

Humanoid Robot: Comparing Unitree, UBTECH, DEEP, Dobot and Leju: Opportunities and risks coexist

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Several Chinese humanoid robot/embodyed AI manufacturers have filed for public listing in 2026 and released their prospectuses. These companies include Unitree Robotics (prospectus disclosed in March and updated in May; passed IPO hearing on 1 June 2026), DEEP Robotics (prospectus disclosed in May), and Leju Robot (prospectus disclosed in March). In this report, we present our findings from their prospectuses and compare their disclosures against those of UBTECH and Dobot (both already listed), as well as AGIBOT (based on limited public data). **Models of the above companies (historical data only) are available upon request.**

DB view: Opportunities and risks coexist. As an icon for humanoid robots, **Unitree stands out among its peers with the highest revenue from humanoid and quadruped robots in 2025, as well as impressive profitability of 60% GPM and 35% recurring NPM.** Being hardware-savvy, Unitree develops and assembles many of its components in-house, which contributes to its high profitability. The **decent overseas revenue exposure of 44% at Unitree** and ~20% for UBTECH and DEEP suggests that embodied AI robots from China have gained traction globally. **Meanwhile, Unitree is at a juncture of slower revenue growth** (+41% YoY guided for 1H26E) **and lower profit** (~14% YoY for 1H26E) as its base becomes larger and as the company ramps up investment in large models. We think opportunities and risks coexist for embodied AI robotics peers, considering opportunities from the sizable TAM (DBe US\$1tn by 2050E) and advancing technologies, amid risks from higher expenses for model training and data collection and intensifying competition. In this report, we also **slightly increase our forecast for the global humanoid robot market for 2026E-2029E.**

Seven key takeaways from comparing Unitree, UBTECH, DEEP, Dobot and Leju:

- 1) Revenue: Unitree leads in both humanoid and quadruped robots; however, growth guided to slow in 1H26E.** Unitree generated the most revenue from both humanoid and quadruped robots in 2025. In the humanoid robot segment, Unitree recorded over RMB860mn in 2025, closely followed by UBTECH and AGIBOT, and then remotely by Leju, Dobot, and DEEP. For quadruped robots, Unitree led with ~RMB700mn, followed by DEEP at ~RMB300mn. Humanoid robot revenue experienced a sharp increase in 2025, growing by 23x for UBTECH and 8x for Unitree. Nevertheless, as the base becomes higher, Unitree forecasts its group revenue growth to slow to +41% YoY in 1H26E, a deceleration from +69% in 1Q26 and +333% in 2025. In contrast, AGIBOT targets ambitious growth, aiming for its revenue to increase 10x to RMB10bn by 2027E from RMB1bn in 2025.
- 2) Profitability: Unitree impressively profitable; yet, pressure emerging.** Unitree reported an impressive GPM of 60% and recurring NPM of 35% in 2025. This profitability is attributed not only to extensive in-house manufacturing and cost optimisation, but also to lower R&D expenses (as Unitree spends relatively less on large models) and lower selling expenses (owing to Unitree's strong brand reputation). Although most manufacturers experienced an upward trajectory in GPM, Dobot, Leju, and UBTECH all reported net losses between 2022 and 2025. Pressure is also emerging for Unitree, as the company forecasts a recurring net profit decline of -14% YoY for 1H26E, with recurring NPM projected to decrease to 24%. The company attributes this to faster growth in R&D and selling expenses, as Unitree has gradually increased investment in large models since 2024, with a further step-up from 2H25.



- 3) **Manufacturing: In-house R&D and assembly key to full-stack technical capabilities and cost control.** Unitree is renowned for its in-house R&D and manufacturing capabilities – the procurement cost of external components constitutes only 14%-18% of the total cost for its humanoid robots. More specifically, Unitree undertakes the R&D and assembly of various components in-house, including motors (high power density permanent magnet synchronous motors), reducers (planetary reducers), actuators (quasi-direct drive QDD planetary rotary actuators), thermal control systems, lidar, dexterous hands, and the complete body assembly. In comparison, we believe peers exhibit less vertical integration, yet they also possess in-house R&D capabilities for key components.
- 4) **Large model: Expensive, yet essential; development accelerating.** Traditionally hardware-focused, Unitree has progressively increased its investment in large models – Unitree intends to raise RMB4.2bn from its IPO, with half, RMB2bn, earmarked specifically for robot model development. Although Unitree was announced as a humanoid robot body partner for NVIDIA's Isaac GR00T Reference Humanoid Robot unveiled on 1 June 2026, shortly after, Unitree was added to the Military Companies list by the U.S. Department of Defense on 8 June 2026. We believe that Chinese humanoid robot manufacturers will increasingly prioritise large model independence amidst the uncertain U.S.-China relationship. The development of large models by Chinese embodied AI makers has accelerated, with more models launched YTD in 2026 compared to the entirety of 2025.
- 5) **Application: More mature for quadrupeds than humanoids; Industrial use case growing.** 80% of DEEP's quadruped robots in 2025 were already deployed for power grid inspection, hazardous environment monitoring, and search and rescue operations. The commercialisation of humanoid robots is comparatively at an earlier stage, with most humanoids primarily used for research and education (76% of Unitree's humanoid sales in 2025) and data collection (~45% of UBTECH's humanoid orders). Commercial/performance applications represent a lower proportion (16% of Unitree's humanoid sales). Although industrial applications currently represent a small portion, their share is growing: 9% for Unitree's humanoid sales in 2025, up from zero in 2024, and industrial applications accounted for 14% of UBTECH's humanoid orders in 2025.
- 6) **Geographic split: Meaningful overseas sales exposure underscores competitiveness of Chinese embodied AI products.** Unitree's significant overseas sales exposure of 44% in 2025 surprised us. We attribute this to Unitree's leading global position in quadruped and humanoid robots, the limited availability of such products outside of China, price advantages, and Unitree's design which facilitates secondary development. UBTECH and DEEP also reported decent overseas exposures of 24% and 18%, respectively, underscoring the competitiveness of Chinese embodied AI products.
- 7) **Management: Most are young and technical.** Founders and management teams of the six humanoid robot companies we track are mostly young, with an average age of under 40. Unitree's core management team members were all born in the 1990s, with the four core members having an average age of 35. Senior management typically possess strong academic and technical backgrounds, with expertise in robotics industry know-how. Most of them hold a master's or doctoral degree, and majored in mechanical and engineering-related fields.



APAC Automation & Industrials sector – Covered by Iris Zheng

Our preferred names for the humanoid robot theme are:

- **Hengli Hydraulic (601100.SS, BUY, target price RMB123):** We believe Hengli could expand from screws to higher ASP linear actuators for humanoids, leveraging its strong expertise in precision machining. We assume a 35% market share for Hengli in body screws, 5% in linear actuators, and 10% in hand screws by 2030E. The strong construction machinery market also provides support. Other growth opportunities include components for bionic robotic legs and arms, space applications, and machine tools. [Link to report.](#)
- **Shuanghuan Driveline (002472.SZ, BUY, target price RMB47):** Tesla is exploring new types of reducers for higher payload rotary actuators for waist and hip. Shuanghuan has been conducting R&D with Tesla on robots for over three years, presenting an opportunity. Whilst the core business of car gearbox for electric vehicles is under pressure in 2026E, we expect growth prospects from new business segments, including reducers for traditional robots and industrial equipment, as well as smart actuators for robot vacuum cleaners, drones, and eBikes. Shuanghuan also demonstrates overseas expansion potential. [Link to report.](#)
- **Harmonic Drive Systems (6324.T, BUY, target price ¥8,500):** HDS is expanding into actuators for humanoid robots, which presents a 3x ASP opportunity compared to reducers alone. We believe HDS is a key reducer supplier for humanoid robots outside of China. The growth opportunity is further supported by its products for the space and the semiconductor sectors which are fast growing. [Link to report.](#)

US Autos & Mobility sector – Covered by Edison Yu

The following companies are well-positioned to benefit from the burgeoning humanoid robotics industry:

- **Tesla (TSLA.US, BUY, target price US\$465):** Optimus represents a high performance vertically integrated design for a humanoid with plans to ramp-up production later this year. Importantly, the hand has been a hardware bottleneck but should be resolved now, further supported by greater compute capacity to train the models. We expect a step-up in internal deployments by 4Q26 followed by external sales in late 2027/early 2028 for industrial use cases.
- **Mobileye (MBLY.US, BUY, target price US\$14):** Following the acquisition of Mentee Robotics earlier this year, Mobileye aims to offer a relatively low-cost humanoid for warehouses and other commercial applications. Mentee's BoM even at very low volume is ~\$50k with path to reduce by 50% as volumes scale up into the thousands which may happen in 2028-29. The company is working with several customers proof-of-concept deployments this year. Tactically, we think Mentee's efforts are largely underappreciated and could surprise to the upside in the next 9-12 months.



Key reports:

- **Humanoid Robot sector report (III):** Six visions for 2026 – Scaling, iterating and diversifying - 6 Mar 2026
- **Humanoid Robot sector report (II):** Go big and go home – 14 Feb 2025
- **Humanoid Robot sector report (I):** Stay selective; Humanoid robots lift growth prospects - 23 July 2024

Takeaways from expert calls and events:

- **Mobileye:** [Mentee humanoid deep dive](#) – 9 Mar 2026
- **Expert call takeaway:** [Expert call with Humanoid](#) - 4 Dec 2025
- **Expert call takeaway:** [A leading Chinese humanoid robot start-up](#) – 17 Jun 2025
- **Takeaways from Taiwan Machine Tool Show (TIMTOS):** Humanoids, demand... - 5 Mar 2025
- **Expert call takeaway:** [Expert call with Agility Robotics](#) - 20 Feb 2025
- **Takeaways:** [UBTECH Robotics company visit](#) – 9 Aug 2024

New developments:

- **Humanoid Robots Pulse:** [OpenClaw for robots; US tightening policy; Shape varying \(1Q26 edition\)](#) - 1 Apr 2026
- **Humanoid Robots Pulse:** [Emerging electronics and Japanese players; Humanoid policy \(4Q25 edition\)](#) - 18 Dec 2025
- **Humanoid Robots Pulse:** [Tesla, Sanhua, AgiBot, Unitree, Figure update](#) - 23 Oct 2025
- **European marketing feedback:** Humanoid robot, China market, .. - 5 Oct 2025
- **Humanoid Robots Pulse:** [Tesla Optimus; Unitree IPO; Nvidia and Hon Hai](#) - 12 Sep 2025
- **Humanoid Robots Pulse:** [Tesla update; Unitree new model and potential listing](#) - 8 Aug 2025

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Global humanoid robot market forecast

We slightly increase market forecast for 2026E-2029E



For detailed information of the global humanoid robot market, please refer to our sector report: Humanoid Robot (III): Six visions for 2026 - Scaling, iterating and diversifying - 6 Mar 2026

For **2026E**, we project **global humanoid robot shipments to approach ~50,000 units**. China should remain the largest humanoid robot market, with units more than doubling to ~40,000. In the long term, we believe total shipments from US OEMs will gradually converge with those from Chinese OEMs. Humanoid robot shipments from other regions, including Europe, Japan, and South Korea, are also expected to increase.

We slightly increase our market forecast for 2026E-2029E as our channel checks suggest (1) an accelerating ramp-up of Chinese manufacturers (both top-tier and lower-tier ones) due to more affordable pricing and aggressive sales activities as many manufacturers are seeking listing; and (2) Tesla is close to mass production with high targets for the upcoming years.

Global humanoid robot shipment forecast (unit)

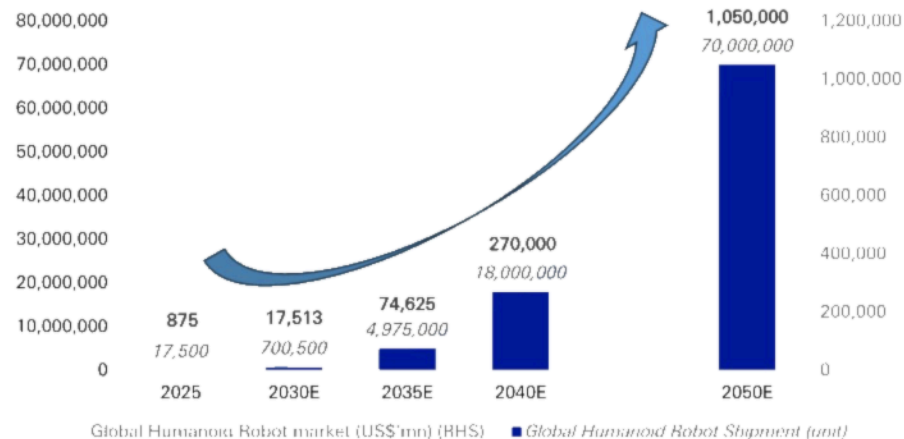
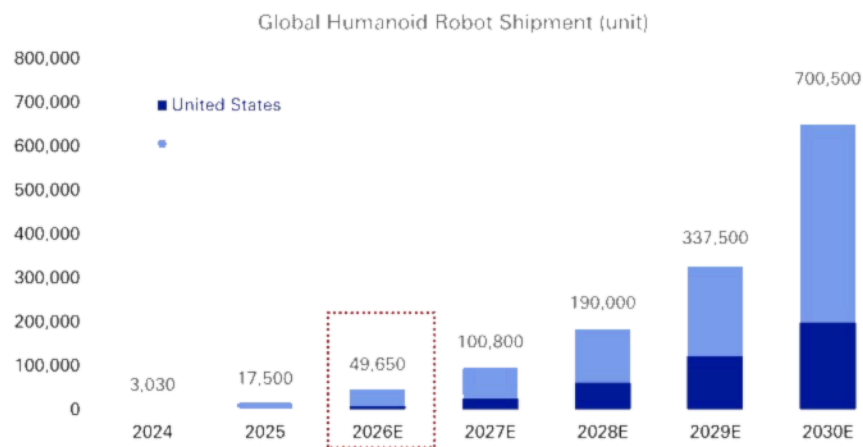
Global Humanoid Robot Shipment	2024	2025	2026E	2027E	2028E	2029E	2030E	2035E	2040E	2050E	2025 YoY	2026E YoY	2025-30E CAGR	2030E-35E CAGR	2035E-40E CAGR	2040E-50E CAGR
United States																
Tesla	100	1,000	5,000	20,000	50,000	100,000	150,000	1,500,000			900%	400%	172%	58%		
Figure	100	500	2,000	4,000	7,500	12,500	25,000	200,000			400%	300%	119%	52%		
Agility	50	150	300	800	1,500	2,500	5,000	50,000			200%	100%	102%	58%		
Boston Dynamics	50	80	250	500	1,000	2,000	7,500	75,000			60%	213%	148%	58%		
1X		100	300	500	1,000	1,500	5,000	50,000				200%	119%	58%		
Others	50	300	500	1,000	2,000	4,000	8,000	100,000			500%	67%	93%	86%		
US total	350	2,130	8,350	26,800	63,000	122,500	200,500	1,975,000	8,000,000	30,000,000	509%	292%	148%	58%	32%	14%
% of global	12%	12%	17%	27%	33%	36%	29%	40%	44%	43%						
China																
Unitree (宇树)	1,400	5,500	15,000	25,000	40,000	60,000	100,000	300,000			293%	173%	79%	25%		
AGIBOT (智元)	600	5,100	11,000	20,000	30,000	45,000	80,000	250,000			750%	116%	73%	26%		
UBTECH (优必选)	250	1,000	3,000	5,000	8,000	15,000	30,000	250,000			300%	200%	97%	53%		
Leju Robotics (乐聚)	130	670	2,500	5,000	8,000	15,000	30,000	200,000			415%	273%	114%	46%		
Booster Robotics (加速进化)		1,000	3,000	5,000	8,000	15,000	30,000	200,000				200%	97%	46%		
Galbot (银河通用)		800	2,500	5,000	8,000	15,000	30,000	200,000				213%	106%	46%		
Others	200	1,000	3,500	7,000	20,000	40,000	150,000	1,100,000				250%	172%	49%		
China total	2,580	15,070	40,500	72,000	122,000	205,000	450,000	2,500,000	8,000,000	30,000,000	484%	169%	97%	41%	26%	14%
% of global	85%	86%	82%	71%	64%	61%	64%	50%	44%	43%						
Other regions																
Other regions total (Europe, Japan, etc.)	100	300	800	2,000	5,000	10,000	50,000	500,000	2,000,000	10,000,000	200%	167%	178%	58%	32%	17%
% of global	3%	2%	2%	2%	3%	3%	7%	10%	11%	14%						
Global Humanoid Robot Shipment (unit)	3,030	17,500	49,650	100,800	190,000	337,500	700,500	4,975,000	18,000,000	70,000,000	478%	184%	109%	48%	29%	15%

