Humanoid Robot Insight

GPT-6 Astra, production ramps and supportive China deployment policies catalysing sentiment

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Astra: exploring general-purpose foundation models for Embodied AI

After the launch of GPT-6 Astra, OpenAI highlighted improvements in environmental understanding, visuospatial reasoning and agentic capabilities, but did not disclose official benchmarks for real-world robotic control or Vision-Language-Action (VLA) applications. Subsequent third-party studies integrated Astra into robotic arms, dexterous manipulation systems and Unitree G1, exploring In-Context Learning (ICL), interaction memory and coordination with low-level policies such as π0.5. UBTECH and Unitree tested Astra on their respective humanoid platforms, Walker S1 and G1, with promising initial results. Studies and tests provide early support for a hierarchical architecture, with foundation models handling high-level reasoning and specialised VLA/controllers executing real-time actions. Astra strengthens the case for general-purpose foundation models as the high-level "brain" of embodied AI, but latency, cost, fine-grained control and reliability are key bottlenecks; real-world task success rates, human intervention rates and operating reliability will be critical to monitor.

October reinforced humanoid robotics' shift to production

XPeng targets IRON mass production by end-2026 with launch and delivery in 2027. **UBTECH** expanded partnerships with FAW-Volkswagen and Xiamen C&D; its C&D JV targets ≥10k cumulative humanoid sales by 2030. **Tesla** began Optimus production in Fremont and targets external deliveries at end-2027. **Boston Dynamics** plans to add additional Atlas customers from early 2027, after allocating 2026 deployments to Hyundai and Google DeepMind. GXO expects to expand **Digit** to more US sites in 2027 after it handled over 100,000 totes in Georgia. **Schaeffler and NEURA Robotics** have established humanoid-robotic facilities in China. Investors should distinguish named customer commercial orders and recurring live deployments from sales targets, framework agreements and pilots, in our view.

China policy: accelerating deployment raising the bar for capital markets

China's embodied-AI policy is shifting from R&D and pilots to standards, real-world validation and scaled deployment. Central policymakers are advancing national humanoid robot standards and training initiatives focused on productivity, safety, reliability and commercial viability, while Shanghai targets 8,000 humanoid robots in factories and over 2,000 AI-enabled manufacturing use cases by 2028. Capital market scrutiny is also tightening: CNBC reported on 29 September, citing sources familiar with the CSRC's thinking, that tighter "window guidance" for humanoid/embodied AI IPOs emphasises sustainable revenue, narrowing losses and proprietary technologies. This suggests higher bars for commercialisation, profitability and technology differentiation.

Robotics sentiment remains positive near term, but clearer evidence is needed

After underperforming in August, robotics' indices outpaced machinery in September, increasing in October on stronger physical-AI expectations, higher Tesla Optimus visibility and China policy support. The Unitree founder's optimistic physical AI breakthrough timeline and upcoming conferences are catalysts, but AI-model generalisation and Optimus V3 mass production still require validation. Orbbec's strategic orders for camera and robot-free data collection hardware along with software adaptation signal rising embodied-AI data demand, benefiting edge AI devices and upstream components. We prefer component suppliers with established businesses, and strong customer and technology barriers, particularly in ***edge AI devices***. Our China top picks are **OPT** (sensors); **Hengli Hydraulic** (screws); and **Kedali** and **Shuanghuan** (reducers).



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Initial results from Astra tests on Unitree G1 and UBTECH Walker S1

Unitree- G1

On 22 October, during Unitree's Partner Ecosystem Conference, founder Wang Xingxing demonstrated Astra controlling a robot in a zero-shot painting task. Key takeaways:

- **Astra demonstrated promising zero-shot robot control.** During the test, Astra controlled a robot to complete a painting task with zero task-specific training or coding, autonomously handling multi-step actions such as changing colours and cleaning the brush.
- **High-level planning appears increasingly mature.** Unitree believes long-horizon planning and navigation in unfamiliar environments have largely been solved, while relatively simple manipulation tasks such as picking up small objects have become less challenging.
- **Reliable physical interaction remains the key bottleneck.** Contact-rich and fine-manipulation tasks remained constrained by sensor/perception and actuator-execution errors, reflecting the remaining input/output alignment gap between multimodal models and the physical world.
- **Unitree expects remaining physical AI bottlenecks to be addressed over the next one to two years.** If manipulation reliability improves sufficiently, management believes general household tasks could be feasible from 2027.

