

Rise of the Machines: Deep Research on AI Robotics Breakthroughs (Last 7 Days)

Introduction

The theme **“Rise of the Machines”** captures a surging wave of innovation in humanoid robotics evident over the past week. Major events and announcements across the globe have showcased humanoid robots taking center stage – from tech expos in China to product launches in Europe – signaling that human-shaped robots are rapidly approaching real-world deployment. At the World Artificial Intelligence Conference (WAIC) in Shanghai, for example, **over 150 robots (including 60+ distinct new humanoid models)** were on display, underscoring China’s ambitious push toward next-generation “embodied intelligence” ¹. This flurry of activity in just seven days highlights unprecedented progress in humanoid form factors (robots with human-like bodies), even as advances in non-humanoid robots continue in parallel. In this report, we delve into the most important work and breakthroughs in AI robotics from the past week – primarily focusing on humanoid robots – covering new designs and hardware, impressive demonstrations and prototypes, cutting-edge AI integrations, comparative advances in other robot types, and the emerging applications and implications of these developments.

Major Breakthroughs in Humanoid Robotics

New humanoid designs and hardware innovations made headlines this week, backed by multiple credible sources. In China, **PND Robotics (PNDbotics)** unveiled its first full-size humanoid robot **“Adam”** at WAIC 2025, sharing the stage with a companion platform **“Adam-U”** ² ³. Adam stands about 1.67 m tall with 44 degrees of freedom, and is powered by advanced deep reinforcement learning (DRL) and imitation-learning algorithms for fluid, human-like motion ⁴. Under the hood, Adam packs **25 custom quasi-direct drive actuators** delivering up to 360 Nm of torque each, enabling smooth yet powerful movements in its limbs ⁵. The robot’s control system – built on a real-time network and an Intel i7-based unit – allows it to balance and walk without vision, using an AI-trained proprioceptive model to mimic human stability ⁶. Alongside Adam, PNDbotics debuted **Adam-U**, a 31-DoF humanoid **data-collection and training platform** equipped with a motion-capture suit interface and a 6-DoF dexterous hand for research applications ⁷. Notably, Adam-U was made available for pre-order at around \$45,000 and features a configurable height (1.35–1.77 m) on a stationary base – offering labs an affordable way to conduct high-precision manipulation and AI training tasks ⁸ ⁹.

China’s humanoid push did not stop there. At the same WAIC event, **Shanghai Electric** – a major industrial conglomerate – **unveiled its first humanoid robot “SUYUAN”** for heavy-duty applications ¹⁰. SUYUAN boasts 38 degrees of freedom and an on-board computing capacity of 275 TOPS, promising *“advanced, fluid performance”* in industrial tasks ¹⁰. Likewise, startup **Cyborg Robotics** introduced *China’s first “heavy-duty” humanoid* called **Cyborg-R01** for industrial use ¹¹. Service robotics companies are also entering the humanoid arena: **Keenon Robotics**, known for delivery robots, revealed a bipedal service robot dubbed **“XMAN”** intended for roles like hospitality and customer service ¹¹. Meanwhile, **Unitree Robotics** – previously famous for its quadrupedal robots – showcased its **third-generation humanoid “R1”** integrating

multimodal vision and voice capabilities ¹². Unitree's foray into humanoids, alongside its new **G1** model (described later), signals an expanding field of players moving from concept to commercialization.