We slightly increase market forecast for 2026E-2029E

For detailed information of the global humanoid robot market, please refer to our sector report: Humanoid Robot (III): Six visions for 2026 - Scaling, iterating and diversifying - 6 Mar 2026



Global humanoid robot shipment (unit): We forecast to approach ~50,000 units in 2026E, and to 70mn units by 2050E, with upside risks





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Comparing Unitree, UBTECH, DEEP, Dobot and Leju

(1) Revenue: Unitree leads in both humanoid and quadruped robots; however, growth guided to slow in 1H26E



In 2025, **UBTECH generated the highest group-level revenue of RMB2bn**, surpassing the six humanoid robot manufacturers we track. Among these, **Leju stands out as a more specialized humanoid robot maker, with humanoid robots accounting for 84% of its group sales in 2025**. Unitree followed at 51%, and UBTECH at 41%, while both Dobot and DEEP generated less than 5% of their revenue from humanoid robots in 2025.

However, focusing **solely on embodied AI revenue, Unitree generated the most revenue for both humanoid and quadruped robots**. For humanoid robot revenue, Unitree recorded the highest at RMB868mn, closely followed by UBTECH at RMB821mn. AGIBOT publicly reported RMB1bn in group revenue for 2025, implying a substantial contribution from humanoid robots. Humanoid robot revenue for the other three manufacturers was significantly lower: RMB217mn for Leju, RMB20mn for Dobot, and RMB1mn for DEEP in 2025.

Humanoid robot revenue experienced a sharp increase in 2025, growing by 23x for UBTECH, 8x for Unitree, and 5x for both Leju and DEEP. This contributed to robust group-level revenue growth. **Consequently, the share of humanoid robot revenue rose substantially to 51% in 2025 for Unitree, from 27% in 2024 and 2% in 2023, and to 41% for UBTECH in 2025, from 3% in 2024.**

Nevertheless, as the base becomes higher, **Unitree projects group revenue of RMB1,090mn for 1H26E, with growth slowing to +41% YoY at the mid-point, a deceleration from +69% in 1Q26 and +333% in 2025**. In contrast, **AGIBOT targets ambitious growth for its revenue to grow 10x to RMB10bn by 2027E from RMB1bn in 2025**.

Unitree generated the most revenue from both humanoid and quadruped robots in 2025



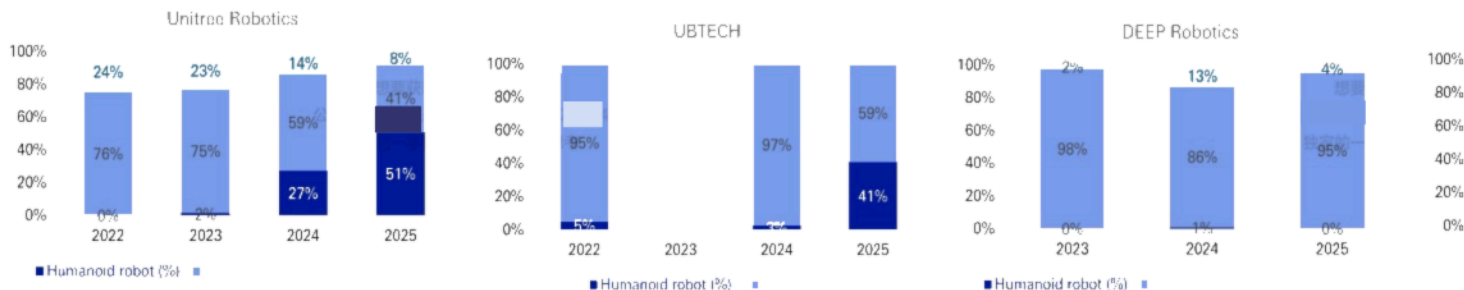
(1) Revenue: Unitree leads in both humanoid and quadruped robots; however, growth guided to slow in 1H26E



Humanoid robot revenue experienced a sharp increase in 2025, especially for UBTECH and Unitree



Share of humanoid robot revenue rose to 51% for Unitree, and to 41% for UBTECH in 2025



(2) Profitability: Unitree impressively profitable; yet, pressure emerging

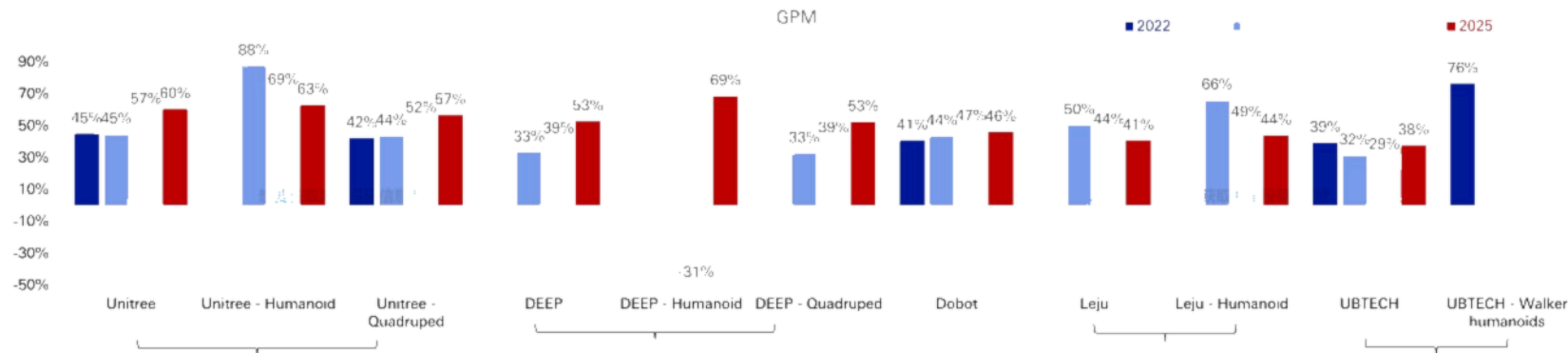


In 2025, **Unitree reported an impressive GPM of 60%, the highest among the five companies we track**. We attribute this primarily to extensive in-house manufacturing, supply chain synergies between the humanoid and quadruped robots, cost optimisation and robust revenue growth. This GPM level also surpasses that of typical industrial robot peers, whose GPM usually ranges between 30-35%. DEEP delivered a decent GPM of 53%, followed by Dobot at 46%, Leju at 41%, and UBTECH at 38%.

Most manufacturers experienced an upward trajectory in GPM, largely thanks to improved sales. Conversely, **Leju has faced multi-year GPM declines**, indicative of the industry's intense competition.

By product segment, **humanoid robots generated a higher GPM** than quadruped robots for both Unitree and DEEP.

GPM: Unitree generated the highest GPM; humanoid robots more profitable than quadruped robots



(2) Profitability: Unitree impressively profitable; yet, pressure emerging

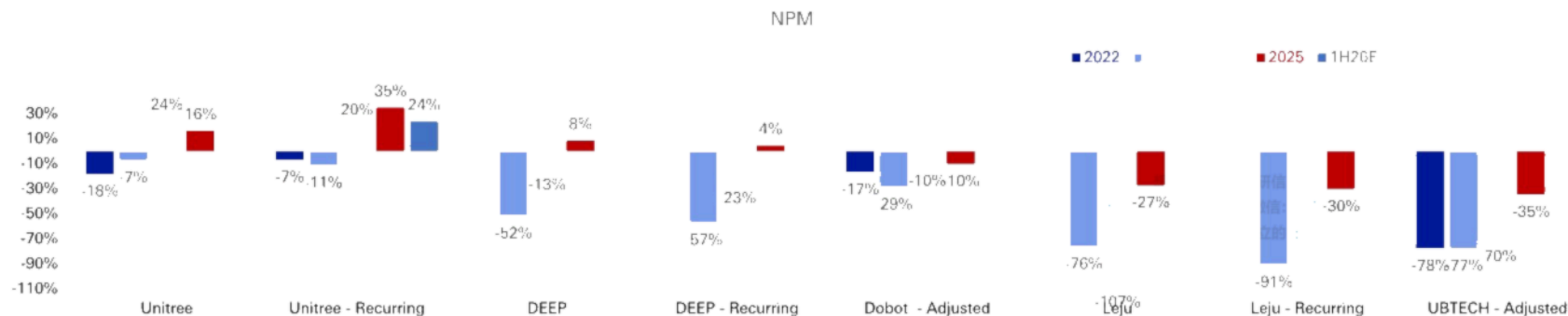


Unitree has achieved a positive NPM since 2024, with its recurring NPM reaching an impressive 35% in 2025. This profitability is attributed not only to a higher GPM but also to lower R&D expenses, at 9% of revenue compared to a peer average of 21% (Unitree spends relatively less on large models), and lower selling expenses, at 8% of revenue versus a peer average of 21% (owing to Unitree's strong brand reputation).

However, **Unitree forecasts a recurring net profit decline of -14% YoY at the mid-point for 1H26E**, with recurring NPM projected to decrease to 24%. The company attributes this to faster growth in R&D and selling expenses, as Unitree has gradually increased investment in large models since 2024, with a further step-up from 2H25.

Excluding Unitree and DEEP, which enjoy positive NPMs, **Dobot, Leju, and UBTECH all reported net losses between 2022 and 2025.** UBTECH recorded the lowest adjusted NPM at -35% in 2025, primarily due to substantial investments in R&D (25% of sales) and selling expenses (24%).

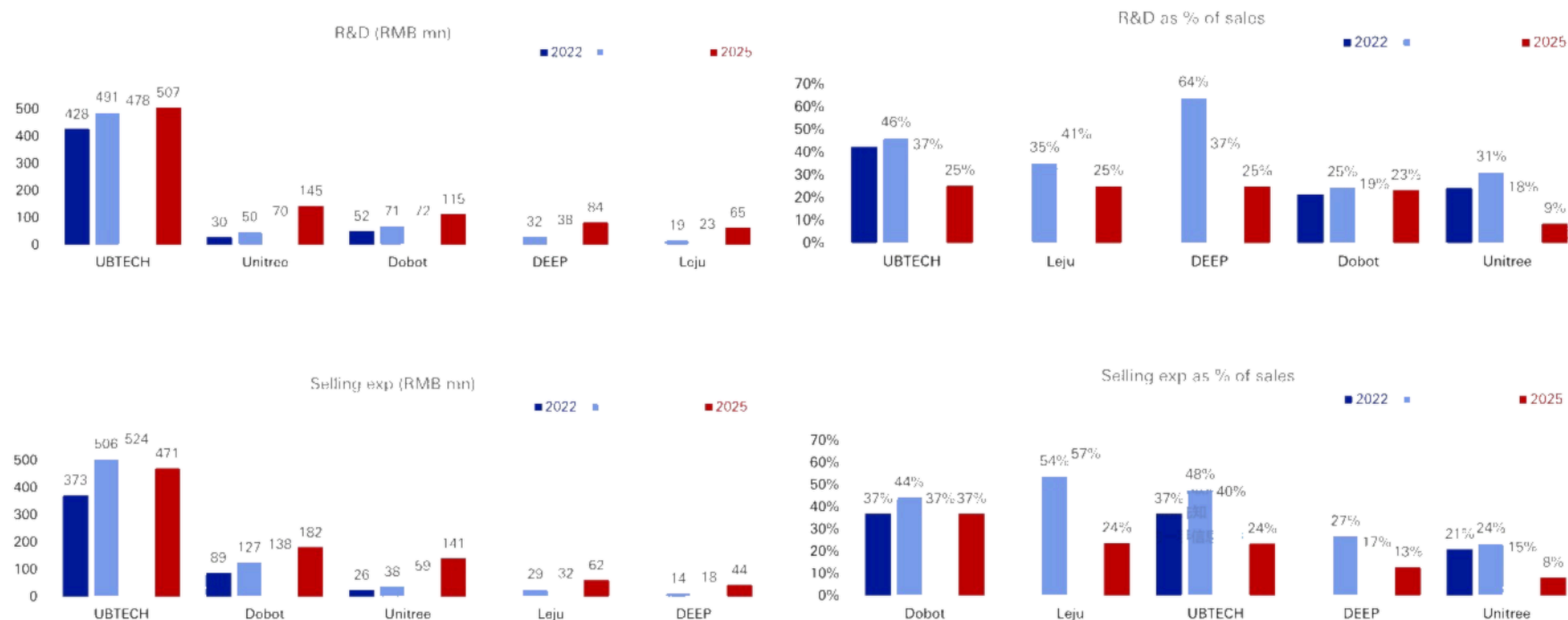
NPM: Unitree impressively profitable; yet, pressure emerging



(2) Profitability: Unitree impressively profitable; yet, pressure emerging



NPM: Unitree impressively profitable; yet, pressure emerging



(3) Manufacturing: In-house R&D and assembly key to full-stack technical capabilities and cost control



Unitree is renowned for its in-house R&D and manufacturing capabilities, which the company highlights as a key competitive advantage in its prospectus. According to Unitree, excluding the optional purchase of higher-specification external lidar or dexterous hands, **the procurement cost of external components constitutes only 14%-18% of the total cost** for its humanoid robots.

