



ENGINEERAI

BUILD GLOBALLY LEADING HUMANOID ROBOTS AND
CONTINUOUSLY DRIVE REVOLUTIONARY INNOVATIONS
IN EMBODIED INTELLIGENCE

ENGINEAI ROBOT 2025



SCENARIO APPLICATIONS



Business Services

Police Technology

Cultural Tourism and Leisure

Research and Education

ABOUT

EngineAI (Shenzhen Zhongqing Robotics Technology Co., Ltd.) , established in October 2023 and headquartered in Shenzhen, is a technology enterprise specialising in general artificial intelligence entities and industry-specific scenario solutions. It focuses on the research, development, and production of humanoid robots and related products.

Since its inception, the company has successfully developed and launched multiple industry-impacting products. Among these, the SA01 and SE01 straight-knee walking humanoid robots stand out globally. The SA01 delivers high-performance bipedal humanoid robots at an accessible price point, while the SE01 achieved the world's first anthropomorphic gait walking, redefining humanoid robot motion standards through natural, fluid movements. The fully open-source, general-purpose embodied intelligence system PM01 has successfully performed the world's first humanoid robot front flips, running, and dancing, while continuously adapting to diverse scenarios. The heavy-duty, full-scale general-purpose humanoid robot T800 combines robust performance with flexible adaptability, effortlessly handling heavy loads and highly dynamic, complex environments. JS01 employs a biomimetic quadrupedal structure with adaptive shock-absorbing joints and integrated terrain perception algorithms, dynamically adjusting gait for autonomous navigation and intelligent obstacle avoidance; the lightweight companion humanoid robot SA02, soon to be released, is positioned as 'young people's first humanoid robot' , starting at ¥38,500, delivering highly competitive solutions for diverse application scenarios.

Leveraging an elite team of talent from the world's top universities, EngineAI has achieved full-stack in-house development in robotics R&D. This encompasses core mechanical components, cerebellum-inspired motion control algorithms, and embodied intelligence systems, establishing a robust foundation for product performance and stability.

Leveraging its full-stack proprietary technology and unique open-source ecosystem innovation approach, EngineAI Robotics has achieved remarkable success in humanoid robotics. Not only has it filled a market void, but it has also set new benchmarks for industry development, attracting numerous high-quality ecosystem partners. Through secondary development, it is progressively enabling deployment across diverse scenarios.

ENGINEAI ROBOT

BORN TO DISRUPT

ENGINEAI T800

Hardcore Mechanical Design

Ultra-Light Magnesium-Aluminum Alloy Cover Panels
Balancing Durability and Weight Reduction

Omnidirectional Environment Perception System

A 360 ° LiDAR enables multi-dimensional perception
Millimeter-level data processing achieves precise obstacle avoidance

Modular Solid-State Battery Architecture

High-capacity design
Delivers up to 4 hours of robust runtime

Multi-Dimensional Sensing Dexterous Hand

7-DOF joint design, maximum payload 5 kg
Equipped with tactile sensors

Continuous High-Performance Cooling System

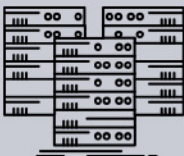
Withstands extreme heat and heavy loads, ensuring robot performance remains at its peak.

Industry-Leading Burst Power Unleashes Movement Potential

Equipped with high torque-density motors and high-strength rotation structures, the joint peak torque can reach 450 N·m.



Joint peak torque up to 450 N·m.