Europe has contributed a notable breakthrough as well. German robotics firm **igus** launched its first humanoid robot "**Iggy Rob**" this week, aiming to make humanoids more affordable for industry ¹³. Priced at approximately **\$54,500**, Iggy Rob is positioned as a "*cost-effective entry point*" for companies looking to automate tasks in factories, warehouses, and service environments ¹³. Standing about 5 ft 7 in tall, **Iggy Rob features dual arm manipulators (igus ReBEL cobot arms) with bionic hand grippers, plus 3D cameras and a LiDAR sensor for navigation and perception** ¹⁴. In a design choice to enhance stability and lower costs, Iggy Rob's torso is mounted on a mobile base (wheeled **AMR platform** rather than bipedal legs) ¹⁵ ¹⁶. This gives it up to 8 hours of autonomous operation on battery while moving freely around human-oriented workplaces ¹⁷. Igus is actively trialing Iggy Rob in-house for tasks like machine tending, and even offers a "test before you invest" program to let businesses pilot the humanoid on-site before purchase ¹⁸. By **pricing its humanoid at roughly one-third the cost** of typical humanoid robots, igus aims to break adoption barriers and spur wider deployment ¹⁹. Industry forecasts suggest as many as 20 million humanoid units could be working in industry by 2030, so this push toward affordability is a significant milestone ²⁰.

In summary, multiple credible sources confirm an **unprecedented surge of new humanoid robot models and hardware breakthroughs** in the last week. From agile AI-driven humanoids like Adam in China to heavy-duty industrial bots and low-cost European entrants, the humanoid form factor is rapidly evolving. These breakthroughs, corroborated by conference reports and official releases, demonstrate a *global* effort – spanning Asia, Europe, and North America – to advance the mechanics, control, and accessibility of humanoid robots.

Demonstrations and Prototypes

The past week also saw spectacular **live demonstrations and prototype showcases** that brought these robotic innovations to life. Nowhere was this more evident than at Shanghai's WAIC 2025, where humanoid robots not only stood on display but actively performed dynamic feats before large audiences. **One headline-grabbing demo was a humanoid "robot fight club" boxing match**: two life-sized humanoid robots developed by Unitree Robotics traded punches and kicks in a ring, entirely under remote and AI control ²¹ ²². The **Unitree "G1" humanoid boxers** astonished onlookers with their agility and balance – dodging jabs, throwing swift combinations of punches and even high kicks with *remarkable accuracy* ²² ²³. Footage from the event (shared by Chinese media) showed the robots sparring continuously for over two minutes, getting knocked down and standing back up to continue the bout ²⁴. Observers noted that the **G1's smooth motion control and compact 1.32 m frame** were key to its performance; its joints deliver up to 120 Nm of torque, enabling quick, human-like movements such as pivots and knee strikes ²³. The crowd's enthusiastic response – and viral videos of the bout – underscore how far bipedal robotics have come in mimicking human athletic skills ²⁵ ²⁶.

Humanoid robots trade punches in a "robot fight club" demonstration at WAIC 2025 in Shanghai, showcasing advanced motion control and balance. Crowds were wowed by the robots' agility and human-like fighting technique ²⁵ ²³.

Another dramatic showcase took place in **Beijing, where organizers offered a preview of the upcoming World Humanoid Robot Games**. In a media event on August 4, fully autonomous humanoid robots played

5-a-side football (soccer) matches at the Beijing National Speed Skating Oval – a Winter Olympics venue – as a test of their skills ²⁷ ²⁸ . Teams of five bipedal robots (from Tsinghua University and China Agricultural University) squared off, **dribbling, passing, and scoring goals without any human intervention** ²⁹ ³⁰ . Observers watched these mechanical players chase the ball and even recover upright after being knocked over – a crucial ability for real game play ³¹ ³² . In one exhibition match, Tsinghua's robot team (nicknamed “Vulcan”) won 5–3 against the China Agricultural University team, highlighting both the robots' capabilities and areas for improvement ³³ . Developers from Beijing-based Booster Robotics, which built the robots' bodies, noted that the bots can visually detect the ball, teammates, and field lines with over 90% accuracy using onboard cameras and sensors, while **deep reinforcement learning algorithms** handle strategy and motion planning in real time ³⁰ . As one researcher quipped, the robots' current soccer skills are roughly akin to a “5- to 6-year-old child,” but they are “*developing very rapidly*” with each iteration ³⁴ ³⁵ . This football demo serves as a teaser for the ***World Humanoid Robot Sports Games* scheduled in Beijing from August 14–17, which will be the first global sporting event devoted entirely to humanoid robots** ³⁶ . **The Games will feature** around 20 events – *not just football, but humanoid sprints, obstacle runs, gymnastics and group dance competitions, as well as scenario-based challenges (e.g. hospital patient care simulations, logistics and warehouse tasks, concierge services) to test useful skills* ³⁷ ³⁸ . *Over 100 teams from more than 20 countries (including the U.S., Brazil, Germany, Portugal, and others) are expected to compete, making it a truly international showcase of humanoid robotics prowess* ³⁹ ⁴⁰ . *Organizers emphasize that these robot “Olympics” are far more than entertainment – they provide a rigorous testbed for real-world capabilities like balance, coordination, perception and decision-making under dynamic, unpredictable conditions* ⁴¹ ⁴² .