More specifically, **Unitree undertakes the R&D and assembly of various components in-house, including motors** (high power density permanent magnet synchronous motors 高功率密度永磁同步电机), **reducers** (planetary reducers 行星减速器), **actuators** (quasi-direct drive QDD planetary rotary actuators 准直驱行星回转关节), **thermal control systems**, **lidar** (3D lidar), **dexterous hands** (partially in-house, partially externally procured), and **the complete body assembly**. Unitree asserts that this high in-house ratio contributes to the company's full-stack in-house developed technical capabilities, advanced body control, and an efficient cost structure. As the external supply chain matures, Unitree indicates its intention to consider customised procurement from external partners to further reduce costs.

In comparison, we believe **peers are less vertically integrated**. For example, **UBTECH's** know-how lies mainly in high-torque servo drives and algorithm. **DEEP's** IPs focuses more on system architecture and algorithm than the hardware components. **Leju** self-designs cycloidal pinwheel quasi-direct drive actuators (摆线针轮准直驱关节), but procures their actuators from parties. We notice that **BrainCo (强脑科技)** reportedly supplies dexterous hands to both Unitree and Leju.

Unitree: conducts R&D and assembly for most parts of its humanoids and quadrupeds in-house

Category	Key Component	In-house R&D & Procurement Status
Robot Body (本体结构)	Mechanical Structure (机械结构)	
	Heat Dissipation System (散热系统)	Self-developed, procure customized parts, self-assembly
	Wiring Harness and Connectors (线束和连接器)	
Joint Module (关节模组)	Reducer (减速机)	Self-developed, procure customized parts, self-assembly
	Motor (电机)	
	Encoder (编码器)	Self-developed, procure components, outsource SMT assembly, self-developed functional software
	Driver (驱动器)	Self-developed, procure components, outsource SMT assembly, self-developed software for driver
Energy System (能源系统)	Battery Module (电池组件)	Self-developed, procure structural components, self-assembly, self-developed Battery Management System (BMS)
	Battery Cell (电池电芯)	Purchase battery cells externally
	Power Management Module (电源管理模组)	Self-developed, procure components, outsourced SMT assembly, self-developed functional software
Computing Platform (计算平台)	Computing Module (计算模组)	Purchase core board, integrate self-developed system
	Interface Module (接口模块)	Self-developed, procure components, outsource SMT assembly
	Thermal Control System (热控系统)	Self-developed, procure customized parts, self-assembly
	Storage Module (存储模块)	Purchased storage module externally
Motion Control System (运动控制系统)	Computing Module	Purchased core board, integrated independently developed system
	Interface Module	Self-developed, procure components, outsource SMT assembly
	Inertial Measurement Unit (IMU) (惯性测量单元)	Self-developed, procure components, outsource SMT assembly
Perception System (感知系统)	In-house LIDAR (自研激光雷达)	Self-developed, procure customized parts, self-assembly
	Purchased LIDAR (外购激光雷达)	Purchase finished product externally
	In-house Camera (自研相机)	Self-developed, procure customized parts, self-assembly
Dexterous Hand (灵巧手) (for humanoid robot)	Purchased Camera (外购相机)	Purchase finished product externally
	In-house Dexterous Hand	Self-developed, procure customized parts and some components (e.g., motors, linear drive kits, sensors), self-assembly
	Purchased Dexterous Hand (外购灵巧手)	Purchase finished product externally

(3) Manufacturing: In-house R&D and assembly key to full-stack technical capabilities and cost control



Unitree: Core technologies – focusing mainly on hardware design (1)

No.	Technology	Characteristics	Progress	Patents
1	Integrated Joint Integration (一体化关节集成)	Full-stack self-developed, through "motor-reducer-driver-sensor-heat dissipation-structure," synergistically optimizes the topology of all core components within a single housing. Self-developed high-power density permanent magnet synchronous motors (高功率密度永磁同步电机) and planetary reducers (行星减速器) with optimized tooth for the impact conditions of legged robots significantly enhance joint module performance. Fully internal wiring + dual magnetic encoders (全内走线+双路磁编码) and IP67-rated sealing, enabling core components to operate reliably in environments ranging from -20°C to 55°C. A quick-release tapered clamping structure (快拆锥面抱合结构), allowing for rapid replacement. Industry-leading level in "extreme lightness, high power/torque density, high reliability, and easy maintenance."	Mass production	2 Invention Patents (授权发明专利)
2	Highly Compact Robot Body Integration (高紧凑度机器人身体集成)	Self-developed software and hardware for all core modules. Casing adopts an "exoskeleton-as-frame" (外壳即骨架) solution, extensively utilizing composite materials. Extensively use a bayonet (snap-fit) (卡口方案) design ensures convenient assembly and disassembly. Self-developed robot power management modules and core computing components, retaining only core functional modules to improve PCBA space utilization efficiency.	Mass production	2 Invention Patents; 1 Utility Model Patent (实用新型专利)
3	Fully Self-Developed Robot LiDAR (机器人激光雷达全自研)	Four self-developed underlying technologies: "single-emitter dual-axis programmable scanning (单发射-双轴可编程扫描), coaxial anti-glare optics (同轴遮光光学), wireless rotary support (无线旋转支撑), and three-level anti-collision (三级防撞)". Dynamically allocate point cloud density according to tasks, seamlessly matching the requirements of legged robots for size, power consumption, environmental tolerance, and real-time performance.	Mass production	2 Invention Patents; 1 Utility Model Patent
4	Robot Drop Protection (机器人抗摔防护)	Embedding multi-material and multi-degree-of-freedom mechanisms such as strip-hole flexible shells (条状孔柔性壳体), slide-spring bidirectional buffering (滑槽-弹簧双向缓冲), motor mount sliding self-alignment (电机座滑移调心), and graded rubber/PU/airbag energy absorption (分级橡胶/PU/气囊吸能) into the fuselage, joints, and outer surfaces. Achieve a three-layered synergy of "structural yielding + elastic energy absorption + sliding-rotating peak elimination" ("结构让位 + 弹性吸能 + 滑-转消峰"). Reduce impact peaks by 30%-50% and decrease the failure rate of joints and electronic modules by ≥30%.	Mass production	1 Invention Patent; 1 Utility Model Patent
5	Robot Automatic Following (机器人自动跟随)	A "dual-antenna phase-time difference positioning + wearable target module + front/side accompanying motion + wide-angle blind spot compensation (双天线相位-时差定位+可穿戴目标模组+前/侧伴随运动+广角盲区补偿)" full-chain solution. From "passive following" to "active companionship", with high performance and low power consumption.	Mass production	2 Invention Patents; 1 Utility Model Patent

(3) Manufacturing: In-house R&D and assembly key to full-stack technical capabilities and cost control



Unitree: Core technologies – focusing mainly on hardware design (2)

No.	Technology	Characteristics	Progress	Patents
6	Robot Heat Dissipation and Active Cooling (机器人散热和主动冷却)	Patented solutions: "thermal conductive fixed seat multi-fan cooling (导热固定座—风多冷), internal air ducts in adapters (转接件内风道), dual-channel dual-fan casing (壳体双槽双扇), and sponge phase-change micro-water cooling (海绵相变微水冷)" Enable high-power density motors and driver boards to operate stably for extended periods within extremely compact spaces	Mass production	1 Invention Patent; 1 Utility Model Patent
7	Environmental Perception and Map Construction (环境感知与地图构建)	Three-level pipeline: "point-by-point motion distortion correction (逐点运动畸变校正) + self/noise dual-point cloud filtering (自体/噪声双重点云滤波) + Gaussian-Kalman 2.5D cyclical grid (高斯-Kalman 2.5 D 循环栅格)" Output a dense, real-time height map that moves with the robot, under embedded computing power. Enable legged robots to precisely plan footholds and adjust posture online even while running at high speeds and over rugged terrain.	Mass production	4 Invention Patents
8	High-Dynamic Motion Control Algorithm (高动态运动控制算法)	Self-owned production lines and innovative algorithms based on reinforcement learning. Legged robots can fluently perform complex actions such as cluster dances, long-sequence dances, and boxing competitions, while demonstrating excellent impact resistance and anti-fall capabilities, indicating good product robustness.	Mass production	3 Invention Patents
9	Multi-Product Technology Reuse (多产品技术复用)	Technological sharing and reuse on different robot products, such as joint drives, mechanical structures, batteries, software, and algorithms. The use of various products under different working conditions also feed back into the self-iteration of various technologies.	Mass production	4 Invention Patents
10	Core Component Self-Development and High-Performance Actuators (核心零部件自研与高性能执行机构)	Independent R&D and production of its core robot component – the joint module – ensuring complete control over critical parts. Unitree's motors exceed the industry average in both peak torque and power density for their respective periods.	Mass production	2 Invention Patents
11	Overload Impact Resistant Reducer (抗过载冲击的减速器)	Address the issue of collisions between the end-effectors of legged robots and the physical environment during movement and interaction. Combination of floating load-sharing gears (浮动均载齿轮), high-strength gears (高强度齿轮), and elastic isolation rings (弹性缓冲隔震环) within a limited space.	Pilot production	2 Invention Patents; 1 Utility Model Patent
12	General-Purpose Humanoid Robot Large Model (通用人形机器人具身大模型)	Deep integration path of cutting-edge multimodal large models with humanoid robot technology. Drive the leap in humanoid robot capabilities from "single-task, single-scenario" to "multi-task, multi-scenario" general intelligence, accelerating the realization of Artificial General Intelligence (AGI) with humanoid robots as its carrier.	Basic research	1 Invention Patent

(3) Manufacturing: In-house R&D and assembly key to full-stack technical capabilities and cost control



UBTECH: Core technologies – focusing mainly on high-torque servo drives and algorithm

Core technologies	Features	Picture
Robotic		
Servo Actuators (joints)	Large Torque Servo Actuators (大扭矩伺服驱动器) With a torque of 15Nm to 200Nm, used in large-sized robots such as Walker. High-density frameless torque motor (高密度无框力矩电机), dual position encoder (双重位置编码器), harmonic reducer (谐波减速器) and high performance processing controller (高性能控制器).	
	Small to Medium Torque Servo Actuators (中小扭矩伺服驱动器) With a torque of 0.2Nm to 8Nm, used in motion joints (e.g. legs, arms, hands and necks) of small and medium-sized smart service robots. Brush and brush-less servo control algorithms (无刷及有刷伺服控制算法).	
Robotic Motion Planning and Control	Gait Planning and Control Algorithm (步态规划和控制算法) Facilitate walking by footed robots by enabling gait planning and balance control.	
	Stability Control Algorithm (稳定控制算法) Push-recovery ability (倾倒恢复能力), Single-leg balancing ability (单腿平衡能力), Dynamic balance ability (动态平衡能力).	
	Flexible Control Algorithm (灵活性控制算法) Combine teleoperation with dual-arm force control technology (双臂力控技术) to enable flexible and safe human-robot interaction.	
AI Technologies		
Computer Vision	Object Detection Algorithm (物理检测算法)	
	Human Facial Recognition Algorithm (人脸检测算法) Human Body Recognition Technology (人体识别技术)	
Voice Interaction	Speech Recognition Algorithm (语音识别算法)	
	Natural Language Processing (自然语言处理)	
	Speech Synthesis (语音合成)	

(3) Manufacturing: In-house R&D and assembly key to full-stack technical capabilities and cost control



DEEP Robotics: Core technologies – focusing mainly on system architecture and algorithm (1)

No.	Core technology	Characteristics	Process	Patent
Robot Hardware				
1	Integrated Joint (一体化关节)	Self-developed integrated joints that combine motors, reducers, drivers, and encoders by adopting an integrated planetary carrier (齿轮行星架一体化) design and a double planetary gear (双联行星轮) structure. Transmission efficiency of up to 95% and a backlash as low as 3 arcminutes. Integrate high-low voltage isolation (高低压隔离) and electromagnetic interference suppression (电磁干扰抑制) technology. High-precision torque control, with torque control accuracy reaching 3% based on a multi-loop control architecture (多环控制架构) and feedforward compensation algorithms (前馈补偿算法).	Mass production	16 patents, 1 software copyright
2	Industrial-Grade Whole Robot Design (行业级整机设计)	Legs adopt a full direct-drive joint (关节全直驱) and a front-knee, rear-elbow configuration (前膝后肘构型), allowing the knee joint to achieve a range of motion exceeding 300 degrees. Body utilizes high-strength alloys and high-performance composite materials.	Mass production	22 patents, 1 software copyright
System Architecture				
3	Heterogeneous Computing Scheduling and Multi-Joint Synchronous Control (异构算力调度与多关节同步控制)	A multi-core heterogeneous computing platform (多核异构计算平台) where various types of tasks, such as data processing, decision planning, and control algorithms, are distributed and processed across dedicated computing modules.	Mass production	6 patents
4	Real-time data synchronization, distribution, and protection (数据实时同步分发与安全防护)	Establish a real-time data distribution communication architecture, using distributed peer-to-peer low-latency communication.	Mass production	1 patents, 3 software copyrights
Algorithm and Model (1)				
5	Long-Term Real-time Trajectory Prediction and Whole-Body Coordinated Control (长时序实时轨迹预测与全身协调控制)	"Planning-Control" dual-layer architecture: The upper layer integrates environmental perception information with non-linear model prediction to perform long-term real-time trajectory prediction. The lower layer incorporates whole-body dynamics optimization and terrain constraints to real-time solve for optimal joint torques.	Mass production	1 patent
6	Reinforcement Learning Motion Control (强化学习运动控制)	Based on large-scale parallel simulation and deep reinforcement learning, this technology utilizes multi-dimensional reward functions to guide skill generation and build end-to-end control strategies.	Mass production	7 patents, 2 software copyrights
7	Perception-Control Integrated Adaptive Motion Control (感知一体自适应运动控制)	Build a terrain elevation map (地形高程图) based on onboard sensors and achieve real-time adaptive adjustment of control parameters, posture, and motion strategies.	Pilot production	1 patent
8	Real-time High-Dynamic Whole-Body Teleoperation (实时高动态全身遥操)	Develop markerless human motion capture algorithms based on low-cost monocular (单目) /multi-ocular (多目) vision cameras. Support rapid imitation of complex whole-body movements and delicate manipulation tasks.	Basic research	1 patent
9	Multi-Sensor Fusion Mapping and Local Elevation Map Construction (多传感器融合建图与局部高程图构建)	Employ a tightly coupled SLAM algorithm integrating LiDAR, Inertial Measurement Units (IMU) (惯性测量单元), and foot odometry (足式里程) to achieve high-precision 3D environmental modeling in environments without GPS.	Mass production	6 patents

(3) Manufacturing: In-house R&D and assembly key to full-stack technical capabilities and cost control



DEEP Robotics: Core technologies – focusing mainly on system architecture and algorithm (2)