Delivers up to 4 hours of robust runtime



Combines LiDAR and depth camera



7-DOF dexterous hand

T800 PRODUCT SPECIFICATIONS	BASIC EDITION	OPEN SOURCE EDITION	PRO EDITION	MAX EDITION
Appearance	Release Edition			Minor adjustments to the release version + enhanced chest and back design
Height	173cm			
Weight	Depending on the edition, the weight may vary (75kg to 85kg)			
Total Degrees of Freedom	25	25	29+14(dexterous hands)=43	32+14(dexterous hand)=46
Degrees of Freedom per hand	0	0	7	7
Lower leg + thigh length	91cm			
Arm length	60cm			
Degree of freedom of the neck	2	2	2	3
Degrees of Freedom per leg	6			
Degree of freedom of the waist	1	1	1	3
Degrees of Freedom per arm	5	5	7	7
Articular movement space	Waist: Y-251°~71° Hip: R-118°~62°, P-190°~130°, Y-81°~206° Knee: P-15°~135°, Foot: P-39°~39°, R-15°~15°, Head: P-30°~30°, Y-70°~70° Shoulder: P-170°~160°, R-140°~22°, Y-150°~150°; E lbow: P-131°~15°, R-150°~150°; Wrist: P:-25°~25°, R-35°~65° (May vary depending on edition)			
Fully articulated hollow internal wiring	Yes			
Hardware-supported movement speed	≥3m/s			
Perception sensor	Intel Depth Camera	A proprietary system (stereoscopic vision + LiDAR) (featuring an open visual hardware interface, compatible with Intel and others)		
Basic Computing Power (Robot PC)	Intel Module (Optional RK3588)			
High-performance computing module (AI PC)	Orin NX 16G	AGX Orin 64G (computing power customisable upgrade)		
Communication module	Wi-Fi + Bluetooth + USB + LAN			
Secondary development	/	Support		
Smart Battery (Quick-Release)	Yes			
Lighting configuration	2 headlamps + 2 chest lamps + knee lamps			
Microphone	Equipped			
loudspeaker	Equipped			
Handheld remote control	Equipped			
Joint encoder	Absolute dual encoder			
Joint type	Planetary	Planetary + Linear Force Control		
Maximum torque (N·m)	450 N·m			
Battery performance	Ternary lithium battery: full charge voltage 71.4V, capacity 20Ah Solid-state battery: full charge voltage 74.8V, capacity 40Ah			
Charging duration	Ternary lithium batteries: 2.5 hours; solid-state batteries: 3 hours			
Battery type	Standard configuration: ternary lithium battery (solid-state battery available as an option)			
Battery life per charge	4~5h			