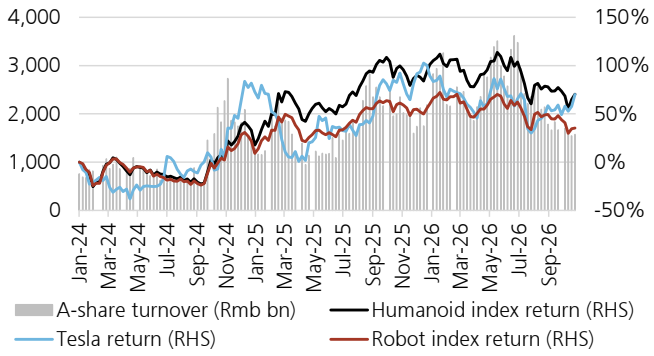
UBTECH - Walker S1

On 29 October, UBTECH (9880.HK, Not Rated) hosted a call to share the results of its tests of Astra's robot control capabilities using its Walker S1 humanoid robot, as well as Astra's integration with UBTECH's Thinker-WM and an in-house VLA model across simulation and real-world tasks. Key takeaways:

- **Astra's real-world performance exceeded expectations, but direct control remains too slow and expensive for practical deployment.** During the Walker S1 Rubik's Cube test, Astra demonstrated strong spatial reasoning and whole-body control, but ultimately failed to grasp the cube despite repeated attempts over around an hour, consuming 95m tokens and costing over US$500.
- **VLA and world-model (WM) integration significantly improved efficiency and execution.** Thinker-WM reduced the simulation response time from 33 to 23 minutes and cost from US$12.00 to US$3.00. For the real-world grasping task, Astra successfully completed the task by leveraging UBTECH's VLA for precise manipulation, cutting execution time to around five minutes, token use to c3m and cost to the low-teens US dollars.
- **Astra + VLA/WM + whole-body control likely to be the more practical architecture over the next one to two years.** Astra handles high-level understanding and planning, VLAs provide precise manipulation, and whole-body controllers enable real-time execution. Per management, Astra is therefore better positioned as a high-level "brain/orchestrator", with VLA and WM serving as callable skills.
- **Industrial deployment taking an agent-based approach rather than waiting for fully general embodied AI.** For well-defined tasks such as material handling and sorting, UBTECH deploys task-specific agents/skills and it said this approach is now capable of meeting customer requirements.
- **Real-world data remain critical given the significant sim-to-real gap.** General embodied-model pre-training could ultimately require million-hour-scale real-world/heterogeneous datasets, while c100k samples are currently required for post-training a specific industrial workstation. UBTECH's tests showed Chinese foundation models lag OpenAI in direct robot control, although performance improved materially after injecting accumulated robotics knowledge.

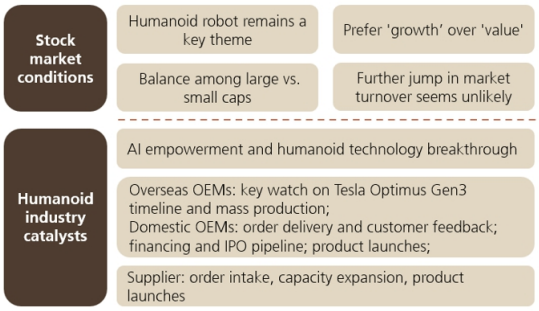
Sector performance

Figure 1: Humanoid robot index rebounded in mid-October



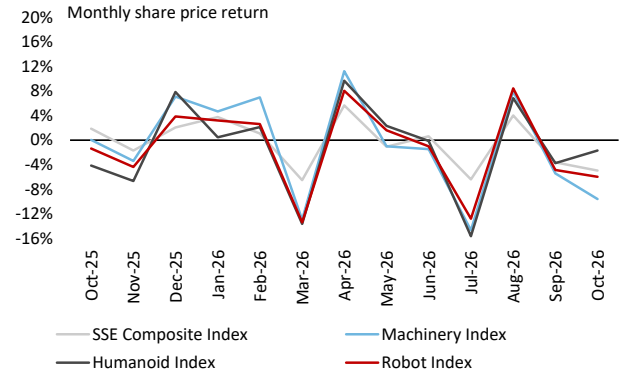
Source: WIND, UBS-S. Note: We use the WIND AI Robot Concept Index as a proxy for our humanoid robot index. Data as of 29 October 2026.