No.	Core technology	Characteristics	Process	Patent
Algorithm and Model (2)				
10	Multi-sensor Fusion Positioning (多传感器融合定位)	Based on a factor graph optimization framework (因子图优化框架), deeply fusing visual features, LiDAR point clouds (激光点云), and kinematic constraint information (运动学约束信息).	Mass production	3 patents
11	All-Terrain 3D Path Planning and Autonomous Obstacle Avoidance (全地形三维路径规划与自主避障)	Generate a 3D traversable map. Employ a hierarchical planning architecture that integrates global heuristic search (全局启发式搜索) with a local dynamic window approach (局部动态窗口法).	Mass production	3 patents
12	Embodied Navigation Technology - DeepVLA1.0 (具身导航技术)	Introduce a vision-language model with common sense reasoning capabilities. Use dense environmental semantic self-labeling (稠密环境语义自标注) and 3D environmental modeling.	Pilot production	1 patent
13	Light-Map Embodied Navigation Large Model Technology - DeepVLA1.5 (轻图具身导航大模型技术)	Embodied navigation technology based on a light-map vision-language large model (轻图视觉语言大模型), integrating RTK and LiDAR perception to achieve outdoor centimeter-level high-precision positioning.	Basic research	1 patent
14	Multi-Robot Collaborative Heterogeneous Exploration in Unknown Environments (未知环境多机协同异构探索)	Employ collaborative strategies to dynamically optimize multi-robot task allocation and path planning, minimizing redundant exploration areas.	Pilot production	1 patent
15	Embodied Manipulation Large Model (具身操作大模型)	Integrate visual-force multimodal perception (视觉力觉多模态感知) to construct embodied models with physical reasoning capabilities.	Basic research	2 patents
Industry Use				
16	Autonomous Inspection in Industrial Scenarios (工业场景的自主巡检)	Equipped with various sensors such as visible light, infrared, gas detection, acoustics, and industry-specific payloads, based on scenario requirements.	Mass production	14 patents
17	Intelligent Patrol for Dynamic Open Scenarios (动态开放场景的智能巡逻)	Equipped with various specialized sensors and customized software and hardware modules, addressing challenges such as dynamic environmental changes, mixed pedestrian and vehicle traffic, and frequent indoor/outdoor transitions.	Mass production	6 patents, 1 software copyright
18	Reconnaissance and Rescue for Emergency Firefighting Scenarios (应急消防场景的侦察救援)	Specifically designed for complex environments characterized by high temperatures, high humidity, dense smoke, and lack of network communication.	Mass production	10 patents

(4) Large model: Expensive, yet essential; development accelerating



Traditionally hardware-focused, **Unitree has progressively increased its investment in large models since 2024, with a further step-up initiated in 2H25.** The company's growing commitment to large model development is further evidenced by its fundraising plan, where Unitree intends to raise RMB4.2bn from its IPO, with half, **RMB2bn, earmarked specifically for robot model development.**

On 1 June 2026, during the GTC in Taiwan, **NVIDIA unveiled the Isaac GR00T Reference Humanoid Robot**, an open humanoid robot reference design built upon NVIDIA Jetson Thor and the Isaac GR00T open development platform. This reference design aims to democratise humanoid robotics research by providing access to advanced hardware and an open software stack without requiring proprietary platforms. **The reference design incorporates a Unitree H2 Plus humanoid robot and Sharpa Wave tactile five-finger hands.** Shortly thereafter, Unitree was added to the Military Companies list by the U.S. Department of Defense on 8 June 2026. We believe that **Chinese humanoid robot manufacturers will increasingly prioritise large model independence amidst the uncertain U.S.-China relationship.**

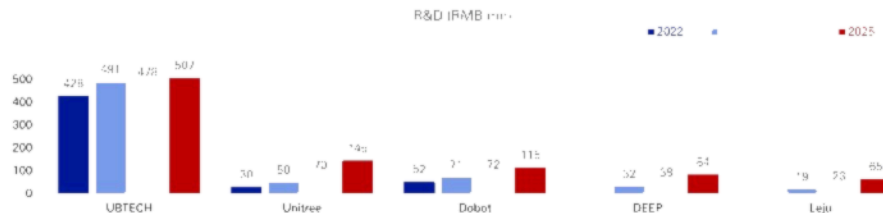
Leju collaborates with Huawei and Alibaba for large models, and their fundraising efforts are directed towards **data collection** rather than model development.

Half of Unitree's IPO proceeds are planned to be used for model development

Unitree - Use of IPO proceeds (Planned)	RMB'mn	%
Intelligent robot models	2,022	48%
Robot body	1,110	26%
Intelligent robot manufacturing bases	445	11%
New intelligent robot products	624	15%
Total	4,202	100%

DEEP - Use of IPO proceeds (Planned)	RMB'mn	%
Embodied algorithms and models	1,169	47%
Robot body and solutions	554	22%
Industrialization of embodied intelligent robots	552	22%
Embodied intelligent robot bases	227	9%
Total	2,503	100%

Leju - Use of IPO proceeds (Planned)	RMB'mn	%
Working capital	940	36%
High-quality large-scale datasets	616	24%
Humanoid robot R&D centers	214	8%
Humanoid robot industrialization bases	190	7%
Marketing network	640	25%
Total	2,600	100%



(4) Large model: Expensive, yet essential; development accelerating



Vision-Language-Action (VLA) and World-Model (WM)/World-Action-Model (WAM) have become the norm in the humanoid robot industry since 2025, with Unitree, UBTECH, and Dobot all having launched their relevant models. Regarding the number of **parameters**, foundation models typically range from tens to hundreds of billions, while VLA and WM models are smaller, usually several billions (mostly 3-8bn), based on our channel checks. **The development of large models has accelerated**, with more models launched year-to-date in 2026 compared to the entirety of 2025.

The launch of large models has accelerated since 2025, with further acceleration observed in 2026.

Company	Model	Type	Release date	Parameter	Details
Unitree	UnifoLM-X1-0	Industrial-grade embodied large model	Feb-26	-	Pilot deployment and testing have been completed in our own factory, enabling autonomous completion of joint motor assembly tasks.
	UnifoLM-VLA-0	Vision-Language-Action, VLA	Jan-26	7bn	By constructing robot operation data to continuously pre-train the model, it evolves from general "image-text understanding" to an embodied intelligent "brain" with physical common sense and operational capabilities, focusing on optimizing the generalization of various tasks. In real machine experiments, UnifoLM-VLA-0 demonstrated strong generalization ability, completing 12 different
	UnifoLM-WMA-0	World-Model-Action, WMA	Sep-25	-	A world model that can explicitly model the physical laws of robot-environment interaction, providing a unified cognitive and predictive basis for robot decision-making and control.
	UnifoLM (Unitree Robot Unified Large Model)	Foundation large model	2024	-	Based on the Transformer architecture, supports multimodal commands (text/speech/gestures).
UBTECH	Thinker-WM	World-Model, WM	May-26	-	Provides spatiotemporal modeling of the physical world, long-sequence dynamic prediction, and closed-loop decisionmaking support for both single-robot operation and multi-robot collaboration scenarios of industrial humanoid robots.
	Thinker cosmos	Developer exclusive community	Apr-26	-	A one-stop open platform covering resource sharing, algorithm development, application implementation, and technical exchange.
	Thinker-VLA	Vision-Language-Action, VLA	Mar-26	-	Achieve millimeter-level precision for loading, generalized grasping, and dual-arm collaborative work bin handling.
	Thinker	Vision-Language foundation large model	Sep-25	4-10s billions (40亿到百亿级)	Enhances robots' multimodal perception and reasoning planning capabilities.
Dobot	DobotWAM (空奔)	World-Action-Model, WAM	Jun-26	-	Supporting multimodal perception and task planning, and capabilities such as spatial relationship understanding, object generalization, target instruction comprehension, and long-term task execution.
	DOBOT-VLA	Vision-Language-Action, VLA	2025	-	Through end-to-end technology, deeply integrate visual perception, natural language understanding, and action generation, enabling robots to not only understand abstract instructions but also autonomously perform long-sequence task planning and precise operations.
DEEP	DeepVLA1.0	Vision-Language-Action, VLA	Oct-25	-	Embodied navigation system that integrates open-vocabulary semantic point clouds and large language models, supporting precise natural language adjustment of path planning.
Leju	Collaborates with Huawei (Pangu large model) and Alibaba (Qwen).				

(5) Application: More mature for quadrupeds than humanoids; Industrial use case growing



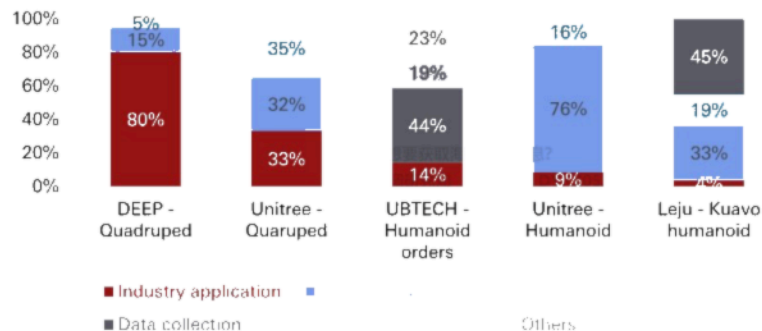
Quadruped robots have demonstrated more mature real-world applications than humanoids. **DEEP Robotics noted that 80% of their quadruped robots in 2025 were already deployed in real-life scenarios**, assisting with power grid inspection, hazardous environment monitoring, and search and rescue operations. **State Grid** is a key customer for DEEP.

The commercialisation of humanoid robots is comparatively at an earlier stage, with **most humanoids primarily used for research and education** (accounting for 76% of Unitree's humanoid sales in 2025) **and data collection** (~45% of UBTECH's humanoid orders and Leju's Kuavo humanoid sales were for this purpose, as local governments establish embodied intelligence data collection centres for real-world data collection). **Commercial/performance** represents a smaller proportion (16% of Unitree's humanoid sales and 19% for Leju).

Although **industry applications currently represent a small portion of overall humanoid robot sales, this share is growing**: 9% for Unitree's humanoid sales in 2025, up from zero in 2024, and industrial applications accounted for 14% of UBTECH's humanoid orders in 2025, from customers such as Dongfeng Liuzhou Motor (东风柳州) and Geely.

Quadruped robots are more widely used for industry applications, whilst humanoid robots are mostly for research & education and data collection

Revenue by application (2025)



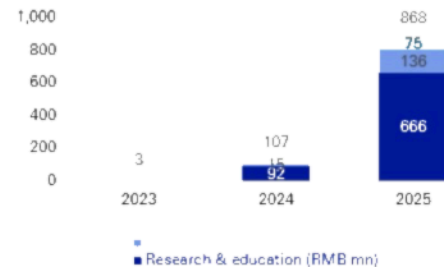
Type	Scenario	Use Cases of Unitree
Quadruped	Industry application	Industry application of quadruped robots is relatively mature : - The 500kV Lanting Substation Inspection Project (兰亭变电站巡检项目) in Zhejiang. - The Underground Utility Tunnel Inspection Project (地下管廊巡检项目) in Binjiang District, Hangzhou. - The BASF Zhanjiang Petrochemical Base Inspection Project (德国巴斯夫湛江石化基地巡检项目) in Guangdong.
	Household	Household application of quadruped robots is currently in the verification and promotion stage : - China Mobile robot dogs: emotional companionship, express delivery and retrieval, autonomous following, safety warnings. - Home scenarios showcased at JD X Unitree offline experience stores.
Humanoid	Industry application	Industry application of humanoid robots has already put in practice, such as performing handling and assembly tasks. Mainly in the verification and promotion stage : - The 500kV Lanting Substation Project: Live-line operations replacing human workers, to prevent accidents. - The CRRC Zhuzhou Factory Project (中车株洲工厂项目): Handling tasks. - The NIO Automobile Project: Handling and assembly work.
	Household	Household application of humanoid robots is currently in the development and training phase : - Lingqi Wanwu (Shenzhen) (灵动万物) has developed humanoid robots based on Unitree's G1, featuring functions such as watering plants, collecting express deliveries, and household cleaning. - Hangzhou Embodied Intelligence Pilot Base Technology Co., Ltd. (杭州具身智能中试基地科技有限公司) is conducting training for home service functions based on Unitree's humanoid robots.

(5) Application: More mature for quadrupeds than humanoids; Industrial use case growing

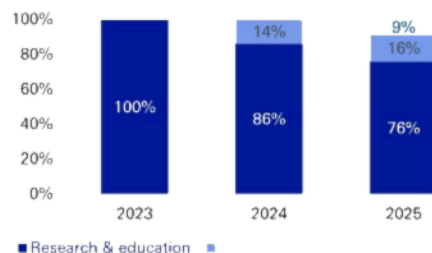


The commercialisation of humanoid robots is comparatively at an earlier stage; encouragingly, the share of industry applications is growing

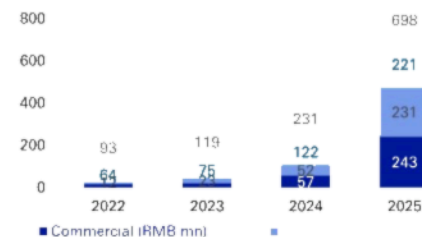
Unitree: Humanoid robot - by industry



Unitree: Humanoid robot - by industry



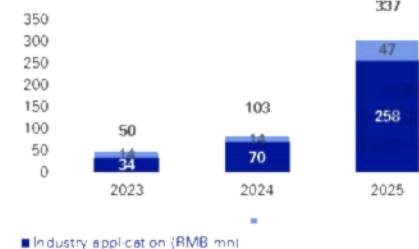
Unitree: Quadruped robot - by industry



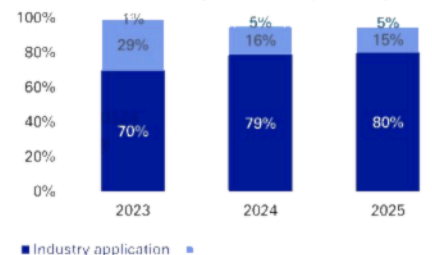
Unitree: Quadruped robot - by industry



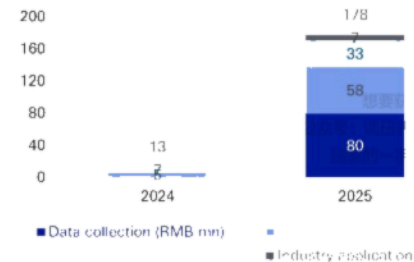
DEEP: Quadruped robot - by industry



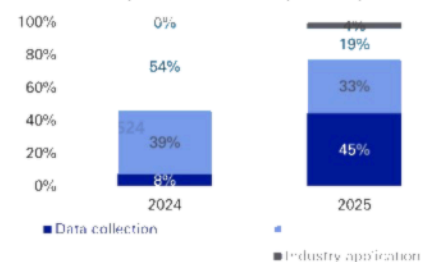
DEEP: Quadruped robot - by industry



Leju: Kuavo series - by industry



Leju: Kuavo series - by industry



(5) Application: More mature for quadrupeds than humanoids; Industrial use case growing



