Humanoid robot games highlight China's growing robotics strength

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The second session of World Humanoid Robot Games (WHRG) was held at the National Speed Skating Oval in Beijing from Aug. 22 to 26.

The opening ceremony, held on Aug. 22 evening at the venue known as the "Ice Ribbon", under the theme "Competing with Intelligence toward the Future", offered a vivid display of China's growing strength in humanoid robotics.

Dozens of humanoid robot musicians with dexterous fingers performed alongside a human orchestra in the opening sequence, while more than 1,000 humanoid robots joined children in a large-scale performance, presenting a vision of robots evolving from laboratories to competitive arenas and ultimately to real-world applications.

Combining athletic competition, artistic performances and real-world application challenges, this year's WHRG features 51 events and 1,301 matches, including 30 competitive events and 21 scenario-based challenges. Compared with the inaugural session held in August 2025, the competition has been extended from three days to five, while the number of events has roughly doubled.

Alongside traditional events such as the 100-meter sprint and football, new competitions include tug-of-war and weightlifting. Tai Chi and touhu (pitch-pot), two traditional Chinese sports, have also been added.

Table tennis and tennis have joined football among the ball sports. While football tests teamwork and coordination, the smaller-ball events demand much finer control, putting humanoid robots' autonomous perception and real-time decision-making based on large AI models to the test.

The WHRG have also significantly expanded their focus on real-world applications, adding 14 scenario-based events covering nine fields, including households, hotels and logistics.

Two new challenges specifically target common technological bottlenecks. One dedicated dexterous-hand competition will test robots' fine manipulation capabilities, while a newly created pentathlon combines sprinting with scenario-based tasks to assess their understanding of the physical world and whole-body coordination.

The WHRG have attracted 666 teams from 16 countries across six continents, with 2,056 robots competing. The number of teams is up 138 percent year-on-year, while the number of participating robots has quadrupled.

Meanwhile, the World Robot Conference (WRC) 2026 was held in Beijing from Aug. 19 to 23, overlapping with the WHRG. Its affiliated World Robot Expo (WRE) brought together more than 300 companies displaying over 2,000 exhibits, including more than 150 products making their debut.

The 2026 Humanoid Robot Industry Development Report, compiled by the China Humanoid Robotics and Embodied Intelligence Committee of 100, was also released at the conference on Aug. 20.

Covering the industry's overall development, emerging trends, technology landscape, industrial chain and application scenarios, the report said technological innovation in humanoid robotics has entered a new stage of "clustered emergence". China has also developed manufacturing capabilities spanning the entire humanoid robot industrial chain, from key chips and components to complete machines.

"In the first half of 2026, China's humanoid robot shipments exceeded 40,000 units, with its share of the global market further rising to 97 percent," the report said.

The rapid expansion has been accompanied by stronger policy support.

Figure 1. A humanoid robot demonstrating exceptional athletic abilities on the track.

Released in March, China's 2026 Government Work Report called for expanding the "AI+" initiative and accelerating the large-scale commercial application of artificial intelligence, while the draft outline of the 15th Five-Year Plan (2026-2030) identified embodied AI as a key area for technological innovation.

In June, the policy push became more specific, as the Ministry of Industry and Information Technology and the State-owned Assets Supervision and Administration Commission of the State Council launched a nationwide initiative to accelerate real-world training and deployment of humanoid robots and embodied AI systems.

Yet despite rapid advances in production and deployment, technological challenges remain. Wang Xingxing, founder and chairman of Unitree Robotics, said at the World Robot Conference on Aug. 20 that one of the biggest obstacles preventing robots from entering homes and workplaces is the limited generalization capability of embodied AI.

A robot extensively trained for a fixed environment can already achieve a high success rate, Wang said, but its performance can deteriorate sharply once the objects it handles or its surroundings change.

He predicted that embodied AI could reach its "ChatGPT moment", a threshold he defines as the point at which a robot placed in an unfamiliar environment can follow verbal or written instructions and successfully complete roughly 80 percent of tasks in 80 percent of unfamiliar scenarios, in two to three years at the earliest, or possibly five to 10 years.

DECLARATION OF INTERESTS

The author declares no competing interests.