Figure 2: Key factors driving the performance of the humanoid robot theme



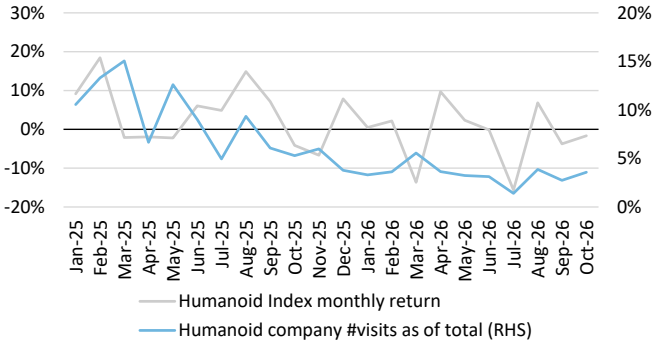
Source: UBS-S

Figure 3: The Humanoid Index recorded a stronger improvement than machinery in October



Source: WIND. Note: Data as of 29 October 2026.

Figure 4: The share of humanoid company visits edged up in October



Source: Wind, UBS Quant Research, UBS-S. Note: Data as of 29 October .

Company performance

Figure 5: Monthly share price performance

Monthly share price return		YTD	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26
Chinese indices															
000001.SH	SSE Composite Index	-8%	1.9%	-1.7%	2.1%	3.8%	1.1%	-6.5%	5.7%	-1.1%	0.6%	-6.4%	4.0%	-3.6%	-5.0%
882131.WI	Machinery Index	-17%	0.0%	-3.4%	7.1%	4.7%	7.0%	-13.0%	11.2%	-1.0%	-1.5%	-14.7%	7.9%	-5.4%	-9.6%
8841699.WI	Humanoid Index	-15%	-4.1%	-6.6%	7.8%	0.5%	2.1%	-13.6%	9.7%	2.3%	-0.1%	-15.6%	6.8%	-3.7%	-1.7%
884126.WI	Robot Index	-16%	-1.4%	-4.4%	3.9%	3.2%	2.6%	-13.4%	8.0%	1.6%	-1.0%	-12.8%	8.4%	-4.9%	-6.0%
	Humanoid vs. Machinery	Out-perform	Under-perform	Under-perform	Out-perform	Under-perform	Under-perform	Under-perform	Under-perform	Out-perform	Out-perform	Under-perform	Under-perform	Out-perform	Out-perform
Chinese companies															
OEM															
9880.HK	UBTECH*	-48%	-11%	-18%	12%	11%	-13%	-30%	24%	-4%	1%	-21%	4%	-12%	-12%
2432.HK	Dobot*	-52%	-22%	-20%	-5%	-4%	6%	-16%	-2%	-2%	-16%	-6%	-3%	-10%	-15%
2590.HK	Geek Plus*	-72%	-7%	-9%	-12%	36%	-20%	-29%	3%	-15%	-19%	-19%	-1%	-21%	-18%
2715.HK	Estun*	3%						-13%	14%	31%	11%	-10%	2%	-18%	-6%
002747.SZ	Estun	20%	-2%	-13%	8%	-1%	1%	-16%	9%	27%	35%	-20%	6%	-11%	1%
Components															
300124.SZ	Inovance	-24%	-8%	-8%	7%	-1%	-2%	-8%	2%	8%	-10%	-3%	-3%	-16%	9%
601100.SH	Hengli Hydraulic	-22%	0%	6%	8%	-1%	4%	-15%	9%	4%	-1%	1%	-5%	-12%	-5%
688017.SH	Leader Drive	46%	-10%	-10%	31%	19%	1%	-19%	20%	37%	37%	-27%	-1%	-9%	3%
688686.SH	OPT	31%	-13%	-8%	7%	-3%	-3%	-23%	21%	37%	13%	-38%	45%	-14%	26%
603915.SH	Guomao	-28%	-3%	4%	8%	-7%	0%	-15%	7%	4%	-13%	-8%	10%	-8%	0%
601689.SH	Tuopu	-42%	-9%	-15%	22%	-6%	-6%	-16%	6%	4%	-10%	-17%	0%	-1%	-4%
002050.SZ	Sanhua-A	-37%	3%	-14%	29%	-8%	1%	-17%	10%	-1%	-5%	-14%	-3%	-1%	-3%
2050.HK	Sanhua-H	-41%	-7%	-15%	11%	-8%	-4%	-17%	18%	-5%	-16%	0%	-4%	-2%	-8%
002472.SZ	Shuanghuan	-8%	-12%	-9%	19%	-12%	0%	-13%	9%	0%	6%	-7%	-8%	7%	13%
002850.SZ	Kedali	2%	-8%	-14%	2%	-2%	7%	8%	6%	-7%	9%	-4%	-3%	-12%	1%
0425.HK	Minth	-28%	2%	-1%	-7%	16%	19%	-26%	5%	11%	-30%	8%	-6%	-11%	-4%
600699.SH	Joyson	-33%	-8%	-16%	17%	-11%	0%	-11%	15%	-8%	-17%	-5%	-7%	22%	-11%
HSAI.O	Hesai	-38%	-16%	-19%	16%	7%	13%	-29%	19%	-17%	-4%	-7%	-5%	-1%	-13%
2498.HK	Robosense	-62%	-18%	-6%	12%	-7%	6%	-4%	-4%	-5%	-30%	7%	-24%	-8%	-17%
9660.HK	Horizon Robotics	-59%	-8%	-10%	10%	-5%	0%	-19%	10%	-27%	-23%	27%	-9%	-11%	-14%
300433.SZ	Lens Technology	-11%	-12%	-7%	10%	20%	-3%	-20%	-8%	58%	32%	-41%	23%	-17%	-17%
Overseas companies															
OEM															
TSLA.O	Tesla	-10%	3%	-6%	5%	-4%	-6%	-8%	3%	14%	-3%	-26%	18%	-4%	14%
HYUNDAI.NS	Hyundai Motor	-16%	-6%	-5%	-1%	-4%	-1%	-18%	2%	6%	-1%	14%	2%	-8%	-5%
0GRX.L	Hexagon	0%	4%	-5%	-1%	-5%	-2%	-11%	8%	-12%	-6%	17%	7%	-2%	11%
Components															
012330.KS	Hyundai Mobis	-4%	6%	-2%	21%	20%	15%	-26%	12%	81%	-35%	-5%	-4%	-19%	-4%
373220.KS	LG Energy Solution	-3%	36%	-14%	-10%	8%	7%	-8%	17%	-1%	-21%	-9%	15%	-6%	0%
6324.T	Harmonic drive systems*	46%	8%	8%	22%	-10%	34%	-24%	51%	49%	0%	-21%	-6%	11%	-15%
6268.T	Nabtesco	18%	16%	-12%	11%	12%	22%	-24%	36%	6%	-6%	-9%	-2%	7%	-11%
6594.T	Nidec	-13%	-28%	5%	8%	3%	12%	-20%	22%	16%	-5%	-2%	0%	-9%	-21%
SHA0.DF	Schaeffler	-29%	24%	-5%	26%	19%	4%	-32%	15%	31%	-20%	-16%	4%	-13%	-7%