Use case of Chinese humanoid robot makers

Robot OEM	Date	Customer	Region	Robot	Automotive	Factories Electronics Others	Logistics/ Warehouse	Data collection	Guides	Inspection	Details
Unitree	Jul 2025	China Mobile	China	n/a	✓				✓		Unitree to supply small sized bipedal humanoid robots over 2025 and 2027
	Apr 2024	NIO	China	n/a	✓						Tested humanoid robot and robot dog for collaboratively picking up and delivering materials
Agibot	Oct 2025	Joyson Electronics (拓普电子)	China	Gene G2	✓						Commencing initial commercial deliveries for the over RMB100m procurement contract with Joyson Electronic
	Oct 2025	Longcheer (龙鼎科技)	China	Gene G2		✓					Strategic partnership to deploy humanoid robots for factory use
	Sep 2025	Hubei (湖北)	China	n/a				✓			Humanoid robot innovation center
	Aug 2025	Fulin Precision (富临精工)	China	Yuanzheng A2-W	✓						To deploy close to 100 units of robots
	Jul 2025	China Mobile (中国移动)	China	n/a					✓		AGIBOT to supply full sized bipedal humanoid robots over 2025-2027
	Jul 2025	Chery (奇瑞)	China	Gene G1	✓						Representative customer
	Jul 2025	Zhuhai (珠海)	China	n/a				✓			Embodied intelligence application innovation center data acquisition
	Jun 2025	Shaoxing Shangyu (绍兴上虞)	China	n/a				✓			Smart terminal procurement project for industrial data acquisition, jointly won by AGIBOT and SIR Robot (赛尔机器人)
	Jun 2025	Damon Technology (德马科技)	China	n/a			✓				Signed strategic cooperation contract
UBTECH	Jan 2026	Airbus	EU	Walker S2		✓					Cooperation agreement with Airbus, which includes the purchase of Walker S2 for use in Airbus manufacturing facilities
	Dec 2025	Inner Mongolia Hohhot (内蒙古呼和浩特)	China	n/a				✓			Humanoid robot data collection and training/testing center
	Dec 2025	Guangdong Huizhou (广东惠州)	China	Walker S2				✓			Humanoid robot data collection and training/testing center
	Dec 2025	Texas Instrument	US	Walker S2		✓		✓			Texas Instruments has acquired Walker S2 and is now deploying and testing it across its production lines.
	Dec 2025	AI platform (unnamed)	China	Walker S2							Leading domestic AI large model company
	Nov 2025	Jiangsu Jiuliang (江苏九良)	China	Walker S2				✓			Humanoid robot data collection and training/testing center
	Nov 2025	Guangxi Fangchenggang (广西防城港)	China	Walker S2					✓		Projects including passenger and personnel management at China-Vietnam border crossings, checkpoint patrols, logistics, commercial services, and facility inspections at large domestic steel, copper, and aluminum production bases
	Nov 2025	Sichuan Zigong (四川自贡)	China	Walker S2				✓			Humanoid robot data collection and training/testing center
	Oct 2025	Guangxi Liuzhou (广西柳州)	China	Walker S2				✓			Humanoid robot data collection and training/testing center
	Oct 2025	Well-known A-share listed automotive tech company	China	Walker S2	✓			✓			Auto factory manufacturing with embedded data collection
	Sep 2025	Miracle Automation (天奇股份)	China	Walker S	✓						Intelligent automotive equipment
	Sep 2025	Well-known domestic company	China	Walker S2							
	Sep 2025	Maxnew Technology Services (麦新汇科技)	China	n/a		✓					Signed global strategic cooperation agreement to promote UBTECH's humanoid robots in factories globally. Maxnew is affiliated with Foxconn
	Jul 2025	MIEE (奕亿上海)	China	Walker S	✓						MIEE is a platform company focusing on the export of Chinese automobiles and components
	Apr 2025	Dongfeng Liuzhou Motor (东风柳汽)	China	Walker C	✓				✓		Automobile factory production and commercial reception
	Mar 2025	Audi FAW	China	Walker S1	✓						HVAC leak detection
	Mar 2025	BAIC New Energy (北汽新能源)	China	Walker S	✓						Maters' inspection
	Mar 2025	Easyhome (亿然智家)	China	n/a					✓		Framework agreement to purchase 500 units in 2025
	Jan 2025	Foxconn	China	Walker S1		✓					Been trained onsite in Foxconn's Shenzhen factory in China for two months, and is going to be brought into Foxconn's Zhengzhou factory for further training
	Since 2024	SF Holdings	China	n/a			✓				
	Oct 2024	BYD	China	Walker S1	✓						Performed handling tasks in coordination with autonomous logistics vehicles
	Jul 2024	FAW-Volkswagen	China	Walker S	✓						Screw tightening, part assembly and handling
	Jul 2024	Zonker / Greely	China	Walker S Ltd	✓						Tested for 21 days for material transportation
	Jun 2024	Dongfeng Motor	China	Walker S	✓						For various tasks including inspection, logo sticking and label printing during automotive manufacturing
	Feb 2024	NIO	China	Walker S	✓						Inspection and sticking the car logo at NIO's car factory
AI+ Robotics	Sep 2025	HKC Corporation (华凯股份)	China	n/a		✓					To deploy 1,000 units of robots in 3 years, order amount nearly RMB500m
Galbot	Dec 2025	Baida Precision (百达精工)	China	n/a	✓						Strategic partnership to deploy more than 1,000 units of humanoid robots
EngineAI	Sep 2025	Dunlan Technology (多伦科技)	China	n/a					✓		Procure no less than 2,000 units of humanoid robots over the next three years, for use in vehicle inspection and traffic management

(6) Geographic split: Meaningful overseas sales exposure underscores competitiveness of Chinese embodied AI products



Unitree's significant overseas sales exposure of 44% in 2025 surprised us.

We attribute this to Unitree's leading global position in quadruped and humanoid robots, the limited availability of such products outside of China, price advantages, and Unitree's design which facilitates secondary development.

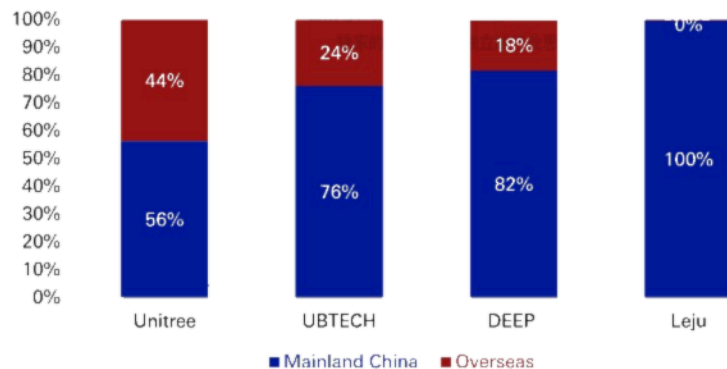
UBTECH and DEEP also reported decent overseas exposures of 24% and 18%, respectively, underscoring the competitiveness of Chinese embodied AI products.

UBTECH continues to pursue international sales. In January 2026, UBTECH announced a cooperation with **Airbus**, which included the purchase of Walker S2 for use in aviation manufacturing facilities. This followed a strategic partnership with **Texas Instruments** in December of the previous year to deploy Walker S2 in semiconductor production lines.

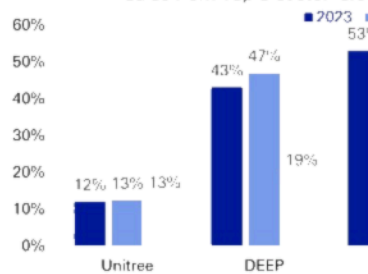
DEEP Robotics collaborated with Eastern Green Power (EGP) on the AMR SPPG Tunnel Project for the Singapore Powergrid (SPPG) in Singapore in 2024, with further shipments in 2025. DEEP's quadruped robots are utilised for power tunnel inspections, integrating detection systems to provide early warnings for emergencies.

Conversely, **Leju** generates ~100% of its revenue within China.

Unitree generated 44% of revenue from overseas customers in 2025; UBTECH and DEEP also reported decent overseas exposure of 24% and 18%



Sales from Top 5 customers



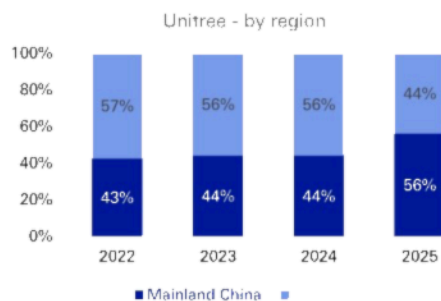
Unitree sales from Top 5 customers



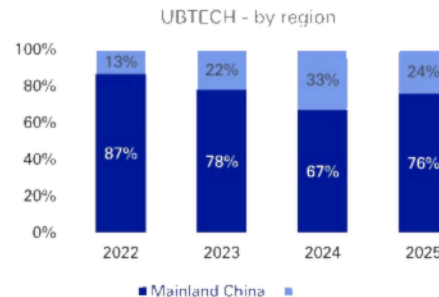
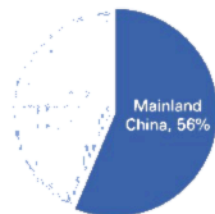
(6) Geographic split: Meaningful overseas sales exposure underscores competitiveness of Chinese embodied AI products



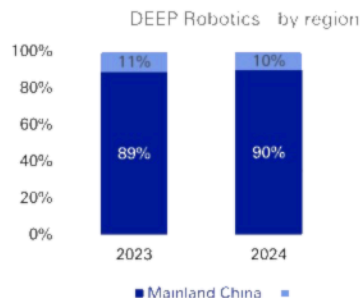
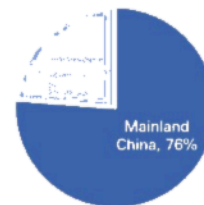
DEEP and UBTECH witnessed growing shares from overseas customers in 2024; demand from domestic customers was stronger in 2025



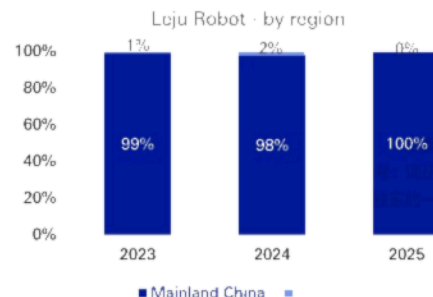
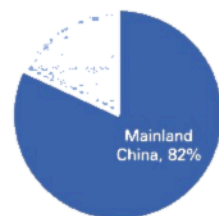
Unitree - by region (2025)



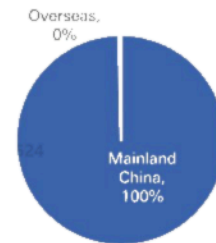
UBTECH - by region (2025)



DEEP Robotics - by region (2025)



Leju Robot - by region (2025)



(7) Management: Most are young and technical



Founders and management teams of the six humanoid robot companies we track are mostly young, with **an average age of under 40. Unitree's core management team members were all born in the 1990s**, with the four core members having an average age of 35. Senior management typically possess strong academic and technical backgrounds, with expertise in robotics industry know-how. Most of them hold a master's or doctoral degree, and **majored in mechanical and engineering-related fields**.

Core members from the Board of Directors of Unitree and Leju are the youngest, mostly born in the 1990s

Company	Position	Name	Birth	Age
Unitree	Founder, Chairman, CEO and CTO	WANG Xingxing 王兴兴	1990	36
	Director, Head of Mechanical Structure	YANG Zhiyu 杨知雨	1991	35
	Director, Head of Sales and Service System	CHEN Li 陈立	1990	36
	Director, Head of Algorithm and Software	ZHANG Yangguang 张阳光	1993	33
UBTECH	Founder, Chairman, Executive Director and CEO	ZHOU Jian (周剑)	1976	50
	Executive Director, assistant to the Chairman and Head of the General Manager's office	WANG Lin (王琳)	1975	51
	Executive Director, CTO and Deputy General Manager	XIONG Youjun (熊友军)	1978	48
AGIBOT	Founder, Chairman, CEO	DENG Taihua (邓泰华)	1977	49
	Co-founder, President, CTO	PENG Zhihui (彭志辉)	1993	33
	Senior VP, Chief Scientist	LUO Jianlan (罗剑岚)	1993	33

Company	Position	Name	Birth	Age
DOBOT	Founder, Chairman, Executive Director and General Manager	LIU Peichao (刘培超)	1986	40
	Executive Director, CFO, Board Secretary and Joint Company Secretary	WANG Yong (王勇)	1980	46
	Executive Director and Chief Scientist	LANG Xulin (郎需林)	1988	38
DEEP	Founder, Chairman, CEO	ZHU Qiuguo (朱秋国)	Nov 1982	44
	Co-founder, Director, Deputy General Manager	LI Chao (李超)	Mar 1986	40
	Director	CHU Zhen (储振)	Aug 1992	34
Leju	Founder, Chairman, CTO	LENG Xiaokun (冷晓琨)	Sep 1992	34
	Co-founder, Director, CEO	CHANG Lin (常琳)	Mar 1989	37
	Co-founder, Director, COO, Board Secretary	AN Ziwei (安子威)	May 1990	36

(7) Management: Most are young and technical



The Founder of Unitree, WANG Xingxing, collectively controls approximately two third of the company's voting rights, ensuring the stability and efficiency of the company's strategic decision-making.

Two founders of AGIBOT both worked with Huawei before the inception.