One Size for All Scenarios

173cm in height



High-DOF joint design

29 DOF throughout the body
(excluding the dexterous hand)

Anthropomorphic motion design

Supports seamless transitions
between complex movements



Industry-leading explosive power

Joint torque of up to 450N·m



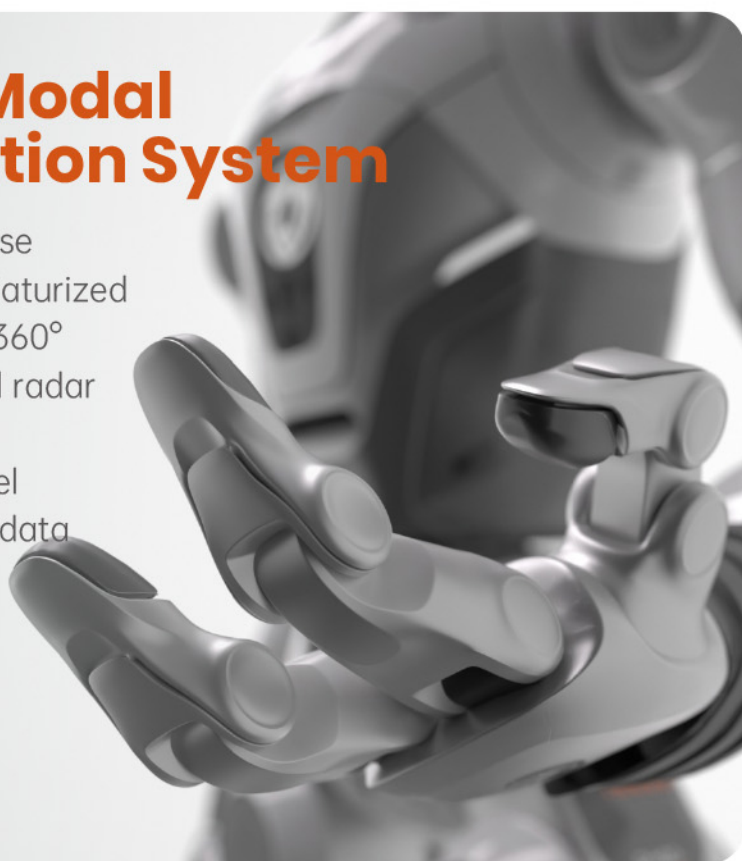
Ultimate Power Aesthetics

Power-Technology Integration
Robust Shell



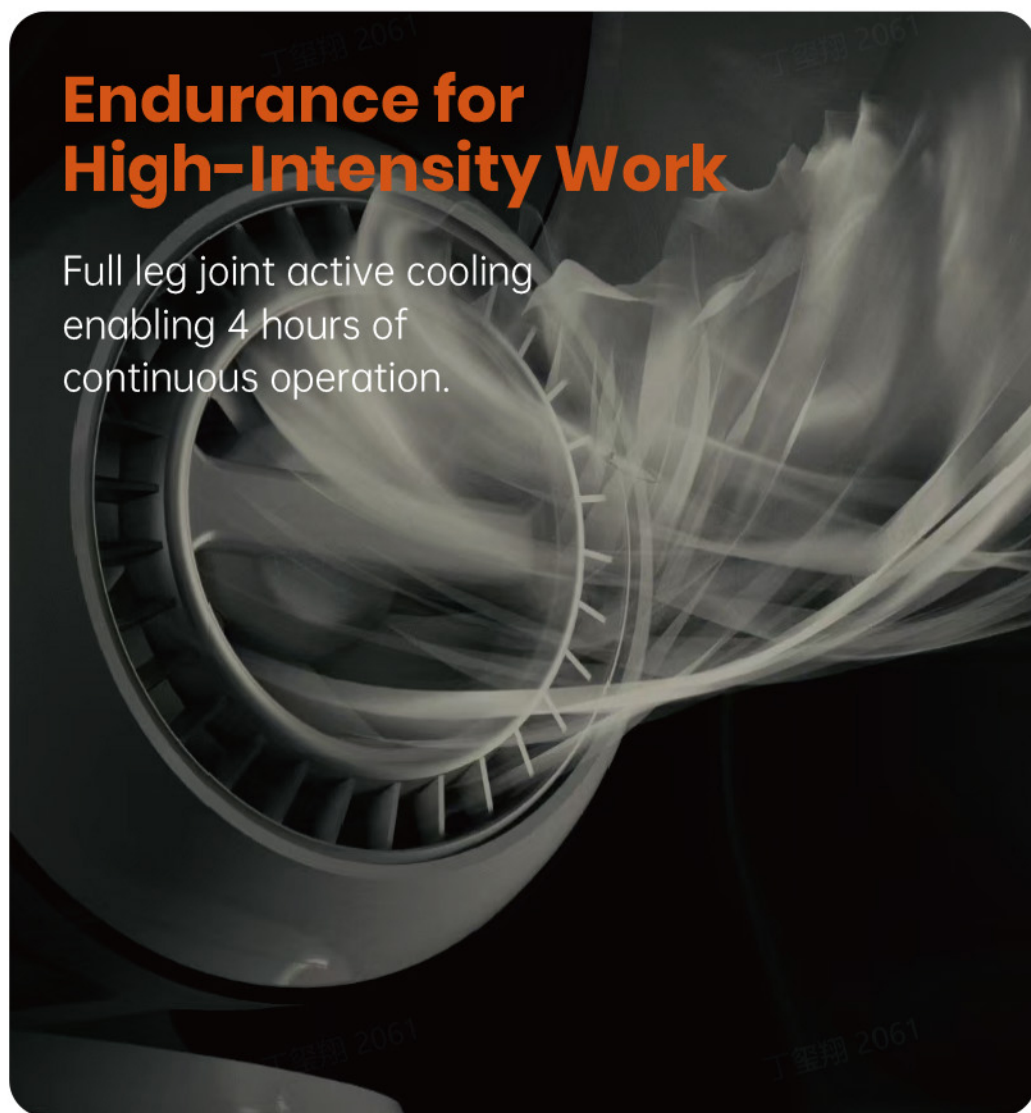
Multi-Modal Perception System

Includes in-house developed miniaturized joint modules, 360° omnidirectional radar sensing, and millisecond-level environmental data processing.



Endurance for High-Intensity Work

Full leg joint active cooling
enabling 4 hours of continuous operation.



PERFORMANCE

The T800 is capable of performing high-performance movements like Capoeira, Quintuple Kicks, Flying Kick and Roundhouse kick, demonstrating exceptional dynamic explosive power



OPEN SOURCE WITHOUT BORDERS AGILE AND FLEXIBLE

ENGINEAI PM01

Depth camera
Intel RealSense D435i

**Interactive
Core Display**
Enables personalized
interaction

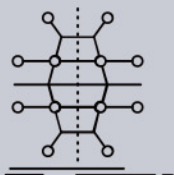
**Single-Leg 6 Degrees
of Freedom**
Hip joint 3
Knee joint 1 Ankle joint 2

**Surround Sound
Speakers**
Mimic the direction of
human speech

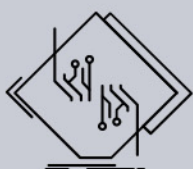
**High-performance
dual-chip architecture**
Powered by Intel N97+NVIDIA
JETSON ORIN

Core Motion Module
Maximum joint
torque: 145 N·m
Peak torque density:
Up to 130 N·m/kg

Outstanding athletic ability
Walking speed: 2 m/s
Natural humanoid
gait walking



The entire machine has
24 degrees of freedom.