Source: Wind, UBS-S. Note: Data as of 29 October 2026. * Not covered by UBS or UBS-S.

Figure 6: An overview of market participants in humanoid robot related sectors

Brain					
AI foundation Model		**Cloud**		**Semiconductor**	
Open AI	NA	Microsoft	MSFT.O	**SoC Processor**	
Physical Intelligence	NA	Oracle	ORCL.N	NVIDIA	NVDA.O
Google	GOOG.O	Google	GOOG.O	Huawei	NA
Microsoft	MSFT.O	Amazon	AMZN.O	Horizon Robotics	9660.HK
Meta	META.O	Alibaba	9988.HK	**Connectivity**	
Baidu	9888.HK	Huawei	NA	Qualcomm	QCOM.O
Huawei	NA	Tencent	0700.HK	Mediatek	2454.TW
Alibaba	9988.HK	Baidu	9888.HK	Broadcom	AVGO.O
Tencent	0700.HK			**Storage**	
				Samsung	005930.KS
				SK Hynix	000660.KS
				Micron	MU.O

Others			
Battery			
Toyota	7203.T		
BYD	002594.SZ		
Eve energy	300014.SZ		
Body structure			
Lingyi iTech	002600.SZ		
Xusheng	603305.SH		
Wiring/connector			
Amphenol	APH.N		
TE Connectivity	TEL.N		
Sinbon Electronics	3023.TW		
Biz Link	3665.TW		