Humanoid robots have also been **stepping into human spaces and performances**. Recently in China, PNDbotics' humanoid **Adam** made headlines by performing on stage with a live band – **playing a keytar instrument** alongside human musicians in a futuristic music show ⁴³ . This novel human-robot jam session (reportedly featuring Chinese musician Hu Yutong's band) blended entertainment with engineering, as the robot kept the rhythm and demonstrated dexterous finger control on the instrument ⁴³ . Such demos illustrate how humanoids are edging closer to integrating into everyday human activities, from sports arenas and concert stages to workplace settings.

While humanoids stole the spotlight, **non-humanoid robotic prototypes** also saw notable field tests in the past week. For instance, Chinese firm Deep Robotics used WAIC to unveil its latest **quadrupedal robots** – the **Lite3** and **X30** models – which feature improved mobility and have already seen “*extensive worldwide deployment*” for inspections and patrols ⁴⁴ . In the realm of space robotics, reports emerged that **NASA has begun operating autonomous maintenance robots aboard the International Space Station**, where two AI-powered free-flying robots are now routinely inspecting equipment, taking inventory, and performing minor repairs with minimal ground control intervention ⁴⁵ . And in a more unusual use-case, engineers in Florida have deployed experimental **robotic “bunny” decoys** to attract and trap invasive pythons, leveraging automation to address an ecological problem (though these bio-inspired critter-bots are far from humanoid) ⁴⁶ . These examples show that even as humanoid form factors dominate the narrative this week, the broader robotics field continues to innovate across diverse shapes and functions.

AI Integration in Robotics

A key driver behind this week's breakthroughs is the **integration of advanced AI into robotic control, perception, and interaction**. Modern humanoid robots are “*AI-driven*” in every sense, from low-level motor

control to high-level decision-making. Several developments over the last 7 days highlight how cutting-edge AI algorithms are being fused with robotics:

- **Reinforcement Learning for Motion:** The agility displayed by robots like PNDbotics' Adam and Unitree's boxing humanoids is largely thanks to AI training. Adam's developers credit *proprietary reinforcement learning systems* – trained on large motion datasets and simulations – for the robot's ability to walk and balance like a person without relying on vision ⁴⁷. This AI-trained control policy lets the humanoid dynamically adjust its posture and gait in real time, achieving human-like stability on two legs ⁴⁸. Similarly, the humanoid boxers at WAIC relied on deep reinforcement learning to make split-second decisions during the match (when to block, punch, or dodge) based on camera inputs, all within a neural network controller that was refined through countless virtual sparring sessions ³⁰ ⁴⁹. The success of these demos underscores how **machine learning** has become essential for complex robotic locomotion and dexterity.
- **Large Language Models for Robot Brains:** Beyond physical motion, AI is also being used to give robots higher-level cognitive and interactive abilities. A notable example is Tencent's Robotics X Lab, which at WAIC showcased the integration of its "**VLA**" **large-language model (LLM)** into a dual-arm service robot by Dobot Robotics ⁵⁰. By incorporating an LLM (similar to GPT-style AI) as part of the robot's control software, the robot can **understand natural language commands, perceive its environment, and even refuse unsafe or irrational instructions**, adjusting its tasks on the fly ⁵⁰. In a live demo, this AI-powered robot could converse with users and adapt its actions (like moving objects or assisting with chores) based on contextual understanding – a significant step toward more **intuitive human-robot interaction**. Experts at the conference noted that integrating foundation models and "embodied AI" in this way can propel robots from merely "*seeing*" to truly "*doing*" – enabling ever finer precision and autonomy in service tasks ⁵¹. The trend of **LLM-integrated robots** suggests that future humanoids might serve as natural communicators and collaborators, following complex instructions or asking for clarification just as a human assistant might.
- **Collective Robotic Intelligence:** Another frontier is enabling multiple robots to work together seamlessly. This week, a U.S. startup called OpenMind announced "**FABRIC**", a new AI-based protocol to let robots identify themselves, share situational data, and coordinate actions securely in real time ⁵². The system, introduced alongside the company's open robotics middleware, is essentially an "internet for robots" that could allow fleets of heterogeneous robots (from factory arms to humanoids) to learn from each other and avoid repeating mistakes ⁵³ ⁵⁴. Such **distributed AI** means one robot's experience could immediately benefit others – for example, if one humanoid learns an optimized way to climb stairs, dozens of others could apply that knowledge instantly via the shared network. This kind of connectivity, combined with cloud AI services, stands to greatly accelerate development cycles and collaborative capabilities in robotics.
- **AI-Designed Robots:** AI is not only controlling robots – it's designing them. In research news, **MIT's Computer Science & AI Lab (CSAIL)** revealed how generative AI algorithms can create better robot parts. Though the underlying study was published slightly over a month ago, it gained renewed attention in industry news outlets this week for its implications. The MIT team used a diffusion model (a generative design AI) to optimize a **jumping robot's leg geometry**, producing a springy, arched leg linkage that stored energy more effectively and **boosted jump height by 41%** compared to the human-engineered design ⁵⁵ ⁵⁶. They applied a similar approach to an **underwater glider** robot, where the AI generated novel, bio-inspired hull shapes (one resembling a manta ray, another

like a four-finned fish) that proved more efficient in water tests ⁵⁶ ⁵⁷ . The fact that AI **discovered designs that engineers hadn't considered** – and that these were then built and validated in the real world – is a striking example of AI's role in robotics innovation. It points to a future where many aspects of robot development, from mechanics to control software, are co-designed by AI to achieve performance that human engineers alone might miss.

In summary, multiple corroborating accounts illustrate that **AI advancements are deeply intertwined with recent robotics breakthroughs**. Humanoid robots are benefiting from the latest in deep learning – gaining balance, vision, natural language skills, and even design improvements through AI. This symbiosis of AI and robotics is enabling machines not only to move and act more like us, but also to perceive, learn, and make decisions in ever more sophisticated ways. As one expert at WAIC noted, merging large AI models with physical embodiments is driving robots toward “*centimeter-level – and soon millimeter-level – precision*” in complex tasks, a level of performance that could transform sectors like healthcare and logistics ⁵¹ .

Comparative Advances: Humanoids vs. Other Robotics

While humanoid robots commanded the limelight this week, it's important to place their breakthroughs in the broader context of robotics. Non-humanoid robots – from legged machines to drones and arms – have also seen progress, though our analysis finds humanoids receiving the most focus and investment recently.

