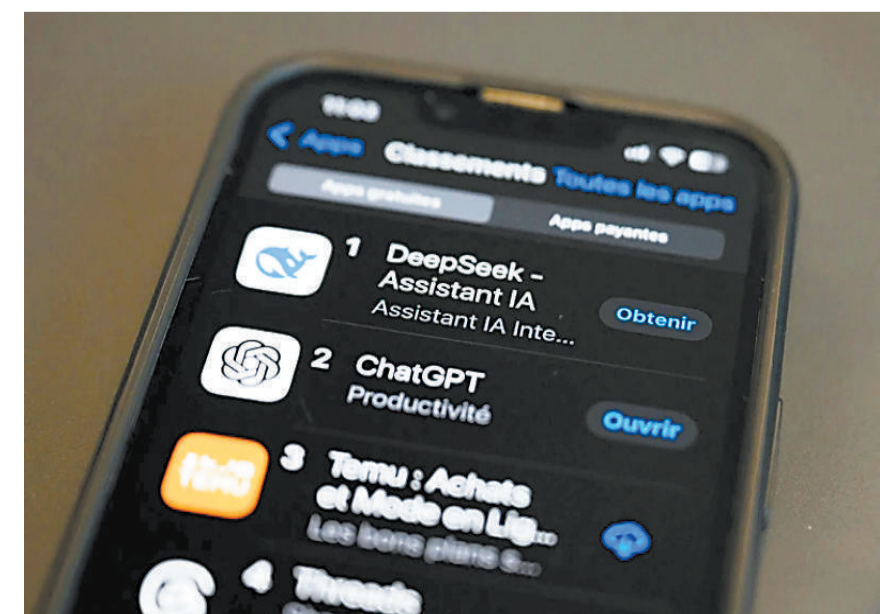
When the large model detects something amiss in the bearing at the drive end of an operating belt conveyor, it sets off a smart alarm immediately, reminding staff to strengthen routing in-

spection and provide solutions in accordance with the different causes like abnormal vibration of bearings or overly high temperature of the equipment.

It is calculated that the large model can effectively reduce 10 percent of the

time spent on the operation and maintenance of industrial equipment, enhance the accuracy of fault location by more than 30 percent, and save about 30 percent of human resource cost for industrial enterprises.

Gao Yanchao, vice general manager of Digital Inteltech, said, "We will continuously push forward the integration of AI technologies and industrial application, and driving the upgrade and iteration of the large model."



DeepSeek's AI model becomes the most-downloaded mobile app worldwide. (PHOTO: Nature)