Body							
Actuator		**Sensor**					
Sanhua	002050.SZ	**Encoder**		**Torque sensors**		**Camera**	
Tuopu	601689.SH	Tamagawa	NA	ATI	NA	Sony	SONY.N
Inovance	300124.SZ	Heidenhain	NA	Honeywell	HON.O	Omnivision (Will Semi)	603501.SH
Jiecang	603583.SH	Renishaw	RSW.L	Keli	603662.SH		
Hyundai Mobis	012330.KS	Inovance	300124.SZ	**Lidar**		Orbbec	688322.SH
HL Mando	204320.KS			RoboSense	2498.HK	OPT	688686.SH
				Hesai	HSAI.O		
Coreless motor		**Screw**		**Reducer**		**Bearing**	
Maxon	NA	Schaffler	SHA0.DE	Harmonic Drive	6324.T	Timken	TKR.N
Moon's Electric	603728.SH	THK	6481.T	Nabtesco	6268.T	SKF	SKFb.ST
Zhaowei	003021.SZ	Zhejiang Rongtai	603119.SH	Leader Drive	688017.SH	Schaffler	SHA0.DE
Jiangsu Leli	300660.SZ	Hengli Hydraulic	601100.SH	Guomao	603915.SH	NSK	6471.T
Frameless torque motor		Beite	603009.SH	Shuanghuan	002472.SZ	Changsheng	300718.SZ
Kollmorgen	NA	Seenpin	NA	Zhejiang Sling	301550.SZ	Fujian Longxi	600592.SH
Leadshine	002979.SZ	Zhenyu Technology	300953.SZ	Kedali	002850.SZ		
Veichi	688698.SH	Wuxi Best	300580.SZ				
Kinco	688160.SH						

Materials		Machine tool		Semiconductor		Imaging	
CNRE	600111.SH	Tsugami China	1651.HK	**Analog/MCUs**			
JI Mag	300748.SZ	Hiecise Precision	300809.SZ	Texas Instrument	TXN.O	Sony	SONY.N
Zhongke Sanhuan	000970.SZ	Qinchuan	000837.SZ	ADI	ADI.O	Samsung	005930.KS
Lynas	LYC.AX	Neway CNC	688697.SH	On Semi	ON.O	Will Semi	603501.SH
		Cutting tool					
		Huarui Precision	688059.SH				

Robot OEM			
Startup			
Figure AI	Unitree		
Agility robotics	AgiBbot		
1X technologies	Leju		
Boston Dynamics	Fourier		
Apptronik			
Auto			
Tesla	TSLA.O		
Toyota	7203.T		
Xpeng	9868.HK		
Xiaomi	1810.HK		
GAC	601238.SH		
Chery	NA		
BYD	002594.SZ		
NIO	NIO.N		
Hyundai Motor	005380.KS		
Chang'an (planning)	000625.SZ		
Kia Cor	000270.KS		
Industrials			
Kawasaki	3045.T		
Teradyne	TER.O		
Rainbow Robotics	277810.KS		
Techman (Quanta)	2382.TW		
Estun	002747.SZ		
Dobot	2432.HK		
UBTECH	9880.HK		
Geekplus	2590.HK		
Home appliance			
Midea	000333.SZ		
Dreame	NA		
Internet			
Naver labs	NA		

Downstream testing / applications	
Auto	
BYD	002594.SZ
NIO	NIO.N
BAIC	1958.HK
Geely	0175.HK
FAW-VW	NA
FAW-Audi	NA
Dongfeng liuqi	NA
Hongqi	NA
Li Auto	2015.HK
Hyundai Motor	005380.KS
Kia Cor	000270.KS
Electronics	
Foxconn	601138.SH
Samsung	005930.KS
Logistics	
GXO Logistics	GXO.N
SF Express	002352.SZ
Hyundai Glovis	086280.KS
Consumer	
Haier	600690.SH
Midea	000333.SZ
Easyhome	000785.SZ
Services	
China Construction Bank	601939.SH
Yongda Automobiles	3669.HK
Research and education	
Household	
Emergency rescue	
Entertainment	

Related investment & cooperation			
Shenzhen humanoid center		**Zhejiang humanoid center**	
Zhaowei	003021.SZ	Supcon	688777.SH
Fortior Technology	688279.SH	Wolong Electric	600580.SH
Orbbec	688322.SH	**Shanghai humanoid center**	
Anhui humanoid center		Shanghai Electric	601727.SH
NIO	NIO.N	**Beijing humanoid center**	
Iflytek	002230.SZ	Xiaomi	1810.HK
		UBTECH	9880.HK