One clear trend is that **humanoid form factors are now catching up in capability to traditionally dominant robot types**. Past decades saw wheeled and tracked robots, as well as fixed robotic arms, excel in industrial use due to their simplicity and stability. Humanoids were confined to labs, partly due to their complexity. Now, however, improved actuators, balance algorithms, and AI controls have allowed bipedal humanoids to perform activities (like autonomous navigation, lifting objects, or even athletic moves) that were previously the domain of purpose-built robots. For example, the humanoid robots in Beijing's upcoming games will compete in sprinting and agility courses – tasks where legged robots (like Boston Dynamics' quadrupeds) used to have an edge – suggesting the performance gap is closing ³⁷ . In manufacturing settings, humanoid robots like Tesla's **Optimus** and Fourier's **GR-1** (notably, Fourier is a Chinese firm entering mass production ⁵⁸) are being designed to use the same tools and workspaces as humans, unlike traditional factory robots that required restructured environments. This week's reveal of igus's **Iggy Rob** emphasizes this point: it is intentionally human-sized and human-shaped (with arms and vision at roughly human eye level) so it can integrate into existing facilities without costly retooling ⁵⁹ ⁶⁰ . The payoff of this human-like design is evident in pilot applications, from **reception robots greeting visitors** to **café robots bussing tables**, which humanoids can handle in a more natural way than a wheeled kiosk or robotic arm on rails ⁶¹ ⁶² .

That said, **non-humanoid robots continue to advance in parallel**, often focusing on specialized tasks. This week, we saw **quadruped robots** gain new models (Deep Robotics' X30 and others) aimed at inspection and rescue operations where their animal-like form excels ⁶³ . **Drone swarms** and autonomous vehicles also saw developments (e.g., China's ongoing urban robotaxi trials, and NASA's progress with autonomous orbital robots ⁴⁵), which highlight that for many environments – the air, space, or roads – wheels or rotors still outperform legs. In some industrial roles, simpler robots remain more practical: witness **igus's choice to put Iggy Rob on a wheeled base** for stability ¹⁵ . This underscores that **humanoids are not universally superior**; rather, they complement other robot types by addressing tasks in human-tailored settings that fixed-base or wheeled robots can't easily do (like climbing ladders, navigating stairs, or using hand tools designed for people).

Another comparative insight is how **different countries prioritize different robot forms**. In the past week's news, China's push was overwhelmingly in humanoids – a deliberate effort to lead in what it sees as a frontier technology, backed by government initiatives and big tech (Tencent's Robotics X, etc.)⁶⁴ ⁶⁵. By contrast, the U.S. robotics scene, while also exploring humanoids (e.g. startups like Figure AI), has had notable success in autonomous vehicles and drones; even the U.S. highlight on the ISS involved free-flying cube-shaped bots rather than humanoids⁴⁵. Europe's focus, exemplified by igus, is often on **pragmatic industrial automation** – whether humanoid or not – with cost reduction in mind²⁰ ⁶⁶. This divergence indicates that **humanoids are rising alongside, not replacing, other robot niches**. In fact, many experts envision heterogeneous fleets: humanoids working indoors with people, legged robots handling rough terrain, drones providing eyes in the sky, and so on, all coordinated by AI. It's telling that the Beijing robot sports event even plans “peripheral” competitions for **non-humanoid robots (like robotic arms playing table tennis or wheeled bots at badminton) to showcase their abilities**⁶⁷ – a recognition that innovation is happening on multiple fronts.

In conclusion, the past week's developments affirm that **humanoids have made significant leaps, narrowing the gap with other robot forms** in capability and readiness. Yet non-humanoid robots continue to break new ground in their domains. The **rise of the machines** is not a single-species phenomenon; it's a multi-faceted evolution across robotics. Still, given humanoids' new momentum – achieving feats once exclusive to more mature robot types – it's clear why they are the focal point of this week's “rise.”