Company	Position	Name	Birth	Age	Year of joining	Experience
Unitree	Founder , Chairman, CEO and CTO	WANG Xingxing 王兴兴	1990	36	August 2016	Born in Yuyao, Zhejiang Province. Master's degree in Mechanical Engineering from Shanghai University. Bachelor's degree in Mechatronics at Zhejiang Sci-Tech University (浙江理工大学). Briefly worked at DJI in 2015. Founded Unitree Robotics in Aug 2016. The actual controller of the company (directly held 23.8% of the shares and controlled up to 68.8% of the voting rights before Unitree's IPO).
	Director, Head of Mechanical Structure	YANG Zhiyu 杨知雨	1991	35	October 2016	Master's degree in Mechanical and Automation Engineering at Zhejiang University. One of Unitree's three core technical personnel born in the 90s. Long-term responsible for the R&D of robot mechanical structures.
	Director, Head of Sales and Service System	CHEN Li 陈立	1990	36	May 2018	Master's degree. An alumnus of Zhejiang Sci-Tech University along with WANG Xingxing. Worked at Hikvision Digital Technology (002415 SZ) before joining Unitree. Deeply involved in the company's early startup and technology building
	Director, Head of Algorithm and Software	ZHANG Yangguang 张阳光	1993	33	Jan 2018	Bachelor's degree in Automation at Nankai University. Served as algorithm engineer at Vincross (Beijing) Technology Co., Ltd. (奇智科技) from Jul 2015 to Mar 2017 and Surginova Healthcare Technologies (Beijing) Co., Ltd. (赛诺微医疗科技) from Apr 2017 to Oct 2017.
UBTECH	Founder , Chairman, Executive Director and CEO	ZHOU Jian (周剑)	1976	50	Mar 2012	Bachelor's degree of Engineering in wood processing from Nanjing Forestry University (南京林业大学). Worked as the manager for the Asia Pacific region for Michael Weing AG (威力集团) from May 2000 to Dec 2005. Founded and served as Director for UNION BROTHER (优锑机械) from Nov 2007 to Mar 2012. Founded UBTECH and appointed as Director in 2012.
	Executive Director, assistant to the Chairman and Head of the General Manager's office	WANG Lin (王琳)	1975	51	Mar 2012	Worked as an assistant to the General Manager for Youkai (Shenzhen) Machinery (优锑机械), a company wholly owned by UNION BROTHER. Joined UBTECH as an assistant to the CEO in 2012. Appointed as Director in 2016 and re-designated as Executive Director in 2022.
	Executive Director, CTO and Deputy General Manager	XIONG Youjun (熊友军)	1978	48	Jun 2012	Doctor of philosophy of Engineering in mechanical design and theory from Huazhong University of Science and Technology (华中科技大学) and master's degree in Engineering in power machinery from Wuhan University of Technology (武汉理工大学). Joined UBTECH as CTO in 2012. Appointed as Director in 2020 and re-designated as Executive Director in 2022.
AGIBOT	Founder , Chairman, CEO	DENG Taihua (邓泰华)	1977	49	Feb 2023	Graduated from the School of Information and Communication Engineering at the University of Electronic Science and Technology (电子科技大学). Joined Huawei in 1995 and successively served as Vice President, President of the Wireless Network Product Line, and President of the Computing Product Line. Left Huawei in 2022 after 27 years of service. Co-founded AGIBOT with PENG Zhihui in Feb 2023. Appointed Chairman and CEO in 2025.
	Co-founder , President, CTO	PENG Zhihui (彭志辉)	1993	33	Feb 2023	Master's degree in Information and Communication Engineering at the University of Electronic Science and Technology. Worked as an algorithm engineer at OPPO Research Institute's AI Lab from 2018 to 2020. Joined Huawei's 'Genius Youth Program.' in 2020. Left Huawei and co-founded AGIBOT as CTO in 2022.
	Senior VP, Chief Scientist	LUO Jianlan (罗剑岚)	1993	33	Apr 2026	Doctoral Degree in Mechanical Engineering at UC Berkeley. Worked at Google X and Google Deepmind as Scientist. The core member of Professor Sergey Levine's team. Joined AGIBOT as Partner and Chief Scientist in 2025. Led the establishment of the 'AGIBOT Embodied AI Research Center'. Facilitated AGIBOT's deep collaboration with Physical Intelligence.

(7) Management: Most are young and technical



Leju' founding team members are all alumnus of Harbin Institute of Technology; two founders of DEEP are both from Zhejiang University. They maintained extensive cooperation with numerous universities and research institutions, jointly establishing laboratories and collaboratively conducting R&D.

Company	Position	Name	Birth	Age	Year of joining	Experience
DOBOT	Founder, Chairman, Executive Director and General Manager	LIU Peichao (刘培超)	1986	40	Jul 2015	Master's degree in mechanical engineering and Bachelor's degree in mechanical design & manufacturing and automation from Shandong University (山东大学).
	Executive Director, CFO, Board Secretary and Joint Company Secretary	WANG Yong (王勇)	1980	46	Dec 2022	Bachelor's degree in investment economics from Southwestern University of Finance and Economics (西南财经大学). Served as a vice general manager, board secretary and CFO in Antel Intelligent Technology (汇通科技)(688208.SH) from Oct 2014 to Aug 2021. Joined DOBOT and appointed as Executive Director in 2022.
	Executive Director and Chief Scientist	LANG Xulin (郎满林)	1988	38	Sep 2016	Bachelor's degree in mechanical design & manufacturing and automation and Master's degree in mechanical design and theories from Shandong University. Served as an engineer in Inovance Technology (汇川技术)(300124.SZ) from Jul 2014 to Jul 2015. Joined DOBOT in 2015. Appointed as Executive Director in 2016.
DEEP	Founder, Chairman, CEO	ZHU Qiuguo (朱秋国)	Nov 1982	44	2017	Doctoral degree in Control Science and Engineering at Zhejiang University. Stayed at the College of Control Science and Engineering of Zhejiang University from April 2011 and served as Professor at present. Founded DEEP Robotics in 2017.
	Co-founder, Director, Deputy General Manager	LI Chao (李超)	Mar 1986	40	2017	Doctoral degree in Control Science and Engineering at Zhejiang University. Worked as an algorithm engineer at Hangzhou Nanjiang Robotics (南江机器人) from Jan 2016 to Oct 2017. The co-founder of DEEP Robotics, served as CTO from Nov 2017 to present. Appointed as Director from Jul 2018. Appointed as Deputy General Manager from Oct 2025.
	Director	CHU Zhen (储振)	Aug 1992	34	2017	Master's degree in Mechatronics Engineering at Harbin Institute of Technology (HIT) (哈尔滨工业大学). Worked as a technician at SAIC Volkswagen Automotive (上汽大众) from Aug 2016 to Jun 2017. Served as an algorithm engineer at Hangzhou Nanjiang Robotics from Jun 2017 to Nov 2017. Served as Deputy Director of Advanced Research in DEEP from Nov 2017. Appointed as Director from Jun 2022.
Leju	Founder, Chairman, CTO	LENG Xiaokun (冷晓坤)	Sep 1992	34	2016	Born in Weifang, Shandong Province. Doctoral degree in Computer Science and Technology from Harbin Institute of Technology (HIT). Served as a researcher and Deputy Director of the Intelligent Robot Research Center at HIT. Relocated to Shenzhen and founded Leju Robot with nine alumnus from Harbin Institute of Technology in 2016.
	Co-founder, Director, CEO	CHANG Lin (常琳)	Mar 1989	37	2016	Doctoral degree in Computer from HIT. Appointed CEO as one of the co-founders of Leju Robot in 2016.
	Co-founder, Director, COO, Board Secretary	AN Ziwei (安子威)	May 1990	36	2016	Bachelor's degree in Management from HIT. Previously served as an investment manager at a large investment company. Appointed COO as one of the co-founders of Leju Robot in 2016. Responsible for daily operations and commercialization expansion.

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一手

Humanoid robot supply chain map

Mapping the hardware supply chain

Note: * = listed companies



	Head		Body										
	Integrator	Vision	Rotary actuator	Linear actuator	Reducer	Planetary roll screw (行星滚柱丝杠)	Motor	Bearing					
China	Lens Tech (蓝盾科技)* Jayson (尚德电子)* Cover & glass panel: Lens Tech (蓝盾科技)* Menth (敏实)*	Camera: Orbbec (奥比中光)* OPT (奥普特)* LUSTER Light Tech (瀚光科技)* LIDAR: RoboSense (速腾聚创)* Hesai (禾赛科技)*	Sanhua (三花智控)* Xinquan (研果股份)* Tuopu (拓普)* Wedan (伟达立)* Yinhuo (银合股份)* Meifu (美孚股份)* Insuance (汇川技术)* Leit Motor (力奇电机)* Mand (曼德)* Zhongding (中鼎股份)*	Tuopu (拓普)* Hengli Hydraulic (恒立液压)* Sanhua (三花智控)* Shuanghui (双汇股份)* Yiwu (亿纬锂能)* Luli Motor (力奇电机)* Yinhuo (银合股份)* SLAC Precision (鼎泰亚实)* FORE intelligent (丰立智能)* Zhongda Leader (中大力德)* Rexn Machinery (瑞森智能)* HAOTHI (昊志机电)*	Strain wave/ Harmonic reducer (谐波减速机): Leaderdrive (绿的驱动)* Sing (盈通股份)* Korbin (科德宝)* Haruo Group (昊宇集团)* Langcheng (隆成科技)* Guomao (国茂股份)* SLAC Precision (鼎泰亚实)* FORE intelligent (丰立智能)* Zhongda Leader (中大力德)* Rexn Machinery (瑞森智能)* HAOTHI (昊志机电)*	Planetary reducer (行星减速机): Zhongda Leader (中大力德)* Kolor Smart (杜森勃斯)* Newlan (纽兰科技)* Tongqi Transmission (同启传动)* Guomao (国茂股份)* Landa Tech (蓝达科技)* Haomeng Tech (豪萌股份)* Cycloid and RV reducer (摆线针轮减速机): Kubin (库比利)* Shuangji (双极传动)* Zhongda Leader (中大力德)* Haomeng Tech (豪萌股份)* Fube Group (福达股份)*	Saenger (尚升智创)* Hengli Hydraulic (恒立液压)* Berle (北特科技)* BSI (贝斯特)* Newlan (纽兰科技)* XCC Group (五洲新桥)* Leit Motor (力奇电机)* Zhengyi Tech (正毅科技)* Fengsheng Electric (丰盛电气)* QINCS (勤芯科技)* Changsheng Shiding Bearings (长盛轴承)* Kudab (库达夫)* Rengfai Industry (菱菱股份)*	Frameless torque motor (无框力矩电机): Kirsu (步科股份)* Wang Electric (卧龙电气)* Weiss Electric (伟思电气)* Leadshine (雷赛智能)* HAOTHI (昊志电机)* Moore Electric (兆瓦电气)* Jiushan Electric (聚昌电气)* Hemphax (恒祥股份)* Inovance (汇川技术)* Xuesen Vike (旭森科技)*	Axial flux motor (轴向磁通电机): Wang Electric (卧龙电气)* Furukawa (古河电气)* NHI New Materials (宁波新材料)* Vach Electric (伟创电气)* Iron Technologies (铁电科技)* Yung Electric (云电电气)* Keda (科达利)*	Changsheng Bearings (长盛轴承)* XCC Group (五洲新桥)* Radical (震速克)* Wanwang Qianhai (万向钱潮)*			
Non-China			Nidec (Japan)* Schaeffler (Germany)* Bosch (Germany)	Schaeffler (Germany)* Bosch (Germany)	Strain wave/ Harmonic reducer: Harmonic Drive (Japan)* Nidec Shippo (Japan)* Sumitomo (Japan)* Planetary reducer: Nidec Shippo (Japan)* Harmonic Drive (Japan)* SEW-EURODRIVE (Germany)* Sumitomo Heavy Industries (Japan)* Wittenstein (Germany)	Cycloid and RV reducer: Nastecro (Japan)*	*HK (Japan)* NSK (Japan)* Schaeffler (Germany)* Rollax (Switzerland)* GSA (Switzerland)* Bosch Rexroth (Germany)* Mog (U.S.)* EXLAR (U.S.)* CMC (U.S.)*	Nidec (Japan)* Kollmorgen (U.S.)* Maxon (Switzerland)* IQ Robotics (Germany)* WITTE/STEIN (Germany)* YASA (U.K.)* (acquired by Mercedes-Benz)	Schaeffler (Germany)* NSK (Japan)*				
	Dexterous hand					Others							
	Coreless motor (空心杯电机) Motor		Micro screw	Electronic skin/ Glove	Tendon								
China	Veich Electric (伟思电气)* Moore's Electric (兆瓦电气)* Johnson Electric (捷昌电机)* Zhaoxue (兆雪电子)* Leit Motor (力奇电机)* Topband (拓邦股份)* Leadshine (雷赛智能)* HAOTHI (昊志电机)* Hengshui (恒顺股份)*		Zhejiang Runqian (浙江润泉)* Berle (北特科技)* BS* (贝斯特)* Johnson Electric (捷昌电机)* Zhenyu Tech (震宇科技)*	Harwer Electronics (宏微科技)* Hanyu Safety (恒裕安防)* Smith Adhesive New Material (晶华新材)* Fula New Materials (富莱新材)* AUDIOVELL (奥维威)* Riyang Electronics (日昌电子)* Everwin Precision (长盈精密)* Damay (岱美股份)* Suzhi Testing (硕试威)*	Nanshan (南山的)* Hanyu Safety (恒裕安防)* Jidi Tech (极智达)*	Body integrator: PIA Automation (奇普智能)* Ningbo Huixiang (宁波汇翔)* Luxshare Precision (立讯精密)* Lens Tech (蓝盾科技)* Hen Han (恒翰)* Force sensor: Kah Sensing (凯力传感)* Hanyu Electronics (恒裕科技)* Ampron (安铂莱)* Link Touch (凌拓触控)* Kunwei Tech (坤维科技)* SRI (平立仪器)*				Chips: Rockchip (瑞芯微)* Hanzon (地平线)* All Winner Tech (全志科技)* Unigroup Guonan (宏通国瑞)* Dawning Information (中科曙光)* Cambricon (寒武纪)* Inductor Tech (恒源科技)* Iyazator CoreX (天毅智芯)*	Materials: Hengshui Holdings (恒顺股份)* Damay (岱美股份)* Carthane (恒达股份)* Mould & Plastic Tech (模塑科技)* WOHL Advanced Materials (沃特股份)*	Battery: CATL (宁德时代)* Azure (蔚能股份)*	Shell (壳牌): Yongmao (永茂泰)* Xucheng Group (旭成集团)* Everwin Precision (长盈精密)*
Non-China	Mixer (Switzerland)* Faulhaber (Germany)* Nidec (Japan)* Mabuchi Motor (Japan)*			Novasenta (U.S.)* Texscan (U.S.)* Interlink Electronics (U.S.)* Japan Display Inc. (Japan)* Baumer (Switzerland)* Fraba (Germany)*		Force sensor: ATI (U.S.)* Schunk (Germany)* Kistler (Switzerland)* AMT (U.S.)* Murata Manufacturing (Japan)*	Chips: NVIDIA (U.S.)* Intel (U.S.)*		Ceramic ball: Living (力星股份)*				