Source: UBS-S, UBS

Tesla's commentary on Optimus

Figure 7: Tesla's commentary on Optimus production during past earning calls

Event		Production
TSLA Tesla Inc **Q4 2023 Earnings Call** 24 Jan 24 • Event Transcript	▲	Tesla expects to ship some number of Optimus units next year, with production starting in 2025, though the exact timeline and volume are uncertain due to the revolutionary nature of the product.
TSLA Tesla Inc **Q1 2024 Earnings Call** 23 Apr 24 • Event Transcript	▬	Tesla expects to have Optimus in limited production in the actual factory doing useful tasks before the end of 2024, and may be able to sell it externally by the end of 2025.
TSLA Tesla Inc **Annual General Meeting** 13 Jun 24 • Event Transcript	▼	Tesla plans to have over 1,000 Optimus robots working at Tesla next year, with limited production starting next year for use in factories, scaling up very rapidly thereafter. By 2026, Optimus will be able to perform a wide range of tasks. Tesla aims to produce humanoid robots at scale with a target cost of around $10,000-$20,000 per unit at high volume.
TSLA Tesla Inc **Q2 2024 Earnings Call** 23 Jul 24 • Event Transcript	▼	Tesla expects to have Optimus production Version 1 in limited production starting early next year for Tesla consumption, with several thousand Optimus robots produced and doing useful things by the end of next year in Tesla factories. Production Version 2 will ramp up significantly in 2026 and be provided to outside customers.
TSLA Tesla Inc **Q4 2024 Earnings Call** 29 Jan 25 • Event Transcript	▲	Tesla's normal internal plan calls for roughly 10,000 Optimus robots to be built in 2025, with several thousand expected to be completed. Production lines are being designed for 1,000 units/month initially, then 10,000 units/month, then 100,000 units/month. Version 2 production is expected to launch mid-2025, with external sales potentially beginning in the second half of 2025.
TSLA Tesla Inc **Q1 2025 Earnings Call** 22 Apr 25 • Event Transcript	▬	Tesla expects to make thousands of Optimus robots this year, with most production occurring at the end of the year. The company is confident in achieving 1 million Optimus units per year in less than five years, possibly by 2029 or 2030.
TSLA Tesla Inc **Q2 2025 Earnings Call** 23 Jul 25 • Event Transcript	▼	Tesla aims to scale Optimus production to 1 million units per year within five years, with prototypes expected in 2-3 months and production starting in early 2026. The company expects to reach approximately 100,000 units per month within 60 months.
TSLA Tesla Inc **Q3 2025 Earnings Call** 22 Oct 25 • Event Transcript	▼	Tesla plans to build a 1 million unit Optimus production line with production start towards the end of next year, followed by Optimus 4 at 10 million units and Optimus 5 at 50-100 million units.
TSLA Tesla Inc **Annual General Meeting** 06 Nov 25 • Event Transcript	▬	Tesla plans to launch Optimus with the fastest production ramp of any large complex manufactured product, starting with a million-unit production line in Fremont, followed by a 10-million-unit-per-year production line, and potentially reaching $100 million units annually. Optimus version 3 production starts next year, with versions 4 and 5 following in 2027 and 2028 respectively, with significant improvements and increases in production scale with each version.
TSLA Tesla Inc **Q4 2025 Earnings Call** 29 Jan 26 • Event Transcript	▬	Production is expected to begin by end of 2026, with Optimus 3 unveiling in a few months. Tesla plans to convert the Model S and X production space in Fremont into an Optimus factory with a long-term goal of 1 million units per year. Optimus has a completely new supply chain, and thus its manufacturing ramp will be longer than it is for products that have an existing supply chain.
TSLA Tesla Inc **Q1 2026 Earnings Call** 23 Apr 26 • Event Transcript	▬	Optimus production will start in late July/August 2026 at Fremont, with slow initial production. A second Optimus factory at Giga Texas will start production around summer 2027, with significant ramp-up expected towards the end of 2026 and into 2027. Currently, Optimus is in internal production for testing at Tesla. In the future, Optimus will be useful outside of Tesla, starting next year.
TSLA Tesla Inc **Q2 2026 Earnings Call** 23 Jul 26 • Event Transcript	▼	Tesla is installing first-generation Optimus lines at Fremont and expects to start production later this year, versus late July/August previously. Musk said Optimus will be the hardest product Tesla has ever had to scale in manufacturing, as everything on the robot is new, and the initial part of the production ramp will be quite flat and long. Initial builds will be used in Tesla's Optimus Academy for training data collection and further functionality development. Building construction at Gigafactory Texas, the planned site of the second-generation Optimus line, is now in full swing.
TSLA Tesla Inc **Q3 2026 Earnings Call** 22 Oct 26 • Event Transcript	▲	Tesla has begun what Musk called early production of Optimus on its high-volume Fremont lines, turning out its first production-quality units on a process it says is proven fit for a commercial product. Musk expects a shallow, somewhat bumpy initial ramp, taking at least a year, maybe a little longer, to reach 20,000 units a week (1 million annualized), as parts of the design, mostly the hand, are still changing. With the AI5 chip due in Optimus around April 2027, he expects AI, design and reliability issues to be solved around the end of 2027, when external deliveries start, likely for industrial uses first.