Applications and Implications

The flurry of recent breakthroughs carries profound implications for how robots will be applied in the real world, what challenges remain, and what the future might hold. A consistent theme in multiple reports is the **accelerating transition from R&D to real-world deployment** for humanoid robots. Zhang Zhengyou, head of Tencent's Robotics X Lab, noted at WAIC that “*society urgently expects robots to be widely adopted in real-world applications,*” from factories to healthcare⁶⁸ ⁶⁹. Indeed, Chinese authorities and companies appear to be aligning to make this a reality: government programs are “**supercharging demand for humanoid robots**” by funding pilots in state-owned enterprises, and at least a few Chinese manufacturers plan to **enter mass production of humanoids within this year**⁶⁹. This suggests that in the *near future (next 12–18 months)* we may see hundreds (eventually thousands) of humanoid units deployed in environments like warehouses, power plants, hospitals, and retail stores, performing tasks like logistical handling, patrolling, patient assistance, or customer service.

The **potential applications** for the humanoid robots unveiled this week are diverse and rapidly expanding. For example, igus's Iggy Rob is explicitly marketed for **industrial and service environments** – it can move materials in a factory, deliver supplies in a building, or even work a reception desk greeting visitors⁶¹. Its built-in trial program indicates they expect immediate interest from companies looking to automate repetitive jobs such as night-shift inspections or cafeteria cleanup⁶² ¹⁸. In China, the new humanoid models (Fourier's, Unitree's, etc.) are aimed at **manufacturing and commercial services** – one media source noted that Chinese SMEs are seeking *affordable, high-quality automation*, and domestic humanoid makers are positioning to fill that need⁶⁵ ⁷⁰. Some robots, like **Shanghai Electric's SUYUAN and Cyborg-R01**, are built for **heavy industrial tasks** – potentially operating equipment, assembling products, or handling dangerous jobs like chemical handling or mining support. Meanwhile, **service-oriented humanoids** (e.g. Keenon's XMAN or Tencent/Dobot's receptionist robot) target roles in hospitality (guiding guests, delivering room service), healthcare (assisting nurses, elder care), and public maintenance (cleaning or security patrols)⁷¹ ⁷². The versatility of the humanoid form – essentially a generalist body that can

potentially learn many tasks – means these robots could be deployed wherever human labor is abundant but the work is dull, dirty, or dangerous.

However, along with promise come **significant challenges and considerations**. **Technical challenges** remain in reliability, safety, and autonomy. As Zhang from Tencent cautioned, meeting the “*high standards and stringent requirements*” of diverse real-world scenarios “*requires substantial efforts in both core technology innovation and practical engineering*” ⁷³. In other words, it’s one thing to demo a humanoid taking a few steps or carrying a box in a controlled venue; it’s another to have it work 24/7 in a chaotic factory or navigate a busy street. Humanoids need to drastically improve their robustness (so they don’t fall or fail in unpredictable conditions) and **safety systems** (to avoid harming nearby humans) before large-scale deployment. Encouragingly, the recent games and demos are actively stress-testing these aspects: the robot sports games, for instance, are explicitly about pushing balance and coordination to failure points so engineers can harden their designs ⁴¹. Another challenge is **power and endurance** – even the best humanoids today can operate only a few hours untethered (Iggy Rob’s 8-hour battery is on the high end ¹⁷). This limits certain applications until battery tech or power efficiency improves. Cost, while coming down, is still a factor; a \$50k robot must prove it can provide a strong ROI by performing equivalent work to justify itself. Early adopters may find that the *total cost of ownership* (including maintenance and programming) is higher than expected.

There are also **workforce and societal implications** to consider. The World Economic Forum recently pointed out that humanoid robots could “*revolutionize sectors*” like healthcare, retail, and public maintenance, but this will require training human workers to collaborate with robots and could displace some jobs while creating new ones ⁷¹ ⁷². The general sentiment in the industry is that robots will take over mundane and dangerous tasks, *complementing* humans rather than outright replacing them ⁷⁴. This week’s news supports that view: many humanoids are being introduced as “*cobots*” (collaborative robots) meant to work alongside people. For example, one can imagine Iggy Rob handling heavy lifting in a warehouse while human coworkers handle more delicate or complex decisions – improving overall productivity and safety. Nonetheless, companies and regulators will need to establish **clear guidelines (“guardrails”)** on how these robots are used, ensuring issues like liability, ethics, and privacy are addressed as humanoids enter public spaces ⁷⁵ ⁷⁶. Several countries are already drafting or enacting AI and robotics governance frameworks (the EU’s AI Act just came into force on Aug 1, 2025 ⁷⁷), which will influence how quickly robots can be rolled out in certain domains.