The U.S.		Mainland China		Taiwan		
Tesla	Figure	Unitree	AGIBOT	Galbot	Husweli	
Integrator: Actuator integrator: - Sanhua (三花智控)* - Taopu Group (拓普集团)* - Nidec (Japan)* - Schaeffler (Germany)* - Hengli Hydraulic (恒立液压)* - Zhejiang Rongtao (浙江荣泰)* Body: Reducer: - Harmonic Drive Systems (Japan)* - Leaderdrive (绿的传动)* - Longsheng Technology (隆盛科技)* - Kedah (科达利)* - Sing (新嘉坡股份)* - Shuangwan Driveinc (双环传动)* Body motor: - Nidec (Japan)* - Leaderinc (莱赛智能)* - Johnson Electric (德昌电机)* - Veichi Electric (伟创电气)* Hand: Micro screw: - Zhejiang Rongtao (浙江荣泰)* - Bero Technology (北特科技)* - BST (贝斯特)* - Johnson Electric (德昌电机)* Micro motor: - Minors Electric (鸣志电器)* - Zhaowei (兆威机电)* - Veichi Electric (伟创电气)* - Maxon (Maxon)* - Johnson Electric (德昌电机)* - Hengshun (恒顺股份)* Others: Shell: - Zhejiang Rongtao (浙江荣泰)* - Xuesheng (旭升集团)* Plastics: - Mould & Plastic Tech (模塑科技)* Sensor: - Ampron Technology (安培龙)*	Head integrator: - Lens Technology (延思科技)* - Joyson Electronic (均胜电子)* Foot integrator: - Carthane (凯尔股份)* Screw: - Schaeffler (Germany)* - Seamen (新嘉坡传动)* - Hengli Hydraulic (恒立液压)* - Belsa Technology (北特科技)* - XCC Group (五洲新春)* - Rongtai Industry (荣泰股份)* Bearing: - Schaeffler (Germany)* - XCC Group (五洲新春)* - Radical (雷迪克)* Tendon: - Nanshan Fashion Sci-Tech (南山指南)* - Harveo Safety (恒辉安防)* Electronic skin/ Glove: - Hanwei Electronics (汉威股份)* - Ruying Electronics (日盈电子)* - Smith Adhesive New Material (麻省新材)* - Futai New Material (福莱新材)* - Deweston Technology (道氏技术)* - Harveo Safety (恒辉安防)* TPU (聚氨酯) and Epoxy (环氧树脂): - Damay (达美股份)* - Everwin Precision (长盈精密)* - Carthane (凯尔股份)* PEEK (聚醚醚酮): - Hengbo Holdings (恒勃股份)*	Reducer: - Leaderdrive (绿的传动)* - Harmonic Drive Systems (Japan)* Reducer & Bearing: - Everwin Precision (长盈精密)* Micro motor: - Minors Electric (鸣志电器)* Structural parts: - Lingyi Tech (亿嘉智造)* Hand module: - Zhaowei (兆威机电)* Vision: - RealSense (Intel)* Motor: - Wolong Electric (卧龙电机)* - Moons Electric (鸣志电器)* Material / Structural parts: - Kinglin Sci&Tech (金灵科技)* - Zhejiang Rongtao (浙江荣泰)* - NBTMT New Materials (东睦股份)* Sensor: - Hanwei Electronics (汉威科技)* - Keli Sensing (柯力传感)* Vision: - Orbibac (奥比中光)* - Luster (镭云光)* Chips: - NVIDIA* - Intel* - Rockchip (瑞芯微)* Dexterous hands: - Inspire Robots (优时机器人)* - BrainCo (脑动力科技)*	Assembler and actuator: - PIA Automation (均普智能)* - Lens Technology (延思科技)* - Ningbo Haixiang (宁波海翔)* - Boyuan Precision (博云精工)* - Lingyi Tech (亿嘉智造)* - Mofin (默实)* Actuator: - Tulin Precision (富拓精工)* Reducer: - Leaderdrive (绿的传动)* - Zhongda Leader (中大动力)* Bearing: - Changsheng Sliding Bearings (长盛轴承)* Screw: - Changsheng Sliding Bearings (长盛轴承)* - Beite Technology (比特科技)* - Shuanglin (双林股份)* - BSI (贝斯特)* Motor: - Wolong Electric (卧龙电机)* - Moons Electric (鸣志电器)* Dexterous hands: - Hanwei Electronics (汉威科技)* - Zhaowei (兆威机电)* Vision: - Orbibac (奥比中光)* Sensor: - Keli Sensing (柯力传感)* - Hanwei Electronics (汉威科技)* Chips: - NVIDIA* - Rockchip (瑞芯微)* Others: - Swaheer Advanced Materials (仕佳新材)* UBTECH	Actuator: - Meihu (美湖股份)* Reducer: - Leaderdrive (绿的传动)* - Meihu (美湖股份)* Screw & Bearing: - XCC Group (五洲新春)* Sensor: - Keli Sensing (柯力传感)* Control board: - Joyson Electronic (均胜电子)* Hand module: - Zhaowei (兆威机电)* Partner: - Miracle Automation (天奇股份)* - Beite Precision (百达精工)* XPeng	Husweli embodied AI partners: - Leju Robotics (乐聚机器人)* - Hars Robot (大帆机器人)* - Moying Robotics (墨影科技)* - Topstar (拓斯达)* - X-Square Robot (自变量机器人)* - Hualong Xunda Information Technology (华龙迅达)* - Huacheng Industrial Control (华成工控)* - Zhongqian Technology (中乾科技)* - EFORI (欧夫)* - Digit Technology (数字华夏)* - BrainCo (脑动力)* - DRGAS Robot (康山康卡机器人)* - Hechuan Humanoid Robot (禾川人形)* - Chinasoft International (北京中软国际教育)* - Chuangxin Lishi Information Technology (北京创新乐和网络科技有限公司)* NVIDIA	Partners as of Nov 2025: - TECO (东元电机)* - Hwa-n (上银科技)* - Hota Industrial (和太)* - Mita Automation (蜜立)* - Iurvo International (宇隆科技)* - Syntec (新特)* - Fukute (富田)*

Humanoid robot configurations of selective OEMs



Humanoid robots developed by US OEMs are predominantly bipedal and are of human-like height. In contrast, robots from Chinese OEMs are available in both bipedal and wheeled configurations (wheeled versions typically being easier to control), and they exhibit varying heights.

Humanoid robot configurations of selective OEMs – from US OEMs

Robot OEM	Tesla	Figure	Figure	Agility Robotics	Boston Dynamics	1X Technologies
Robot	Optimus	Figure	Figure 03	Digit	Atlas	NEO
Appearance						
Launch date	Gen 1: Sep 2023 Gen 2: Dec 2023	Figure 01: Oct 2023 Figure 02: Aug 2024	Oct 2025	2019; latest update in Mar 2025	2013; latest update in Jan 2026	Oct 2025
Body part						
Height	Gen 1: 173cm	168cm	173cm	175cm	190cm	168cm
Weight	Gen 1: 57kg	Figure 02: 70kg	61kg	65kg	198 lbs (90kg)	66 lb (30kg)
Speed	n.a.	Figure 02: 1.2m/s	1.2m/s	1.5m/s	n.a.	n.a.
Payload	n.a.	Figure 02: 20kg	20kg	35 lbs (15.9kg)	50kg	25kg
Runtime	n.a.	Figure 02: 5 hours	5 hours	Up to 4 hours	Up to 4 hours	4 hours
Battery	n.a.	Figure 02: 2.25KWh	2.3KWh	n.a.	n.a.	842Wh

Humanoid robot configurations of selective OEMs – Chinese OEMs



Robot OEM	Unitree				AGIBOT		UBTECH	
Robot	G1	H2	H1	X2 (Lingxi)	A2 (Yuanzheng)	G2 (Genie)	Walker S2	Walker S1
Appearance								
Launch date	May 2024	Oct 2025	Aug 2023	Mar 2025	Aug 2024	Oct 2025	Jul 2025	Oct 2024
Body part								
Height	132cm	182cm	180cm	131cm	169cm	179cm	176cm	172cm
Weight	35kg	70kg	47kg	39kg	69kg	185kg	70kg	76kg
Speed	2m/s	n.a.	3.3m/s, Max: 5m/s	2m/s	1.2m/s	1.5m/s	2m/s	n.a.
Payload	3kg	Peak 15kg; Rated 7kg	n.a.	3kg	2kg (single arm)	5kg	15kg	15kg
Runtime	2 hours	3 hours	n.a.	2 hours	3 hours	4 hours	2 hours	3-4 hours
Battery	9000mAh	15Ah(0.972KWh)	15Ah	500Wh	700Wh	1652Wh (dual battery)	20Ah	n.a.

Robot OEM	Galbot		Laju Robotics		Booster Robotics		EngineAI	DEEP Robotics		DOBOT
Robot	S1	G1	KUAVO 5	KUAVO 5-W	T1	K1	PM01	T800	DR02	Atom
Appearance										
Launch date	Jan 2026	Jun 2024	Oct 2025	Oct 2025	Oct 2024	Oct 2025	Dec 2024	Dec 2025	Oct 2025	Mar 2025
Body part										
Height	179cm	173cm	173cm	200cm	118cm	95cm	138cm	173cm	175cm	153cm
Weight	320kg	85kg	63.5kg	156kg	30kg	19.5kg	42kg	75kg	75kg	62kg
Speed	1.5m/s	n.a.	2m/s	1.5m/s	n.a.	n.a.	2m/s	3m/s	Walk: 1.5m/s; Run: 4m/s	1.5m/s
Payload	50kg	5kg	5kg (single arm)	5kg (single arm)	n.a.	n.a.	n.a.	5kg (single arm)	10kg	3.5kg (single arm)
Runtime	8 hours	10 hours	2 hours	8 hours	Walk 2hr; Stand 4hr	80min	2 hours	4-5 hours	n.a.	2 hours
Battery	30Ahx2	n.a.	n.a.	n.a.	10.5Ah	5Ah	10,000mAh	Li-ion battery: 20Ah Solid-state battery: 40Ah	20Ah (1440Wh)	15Ah

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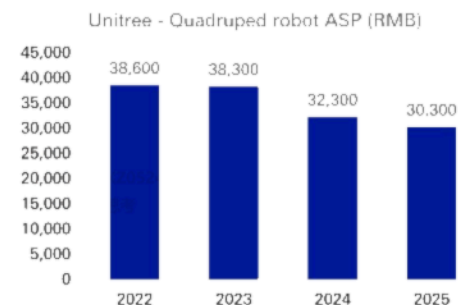
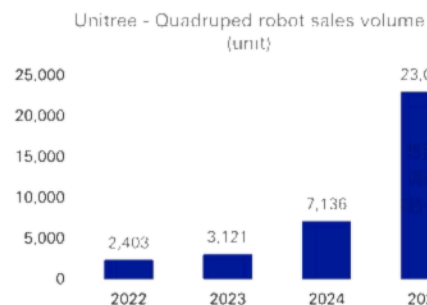
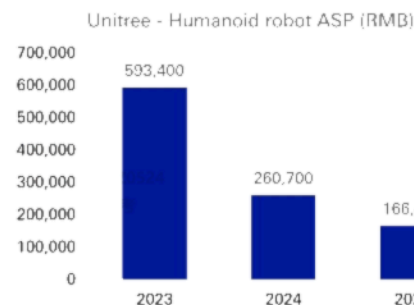
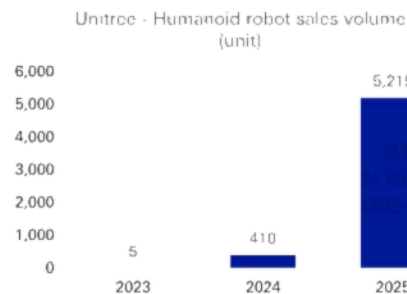
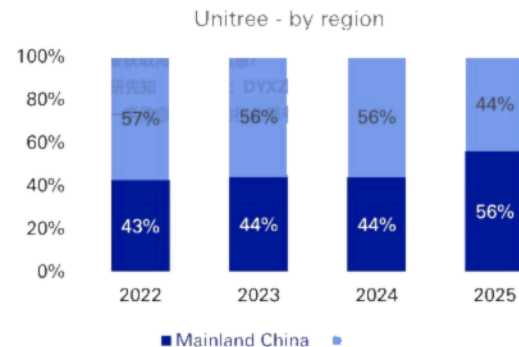
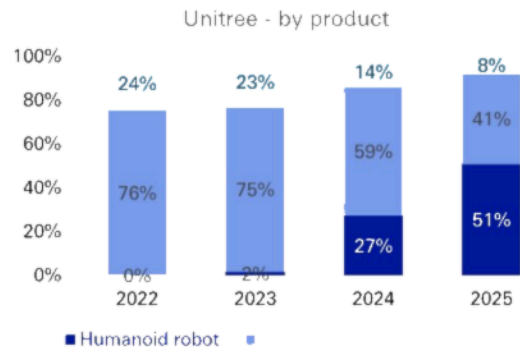
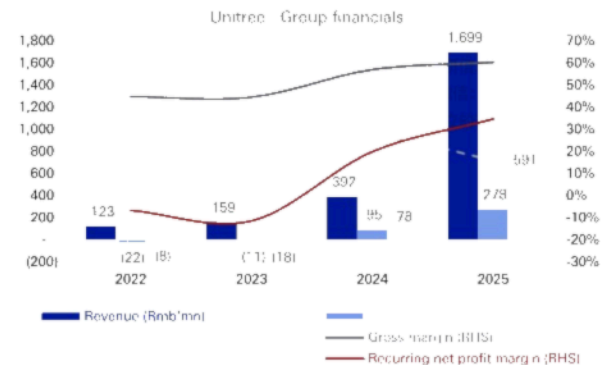
的一手

One-pager company background



Unitree Robotics is a globally recognized, leading high-performance general-purpose robotics company, with humanoid robots shipments exceeding 5,500 units in 2025 (no.1 globally). Its main products include humanoid robots and quadruped robots, as well as core robot components such as joint modules, dexterous hands, collaborative robotic arms, and perception sensors .

