A visit to the Hubei Humanoid Robot Innovation Center

At Central China's newest and most advanced vocational training school a cohort of new recruits are learning some curiously simple job skills. One is in a mock restaurant setting practicing how to pour tea. Another has been tasked with sorting clothes and loading them into a washing machine. A third is using its hands to pluck groceries from supermarket shelves, and place them in a shopping basket.

These trainees cost much more than normal workers to employ. Their skill level is also much lower. Over the coming years, however, both disparities are expected to shrink. To learn a basic task takes a trainee over ten thousand repetitions. But once it has acquired a skill, its knowledge can instantly be transferred to an unlimited number of coworkers.

The workers are of course robots; specifically of the humanoid kind. Fifteen months after it opened, the Hubei Humanoid Robot Innovation Center has made solid progress towards its aim of turning the provincial capital Wuhan into a national, and perhaps even global hub for the new industry.

EAI facilitator

Zhang Cong is the Center's chief scientist. He explains why training humanoid robots - or "embodied AI" (EAI) as they are formally known in China - is much more laborious and time consuming than the kind of generative AI in widespread use today.

"Training generative models simply involves feeding them with images and text," Zhang says. "Our models, by contrast, need to interact with the real world, which is complex and requires a physical embodiment or platform. Once data has been acquired in this way, it must be cleaned and annotated so that the robot can understand its surroundings enough to carry out future tasks."

With 23 application scenarios installed over 7000 square meters, the Center is the largest, most comprehensive platform of its kind in China. Startups that move into the surrounding Optics Valley Digital Industrial Park can use it. They also get access to Hubei's engineering talent, subsidies, and expertise on how to turn experimental models into manufacturable, commercially useful products. Forty one companies have set up shop so far.

In addition to allowing common use of its training facilities, the Center also wants to be a platform for data sharing. Data acquisition is the biggest bottleneck in moving humanoid robots from demonstration stage to real world deployment. Quality training data is enormously expensive for a single company to produce on its own. Pooling resources, therefore, promises substantial savings.

In January this year, the Center advanced in this direction when it signed an agreement to sell thousands of hours of training data to Zhiyuan Innovation (Shanghai) Technology, which makes bipedal humanoid and quadruped robots under the brand name AgiBot. Then in May, the Center marked another milestone when China's first general-purpose robot designed for home use was launched in Wuhan. The model, called Shiguang S1, was developed by Hubei Jiji Vision Robotics, in conjunction with both the Center and the Hubei Humanoid Robot Industry Alliance.

The road ahead

Now facing labour shortages and the need to care for an aging population, China's central government has designated embodied AI as a strategic priority. This is part of a wider national effort to achieve the" broad and deep integration of artificial intelligence with every industry and field of the economy and society." Where will Wuhan fit in?

Beijing, Shenzhen and Shanghai are global centers of research and manufacturing. Although they have taken an early national lead in humanoid robotics, Zhang says Wuhan can complement if not compete with them.

First he points to the city’s manufacturing base; its sizable automobile industry, which can make many of the necessary components, and Optics Valley itself, which is an important industry cluster for sensors and optoelectronics. “There is an overlap of approximately 60 to 70 percent between the embodied-intelligence robotics industry and the automotive industry,” says Zhang.

Second, there is Wuhan’s huge pool of trained engineers; its 46 universities and 1.5 million students. With its campus in Optics Valley, Huazhong University of Science and Technology in particular ranks very highly in AI, robotics science and mechanical engineering.

In July 2025 the Hubei government reported that Wuhan had six humanoid complete-machine companies, more than 80 core enterprises and nearly 1,000 associated enterprises, with local coverage of 85% of 31 categories of key components.

“It should be at least five years before the technology matures enough for mass market, commercially viable humanoid robots,” says Zhang. “We are still in this industry’s early stages.”


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