Source: AlphaSense, UBS-S. Note: Arrows indicate changes versus commentary from the previous event.

Catalyst calender

Figure 8: Upcoming humanoid industry events/catalysts

Date	Event
October 2026	3Q26 results of A-share humanoid-related companies, incl. Unitree
November 7 2026	Tesla annual shareholders meeting
December 6-9, 2026	IEEE-RAS Humanoid 2026 in Santa Clara
January 6-9, 2027	CES 2027 in Las Vegas
January 2027	Tesla Q426 earning release
March 15-18, 2027	NVIDIA GTC 2027 in San Jose

Source: Company data, UBS-S

Figure 9: Humanoid industry events in October 2026

October 2026

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
28	29	30	1 Boston Dynamics unveiled a four-finger, 13-DoF Atlas hand designed for volume production	2	3	4
5	6 Boston Dynamics named ex-Amazon AGI head Rohit Prased as CEO	7 NVIDIA discussed another US$1bn for Figure AI, which seeks c.US$38bn pre-money	8 UBTECH signed strategic cooperation with FAW-Volkswagen on humanoids in logistics and manufacturing	9 UBTECH and C&D agreed to form a JV, targeting sales of 10,000+ UBTECH humanoids by 2030	10	11 Xpeng: IRON mass production by end-2026, deliveries from 1H27, European rollout in 2H27
12 CIIF 2026 opened in Shanghai (12-16 Oct)	13 - AgiBot is said to raise Rmb1-1.5bn at c.Rmb50bn valuation; HK IPO unlikely in 2026 - Astribot raised Rmb1bn at a Rmb15bn valuation - SEC declared Agility Robotics' SPAC S-4 effective; shareholder vote set for 2 Nov	14	15	16 Youibot received CSRC filing notice for its HK IPO	17	18
19 Policy: Central policymakers are advancing national humanoid robot standards and training initiatives focused on productivity, safety, reliability and commercial viability	20 - Unitree flagged abnormal volatility after a 30%+ three-day rally, citing early stage commercialisation - Schaeffler opened a Taicang plant where humanoids assemble robot joints; humanoid orders c.EUR400mn	21 - Tesla started early Optimus production in Fremont; Musk expects external deliveries around end-2027 - NVIDIA launched Issac OS and a reference humanoid with Agile Robots at GTC Berlin	22 - Unitree: During Unitree's partner ecosystem conference on Oct 22, founder Wang struck a more optimistic tone on physical AI, expecting a key breakthrough in "one to three years" vs. his expectation of two to 10 at the WRC in August - Noetix is said to have filed confidentially for a HK IPO	23	24	25
26 CASBOT raised several hundred million Rmb in Series A++ funding to scale production and deliveries	27 - Orbbec and DaXiao Robotics formed a partnership involving procurement at the 10,000-unit scale to accelerate the deployment of robotic vision and robot-free data-collection hardware. - Physical Intelligence is in talks to raise US$1bn+ at cUS$20bn valuation	28 - Unitree 3Q26: sales Rmb665mn (+70% YoY), net profit Rmb 113mn (-17%) - Xpeng IRON solid-state battery entered small-batch output; robot remain pre-SOP	29 - Policy: Shanghai targets 8,000 humanoid robots in factories and over 2,000 AI-enabled manufacturing use cases by 2028 - AgiBot Innovation Day: disclosed 1H26 revenue near Rmb2bn. unveiled GO-3 Preview and showcased the 40kg-payload G2 Max	30	31	1

Source: Company data, automotiveworld.com, UBS-S

Humanoid robot reports

Humanoid Robot Insight

Sep. 2025, "Multiple factors may catalyse near-term sentiment; Buy quality names"

Oct. 2025, "Slight delay in the launch of Tesla's Optimus Gen3"

Nov. 2025, "Sentiment still weak, but some positive colour on mass production in 2026"

Feb. 2026, "Global supply chain accelerates deployment; await improvement in robot intelligence"

Mar. 2026, "Still Awaiting: Tesla Optimus Gen3"

April 2026, "Development in China continues to heat up; potential Optimus production from summer"

June 2026: "Rising global investment momentum; China to set deployment target"

July 2026, "Key words in July: WAIC in Shanghai, China IPOs,..."

Sep 2026, "Capacity scales, scrutiny intensifies; Insights..."