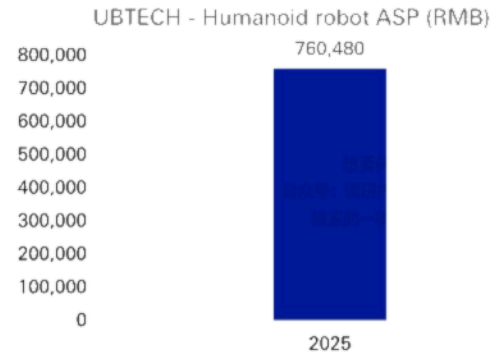
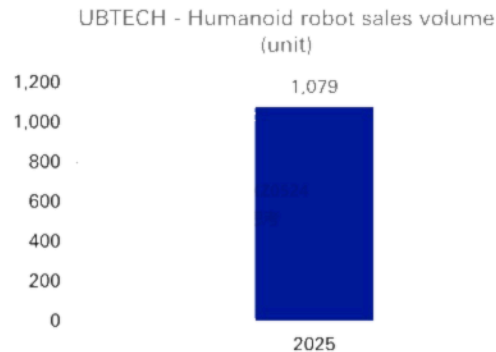
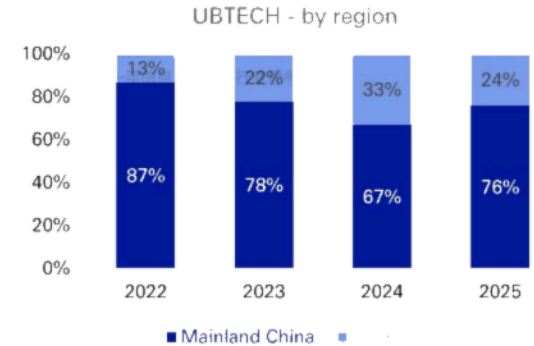
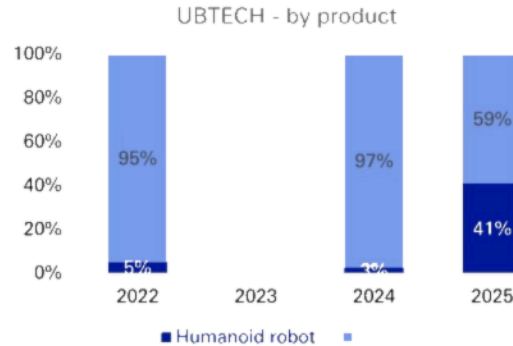
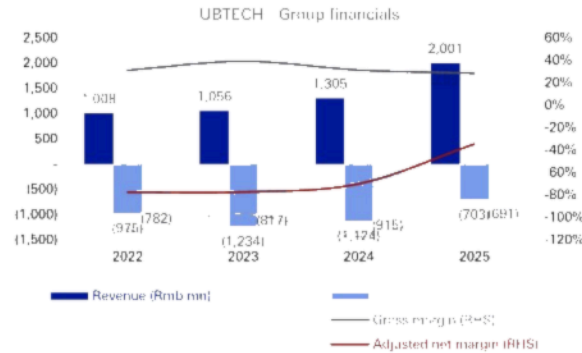
Robot OEM	Unitree							
Type	Humanoid robot (full-sized)		Humanoid robot (mid to small-sized)		Quadruped robot			
Model	H2	H1	G1	R1	B2	B2-W	A2	Go2
Appearance								
Launch date	Oct 2025	Aug 2023	May 2024	Jul 2025	Nov 2023	Nov 2023	Aug 2025	Jul 2023
Body part								
Use case	Industrial, Commercial, Research & Education		Research & Education, Commercial	Research & Education, Commercial	Industrial grade		Industrial grade	Consumer grade
Height	182cm	180cm	132cm	123cm	109.8cm	109.8cm	82cm	70cm
Weight	70kg	47kg	35kg	25kg	60kg	85kg	37kg	15kg
Speed	n.a.	3.3m/s; Max: 5m/s	2m/s	n.a.	Max: 6m/s	Max: 4.2m/s	3.7m/s; Max: 5m/s	Max: 5m/s
Payload	Rated: 7kg; Max: 15kg	n.a.	2kg	2kg	40kg; Max: 120kg (standing)	40kg; Max: 120kg (standing)	25kg; Max: 100kg (standing)	Max: 12kg
Runtime	3 hours	n.a.	2 hours	1 hours	4-6 hours	n.a.	n.a.	2-4 hours
Battery	15Ah	15Ah	9000mAh	6000mAh	45Ah	45Ah	9000-18000mAh	8000-15000mAh





UBTECH is an established robotic company providing smart service robotic products and services. Its offerings range from consumer-level robots, enterprise-level smart service robotic products and services tailored for education, logistics and other sectors. UBTECH has consistently focused on industrial manufacturing scenarios and successively launched the third-generation industrial embodied intelligent humanoid robot Walker S2 in 2025.

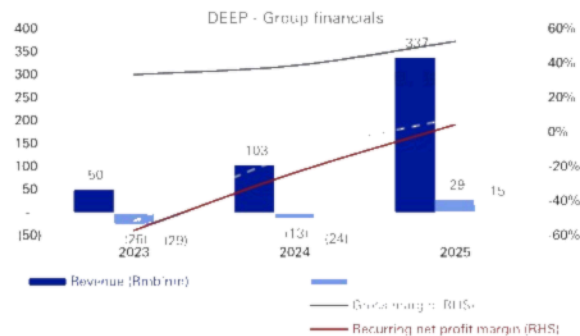
Robot OEM	UBTECH							
Type	Humanoid robot (full-sized)				Humanoid robot (small-sized)		Other intelligent robot	
Model	Walker S2	Walker S1	Walker C	Walker X	Walker Tiankang (天工行者)	Cruzr S2 (wheeled)	Alpha Mini (悟空)	Wali Series
Appearance								
Launch date	Jul 2025	Oct 2024	Mar 2025	Jul 2021	Mar 2025	Aug 2025	Sep 2018	Oct 2023
Body part								
Use case	Industrial		Commercial		Research & Education	Industrial, Commercial	Programming education	Logistics
Height	176cm	172cm	163cm	130cm	172cm	176cm	24.5cm	n.a.
Weight	70kg	76kg	43kg	63kg	73kg	185kg	0.7kg	n.a.
Speed	2m/s	n.a.	1.6m/s	0.8m/s	2m/s	2m/s	n.a.	n.a.
Payload	15kg	15kg	5kg	3kg	3kg (single hand)	15kg	n.a.	n.a.
Runtime	2 hours	3-4 hours	2-4 hours	2 hours	3 hours	n.a.	n.a.	n.a.
Battery	20Ah	n.a.	15Ah	10Ah	n.a.	n.a.	4060mAh	n.a.



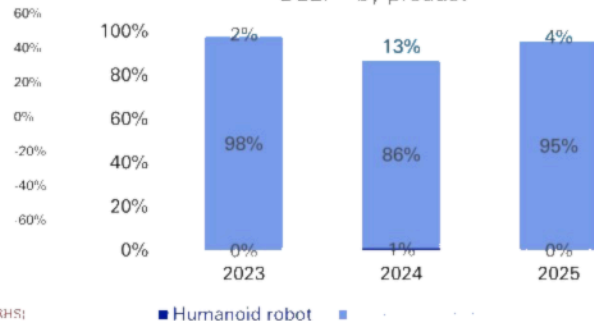


DEEP Robotics is a leading embodied AI robotics enterprise, providing quadruped robots and wheeled-legged robots. According to data from Frost & Sullivan, in 2025, the company ranked first globally in revenue for quadruped robot industrial applications, second globally in overall quadruped robot revenue, and fourth globally in embodied AI robot revenue.

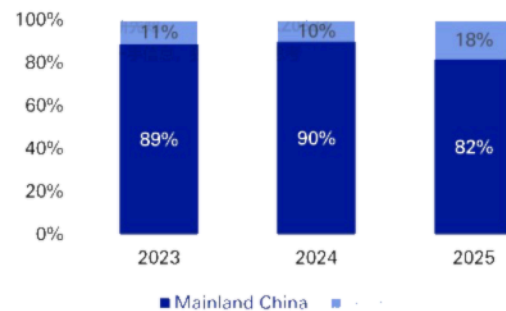
Robot OEM	DEEP Robotics					
Type	Humanoid robot (full-sized)		Quadruped robot		Wheel-legged robot	
Model	DR01	DR02	X30	Lite 3	Lynx M20	Lynx M20S
Appearance						
Launch date	Aug 2024	Oct 2025	Oct 2023	Mar 2023	Apr 2025	Apr 2026
Body part						
Use case	Research & Education	Industrial grade	Industrial grade	Research & Education, Commercial	Industrial grade	
Height	170cm	175cm	100cm	61cm	82cm	82cm
Weight	80kg	75kg	56kg	12kg	33kg	35kg
Speed	1.6m/s	Walk: 1.5m/s; Run: 4m/s	Max: 4m/s	2.5m/s; Max: 5m/s	2m/s; Lab-tested Max: 5m/s	2m/s; Lab-tested Max: 9m/s
Payload	n.a.	10kg	20kg	7.5kg	15kg; Max.: 50kg	35kg; Max.: 100kg
Runtime	n.a.	n.a.	2.5-4 hours	1.5-2 hours	2.5 hours	2.5-3.5 hours
Battery	n.a.	20Ah (1440Wh)	n.a.	n.a.	n.a.	n.a.



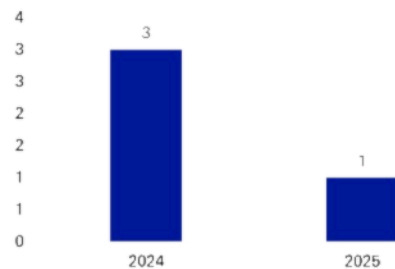
DEEP - by product



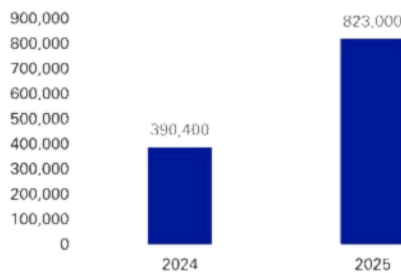
DEEP - by region



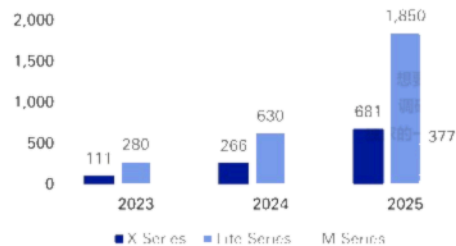
DEEP - Humanoid robot sales volume (unit)



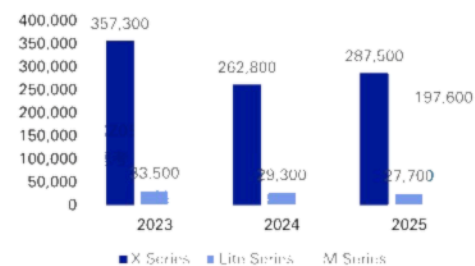
DEEP - Humanoid robot ASP (RMB)



DEEP - Quadruped robot sales volume (unit)



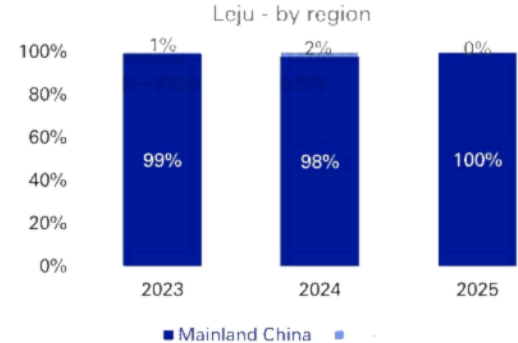
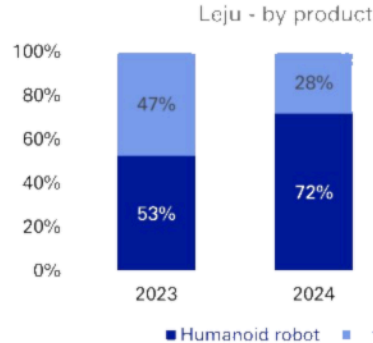
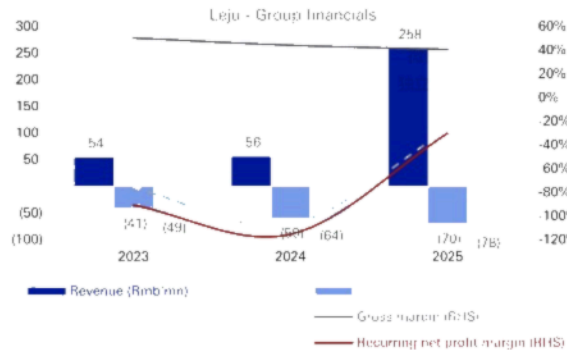
DEEP - Quadruped robot ASP (RMB)



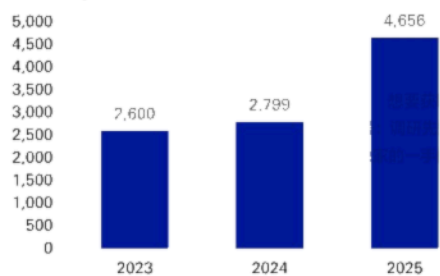


Leju Robot is an embodied AI technology enterprise engaged in the R&D and production of humanoid robots. It focuses on full-stack technological R&D for humanoid robots, covering the 'brain-cerebellum-body' architecture. The core development strategy is to achieve the industrialization of humanoid robots. In 2025, Leju has sold 577 units of its Kuavo series full-sized humanoid robot products.

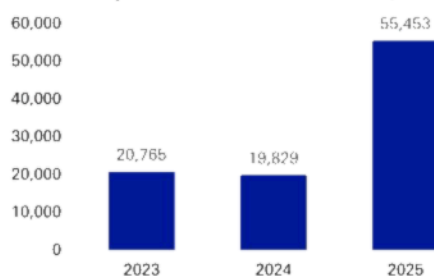
Robot OEM	Leju Robot					
Type	Humanoid robot (full-sized)		Humanoid robot (mid to small-sized)		Other intelligent robot	
Model	Kuavo5	Kuavo5-W	Roban2 (鲁班)	Aelos	Pando	Fluvo
Appearance						
Launch date	Oct 2025	Oct 2025	Sep 2025	Mar 2023	Jan 2018	n.a.
Body part	Industrial, Research & Education, Commercial and data collection		Research & Education	Programming education	Programming education	Hospital AGV
Use case	Industrial, Research & Education, Commercial and data collection		Research & Education	Programming education	Programming education	Hospital AGV
Height	173cm	200cm	124cm	34.6cm	n.a.	n.a.
Weight	63.5kg	156kg	42kg	1.73kg	n.a.	n.a.
Speed	2m/s	1.5m/s	n.a.	n.a.	n.a.	n.a.
Payload	5kg (single arm)	5kg (single arm)	n.a.	n.a.	n.a.	n.a.
Runtime	2 hours	8 hours	n.a.	n.a.	n.a.	n.a.
Battery	n.a.	n.a.	n.a.	n.a.	2000mAh	n.a.



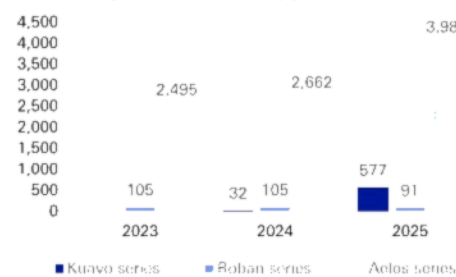
Leju - Humanoid robot sales volume (unit)



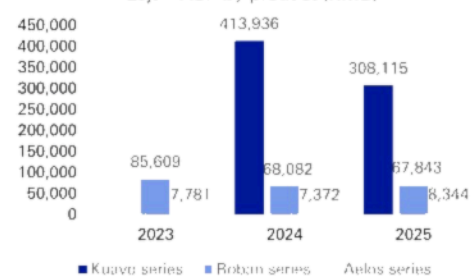
Leju - Humanoid robot ASP (RMB)



Leju - sales volume by product (unit)



Leju - ASP by product (RMB)





DOBOT is one of leading companies that specializes in the development, manufacturing and commercialization of collaborative robots. It is strategically evolving from a “leader of cobots” to a “multimodal embodied AI platform”. In 2025, DOBOT claimed to be the world’s first company to launch an embodied robotics platform encompassing forms of “robotic arms + humanoid + multi-legged”.

Robot OEM	DOBOT		
Type	Humanoid robot (full-sized)	Quadruped robot	Six-legged robot
Model	Atom	Rover X1	Hexplorer
Appearance			
Launch date	Mar 2025	Nov 2025	Jul 2025
Body part			
Use case	Industrial, Commercial, Pharma	Consumer grade	Industrial grade
Height	153cm	82cm	n.a.
Weight	62kg	16kg	n.a.
Speed	1.5m/s	1.8m/s	n.a.
Payload	3.5kg (single arm)	3-7kg	n.a.
Runtime	2 hours	1-2 hours	n.a.
Battery	15Ah	4000mAh	n.a.

