# China's humanoid robot half-marathon exposes limits amidst rising ambitions



The recent surge in humanoid robot competitions across China spotlights not only the country's aspirations in the tech sector but also the challenges that accompany such advancements. Among the most notable events was the inaugural humanoid robot half-marathon held in Beijing on April 19, 2025, which showcased the progress and limitations of robotic technology. In a race where 21 robot participants competed alongside human runners over a 21.1-kilometre course, only six of them managed to cross the finish line, raising questions about the robustness and real-world applicability of these machines.

Prior to the event, the half-marathon faced a postponement due to severe weather conditions forecasting strong winds, which experts had warned could tip over the robots, compromising their performance. When it finally took place, the race witnessed various competitors, including the standout, Tien Kung Ultra, developed by X-Humanoid, which completed the course in an impressive 2 hours and 40 minutes. This unprecedented event unfolded in a climate of escalating public interest and investment in robotics, propelled by rising labour costs and a national ambition to position China as a leader in this high-tech arena.

Following the half-marathon, conversations continued around the viability of humanoid robots, particularly in relation to their design and functionality. Fu Sheng, chairman of Cheetah Mobile, advocated for a shift towards utilising robots in industrial applications, stressing that not all robotic functions require a human-like appearance. The industry's current trajectory suggests a preference for robots that can effectively operate in controlled environments—like assembly lines—without the necessity for humanoid characteristics. He pointed out that existing robotic arms could fulfil most industrial tasks more efficiently than fully autonomous humanoids.

Despite some scepticism, there is a growing belief among experts that humanoid forms could ultimately enhance robot-human interactions. Zhang Lihua, vice-dean of Fudan University’s College of Intelligent Robotics and Advanced Manufacturing, emphasised that the human brain is innately better at processing human-like signals. This suggests that an evolution towards more humanoid designs could improve the efficiency and effectiveness of robots in service-oriented roles, thereby moving beyond mere industrial applications.

Additionally, the 2025 International Humanoid Robot Skills Competition included a sundries organisation contest in Shanghai, further diversifying the spectrum of robotic capabilities showcased during the month. These competitions are not isolated occurrences; they are part of a broader movement within China, with Wuxi hosting its own Embodied Intelligent Robot Games. This event featured activities including soccer, displaying a diverse array of robotic abilities and innovations.

The expanding robotics landscape in China is underpinned by substantial financial backing from both the government and private sectors. Industry statistics indicate that over half of the world's listed robotics companies operate within China, a testament to the rapid growth and investment in this area. However, experts like Joe Tsai, chairman of Alibaba Group, remind the industry of the significant technological hurdles that remain, suggesting that substantial work is still needed to realise the potential of humanoid robotics.

In summary, while the excitement surrounding humanoid robots is palpable, underscored by innovative competitions and public engagement, the path forward is fraught with challenges. The duality of ambition and realism within the sector highlights the need for continued technological refinement before these robots can transition from impressive spectacles to practical applications in everyday life.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://global.chinadaily.com.cn/a/202506/05/WS6840ec9da310a04af22c33dc.html), [[5]](https://us.cnn.com/2025/04/19/asia/china-first-humanoid-robot-half-marathon-intl-hnk/index.html)
* Paragraph 2 – [[2]](https://www.reuters.com/technology/worlds-first-humanoid-robot-half-marathon-postponed-due-windy-weather-2025-04-10/), [[3]](https://www.scmp.com/tech/big-tech/article/3307470/chinas-humanoid-robot-half-marathon-puts-technologys-limits-public-display), [[6]](https://asiatimes.com/2025/04/chinese-humanoid-robots-get-reality-check-in-half-marathon-debut/)
* Paragraph 3 – [[1]](https://global.chinadaily.com.cn/a/202506/05/WS6840ec9da310a04af22c33dc.html), [[4]](https://english.news.cn/20250304/0ca9255f9850414b8a61c1dc166eaab0/c.html)
* Paragraph 4 – [[1]](https://global.chinadaily.com.cn/a/202506/05/WS6840ec9da310a04af22c33dc.html), [[7]](https://news.cgtn.com/news/2025-04-19/-Tiangong-robot-wins-world-s-first-humanoid-half-marathon-1CH3pjBuhOw/index.html)
* Paragraph 5 – [[1]](https://global.chinadaily.com.cn/a/202506/05/WS6840ec9da310a04af22c33dc.html), [[6]](https://asiatimes.com/2025/04/chinese-humanoid-robots-get-reality-check-in-half-marathon-debut/)