Looking ahead, the breakthroughs of the past week suggest a **future where humanoid robots are increasingly commonplace**. The global “robot race” is clearly intensifying – with China and the U.S. in particular investing heavily to lead in both AI and robotics ⁷⁸ ⁷⁹. In China, the WAIC and upcoming Beijing Robot Games are rallying national pride and talent toward a vision of ubiquitous humanoids in daily life. In the West, companies like Tesla and Figure are iterating on prototypes, and funding is flowing into startups that promise useful humanoid workers. Analysts estimate the humanoid market could be tens of billions of dollars by the early 2030s ⁸⁰ ⁸¹, which aligns with the surge of activity we’re witnessing now as firms position themselves in this emerging industry. If the momentum of this week is any indicator, we can expect **rapid improvements in capability** in the next few years – perhaps on a curve similar to how quickly electric vehicles advanced a decade ago ⁸². Humanoid robots may soon move from tech showcases to practical deployments in our cities, stores, and homes.

In conclusion, the past week’s events – from *breakthrough* humanoid unveilings to jaw-dropping demos and deeper AI integration – illustrate that the era often dubbed the “*rise of the machines*” is fast becoming reality.

Humanoid robots, once the stuff of science fiction, are **stepping, dancing, fighting, and working among us** in ever more sophisticated ways. The groundwork laid by these recent breakthroughs, corroborated by multiple global sources, points to a future where humanoid automation complements human effort across myriad sectors. The journey is just beginning, and the coming months will be crucial in translating these prototypes and trials into stable, real-world solutions. One thing is certain: the robots are rising, and the world is watching with great expectations. **Humanoid or otherwise, the machines are on the move – and last week, they moved faster than ever.**

Sources: Recent reports and releases from WAIC 2025 Shanghai ²⁵ ⁸³ ; South China Morning Post (Jul 29, 2025) ⁶⁹ ⁸⁴ ; Xinhua News ⁸⁵ ; Kyodo News (Aug 4, 2025) ²⁷ ⁸⁶ ; Robotics & Automation News (Aug 5, 2025) ³² ³⁷ ; Interesting Engineering (Aug 4, 2025) ² ⁶ ; IoT World Today (Aug 4, 2025) ¹³ ¹⁴ ; Design News (Jul 31, 2025) ⁸⁷ ⁶⁶ ; “AI by AI Weekly” (Champaignmag, Aug 3, 2025) ⁴⁵ ; and World Economic Forum analysis ⁸⁸ ⁷⁶ .

¹ ¹⁰ ¹¹ ¹² ²¹ ²² ²³ ²⁴ ²⁵ ²⁶ ⁴⁴ ⁵⁰ ⁵¹ ⁶³ ⁶⁵ ⁷⁰ ⁸³ China's robot fighters steal the spotlight at WAIC 2025 showcase

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² ³ ⁴ ⁵ ⁶ ⁷ ⁸ ⁹ ⁴³ ⁴⁷ ⁴⁸ Humanoid robots Adam and Adam-U display lifelike AI movement

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¹³ ¹⁴ ¹⁷ ¹⁸ ¹⁹ ²⁰ ⁴⁶ ⁶¹ ⁶² Affordable Humanoid Robot Launched for Industrial Applications

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²⁷ ²⁸ ³¹ ³⁴ ³⁵ ⁸⁶ China offers media preview of robot games to be held in mid-Aug.

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