Industry reports

Q-Series: "Is the world ready for 1bn robots?" Phyllis Wang

China Industrials "2026 GCC: Takeaways from industrial companies and tour"

APAC Focus: UBS Global I/O Technology "Tech Implications for a World with ..."

China Industrials "Profiling five private humanoid robot companies in ..."

US Autos, Auto Parts and Auto-tech "US Humanoid Robotics Private Company..."

European Capital Goods "Humanoids are coming. Focus on European listed and private industrials"

Rare Earths: "The robots are coming"

APAC Focus: China Auto Parts Sector, "UBS Evidence Lab inside: LiDARs ..."

China Auto Supply Chain "Smart driving and humanoid robotics likely to..."

APAC Focus: China Robot Sector "Humanoids on the horizon, but AI-enabled..."

China Industrials: "CIIF 2026 tour takeaways: Demand weakening, AI+ rising"

Company reports

China Industrials

Leader Harmonious Drive Systems, "Key beneficiary of embodied AI robots'..."

Yushu Technology, "Humanoid robot OEM pioneer with leadership in cerebellum..."

Inovance, "Solid core biz, sorting out humanoid & DEM strategy in new biz"

Hengli Hydraulic, "Demand recovery + market share gains + new …"

OPT, "AI to empower vision solutions and new applications …"

Guomao Reducer, "Moderate cycle recovery but new downstream to drive …"

China Auto Parts

Tuopu, "Solid auto parts segment; push into robotics and liquid cooling"

Sanhua, "Profitability improved; forays into robotics and liquid cooling"

Rongtai, "Robotics business set to take off; initiate at Buy"

Shuanghuan, "Solid main business; robotics reducers opening up new market opportunities"

Minth, "A step forward in humanoid robotics business"

Kedali, PT implies >70% upside; add to UBS APAC Key Call list

RoboSense, "Paving the way for robotics growth; initiate at Buy" (Buy)

Hesai, "Solidifying leadership position; initiate at Buy" (Buy) Nora Min

Xingyu, "NDR takeaways: Significant progress in overseas business; tapping into robotics business"

China Technology

Horizon Robotics, "More positive outlook for mass HSD deployment; reiterate Buy"

Horizon Robotics, "Key beneficiary of accelerating adoption of AD and edge …"

Foreign companies

Schaeffler, "Humanoid opportunity: already priced in? Downgrade to Sell" (Sell)

Yaskawa Electric, "Strategy shifts to focus on humanoid robots"

Hyundai Motor, Korea Autos "Hyundai Motor Group's AI Robotics Strategy at CES…"

Valuation Method and Risk Statement

Investment downsizing at the macroeconomic level remains a key risk for China's industrial sector. If China's economy remains weak, demand for industrial goods or import/export volume could shrink, resulting in slow growth. If preferential policies, such as tax incentives for high-tech companies, are cancelled, it could affect earnings. Intense competition with domestic or foreign enterprises could cause market share losses.

We derive our price target for OPT using a PE valuation. Downside risks for OPT mainly include: 1) worse-than-expected downstream capacity expansion; 2) worse-than-expected gross profit margin due to slow improvement of in-house product ratio or sharp downstream mix downgrade; 3) higher SG&A rate due to new business development.

Our price target for Jiangsu Hengli Hydraulic is based on SOTP. Downside risks include: 1) weaker-than-expected domestic excavator sales; 2) the company's pumps/valves have weaker-than-expected demand and fail to enter the supply chain of overseas brands; 3) demand for the company's non-standard products misses expectations; 4) the company's overseas business development is hindered by trade frictions.

Our price target for Kedali is based on DCF. We think the main company-specific risks facing Kedali are: 1) slower-than-expected capacity building and launch; 2) slower-than-expected capacity building at major customers; 3) significant loss of share at major customers; and 4) product quality issues. We think the main industry risks facing Kedali are: 1) a weaker-than-expected rise in EV penetration; 2) significant price pressure placed by battery firms on upstream structural parts businesses; 3) capacity launch by, and market share losses to, competitors; and 4) rising prices of main raw materials including copper and aluminum. We think the main macro and regional risks facing Kedali are: 1) declining passenger vehicle sales volume amid a macro downturn; and 2) adverse impact of trade friction on parts imports and exports.

We base our price target for Shuanghuan on DCF. We believe risks to our estimates include: 1) a slower rise in EV adoption than we expect; 2) weaker willingness of OEMs to apply dual-motor systems and coaxial reducers than we expect; 3) bottlenecks in overseas expansion; 4) humanoid applications falling short of our expectation.