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## Bibliography

1. <https://global.chinadaily.com.cn/a/202506/05/WS6840ec9da310a04af22c33dc.html> - Please view link - unable to able to access data
2. <https://www.reuters.com/technology/worlds-first-humanoid-robot-half-marathon-postponed-due-windy-weather-2025-04-10/> - The Beijing Yizhuang Half Marathon, initially scheduled for April 13, 2025, was postponed to April 19 due to forecasted strong winds. This event marked the world’s first humanoid robot half marathon, where robots ran alongside human participants for the full 21.1-kilometer course. Experts indicated that windy conditions posed a greater risk to robots, potentially causing them to tip due to limited training data under such conditions. The race aimed to showcase advancements in artificial intelligence and robotics as part of China's drive to lead in this frontier technology sector. Hosted in an area housing over 100 robotics companies and backed by a 10-billion-yuan government fund, the event reflected growing investment in robotics, particularly amid rising labor costs and economic slowing. Participating robots were required to exhibit human-like movements, avoid damage to the course or others, and complete the race within 3 hours and 30 minutes. The event also featured a robot-hosted opening ceremony, highlighting China's commitment to technological innovation in AI and robotics.
3. <https://www.scmp.com/tech/big-tech/article/3307470/chinas-humanoid-robot-half-marathon-puts-technologys-limits-public-display> - The world’s first half-marathon with humanoid robot participants in Beijing offered a striking glimpse into the progress and challenges of China’s robotics industry, as only six out of the 21 robotic runners completed the competition. The 21km race, held in the Yizhuang district of China’s capital city, featured robots running alongside human runners for the first time. It evoked images of the first motor race 131 years ago, when 21 early automobiles competed in Paris at a time when horse-drawn carriages were the main form of transport. The Saturday event showcased China’s ambition to grow companies capable of rivalling Boston Dynamics and Tesla, which is developing the humanoid robot Optimus. China has emerged as a leader in humanoid robotics, with 56 per cent of the world’s 100 publicly traded companies in the sector based in the country, according to Morgan Stanley.
4. <https://english.news.cn/20250304/0ca9255f9850414b8a61c1dc166eaab0/c.html> - Humanoid robots are set to participate in a half-marathon in April in Beijing, with a humanoid robots sports meet also scheduled for August. The half-marathon, to be held in the Beijing Economic-Technological Development Area in southeast Beijing on April 13, will see robotic and human athletes compete along the same route. Humanoids will run along their own separate tracks secured with barriers or green belts to ensure the safety of both humans and robots. The competition has set a robot cutoff time of approximately 3 hours and 30 minutes. During the event, teams are permitted to replace batteries or switch robots in a relay format to complete the race. Participating robots must feature a humanoid design and be capable of bipedal walking or running, excluding wheeled structures. Control methods may include manual remote control (including semi-autonomous) or fully autonomous operation. Teams are required to ensure their robots do not damage the track, other robots, or surrounding personnel, and must strictly follow the designated route and all specified technical rules. The humanoid robot half-marathon competition offers awards for champion, runner-up, and third place, with prizes of 5,000, 4,000, and 3,000 yuan (about 697, 558, and 418 U.S. dollars), respectively.
5. <https://us.cnn.com/2025/04/19/asia/china-first-humanoid-robot-half-marathon-intl-hnk/index.html> - In a groundbreaking event held in Beijing, humanoid robots participated alongside human runners in a half-marathon for the first time. The 21.1-kilometer (13.1-mile) race featured various bipedal robot models, each supported by human teams of navigators, operators, and engineers. To ensure safety and smooth operation, robots and human runners were separated by a divider and followed different sets of rules; notably, robot teams were allowed battery swap pit stops. A total of 20 robot teams competed, with the Sky Project Ultra, also known as Tien Kung Ultra, finishing first among the robots in 2 hours, 40 minutes, and 42 seconds. In addition to speed, awards were presented for best endurance, gait design, and most innovative form, highlighting both performance and design ingenuity in robotics. Organizers deemed the event a pioneering achievement in blending robotics with sports.
6. <https://asiatimes.com/2025/04/chinese-humanoid-robots-get-reality-check-in-half-marathon-debut/> - Six out of 21 Chinese robots completed the world’s first half marathon (21.1 kilometres) for humanoid robots in Beijing on April 19, with the winner setting a record time of 2 hours and 40 minutes. Over 12,000 people participated in the marathon on the same day, and the human winner reached the endpoint in 1 hour and 2 minutes. The Tien Kung Ultra robot, developed by X-Humanoid, a Beijing-based state-owned enterprise, won the race for humanoid robots. It is 1.8 meters tall and weighs 52 kilograms. The first runner-up, Noetix Robotics’ N2, finished the half-marathon in 3 hours 37 minutes. It is 1.2 meters tall, weighs 29 kilograms, and wears children’s trainers. The second runner-up, DroidUp’s X02, finished the race in 4 hours and 50 minutes. It wears boxing gloves. An unofficial team entered the competition using a Unitree G2 robot, but the robot fell at the starting point and became a talking point of the event.
7. <https://news.cgtn.com/news/2025-04-19/-Tiangong-robot-wins-world-s-first-humanoid-half-marathon-1CH3pjBuhOw/index.html> - The world's first humanoid robot half-marathon was held in Beijing on Saturday, with the humanoid robot Tiangong Ultra claiming the championship by completing the 21.0975-kilometer race in 2 hours, 40 minutes and 42 seconds. Though the men's winner of the race had a time as short as 1 hour and 2 minutes, the machine demonstrated profound performance. A staff member of Tiangong's maker, the Beijing Humanoid Robot Innovation Center, explained the tech behind the win. "The bot achieved its 'personal' best today," said Wei Jiaxing, head of public relations of the center. "We improved the stability, heat resistance and shock resistance of its joints." "Also, we have been upgrading its motion control algorithm to adapt it to all kinds of road surfaces," Wei explained.