Peak torque up to 145 N·m



Multimodal Intelligent
Interaction



Open-source design
for the entire machine

	PM01 Commercial Edition	PM01 Education Edition
Product Dimensions	1400(H) x 535.55(W) x 252.66(D)	1400(H) x 535.55(W) x 252.66(D)
Weight with battery	Approximately 42 kg	Approximately 43 kg
Lower leg + thigh length	686.5mm	686.5mm
Arm Reach	1.44m	1.44m
Total Degrees of Freedom	23	24
Neck Degrees of Freedom	0	1
Single Leg Degrees of Freedom	6	6
Waist Degrees of Freedom	1	1
Single Arm Degrees of Freedom	5	5
Full Joint Hollow Internal Wiring	●	●
Joint Movement Space	Lumbar Joint: -230° to 90° Hip Joint: P-180°~140°, R-15°~+130°, Y-90°~230° Knee Joint: -30° to +137°	Lumbar Joint: -230° to 90° Hip Joint:P-180°~140°, R-15°~+130°, Y-90°~230° Knee Joint: -30° to +137°
Movement Speed	> 2m/s (Hardware Support)	> 2m/s (Hardware Support)
Sensor Perception	/	Two depth cameras (head and waist)
Basic Computing Power	4-core high-performance CPU	4-core high-performance CPU
High-Performance Computing Module	/	NVIDIA Jetson Orin NX (16G)
Secondary Development	Not supported	Support
Smart Battery (Quick-Release)	10000mAh	10000mAh
Operating Duration	Approximately 2 hours	Approximately 2 hours
Charging Power	54.6V 4.5A	54.6V 4.5A
Charging Speed	Approximately 2 hours to fully charge	Approximately 2 hours to fully charge
Lighting Configuration	Eye lamp, Buttock lamp	Eye lamp, Buttock lamp
Handheld Remote Control	●	●
Touchscreen	○	●

Motor Model

	Q90H	Q25H
Joint Encoder	Dual Encoding	Dual Encoding
Joint Type	Planetary	Planetary
Maximum Torque (Nm)z	145	50
Peak Torque Density	130Nm/kg	100 Nm/kg
Maximum Speed (rpm)	6400	8400
Reduction Ratio	25	25
Mass (kg)	1.1	0.5
Diameter (mm)	86	62
Height (mm)	62	60
Rated Voltage (V)	48	48
Force Control Accuracy	5%	5%

AGILE STEPS SMART FUTURE

ENGINEAI SA01

Quick-release battery compartment

Equipped with a 15Ah high-capacity lithium battery, it delivers over two hours of continuous operation. Convenient to use, hassle-free charging, and long-lasting performance.

Powerful Motor Abundant Power

Our self-developed S160 motor boasts impressive specifications and, paired with advanced motion control algorithms, delivers outstanding walking and running capabilities.

Human upright posture

Truly achieving a rare feat in the market
Straight-legged standing and graceful movement
Elegant and sophisticated black-and-white body
Orange accents add a vibrant touch

High-Performance Power Joint Full-Stack In-House Development

Equipped with high-precision planetary drive joints, it provides robust hardware support for algorithm deployment.

Aluminum alloy exoskeleton

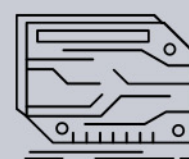
Integrated sealing and heat dissipation solutions achieve both strength and aesthetic appeal. Material selection, quality, and structural design all reach industry-leading standards.



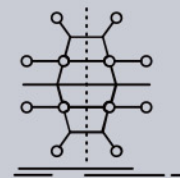
Open-source design for the entire machine



In-house developed high-performance joints



Aluminum alloy body



The entire machine has 24 degrees of freedom.

	SA01	Note
Product Dimensions	Approximately 1290mm × 299mm × 323mm	
Weight with Battery	Approximately 40kg	
Lower Leg + Thigh Length	400mm × 2	
Total Degrees of Freedom	12	
Single-Leg Degrees of Freedom	6	
Movement Speed	1m/s	
Smart Battery (Quick-Release)	10000mAh	
Operating Temperature	-20°C ~ 55°C	
Battery Life	Approximately 2 hours	
Charging Power	15Ah, maximum voltage 54.6V	
Joint Encoder	Dual Absolute Magnetic Encoder	

Motor Model	S160	S48
Maximum Torque (Nm)	160	48
Maximum Speed (rpm)	211	300
Rated Torque (Nm)	50	15
Reduction Ratio	9	6
Weight (kg)	1.35	0.735
Diameter (mm)	114	94
Height (mm)	64	50
Rated Voltage (V)	48	48

BREAK BOUNDARIES, PURSUE INNOVATION EXPLORE WITHOUT FEAR

ENGINEAI JS01

Omnidirectional Fusion Perception

Equipped with LiDAR and cameras to achieve 360-degree all-around environmental perception

Extra-long battery life

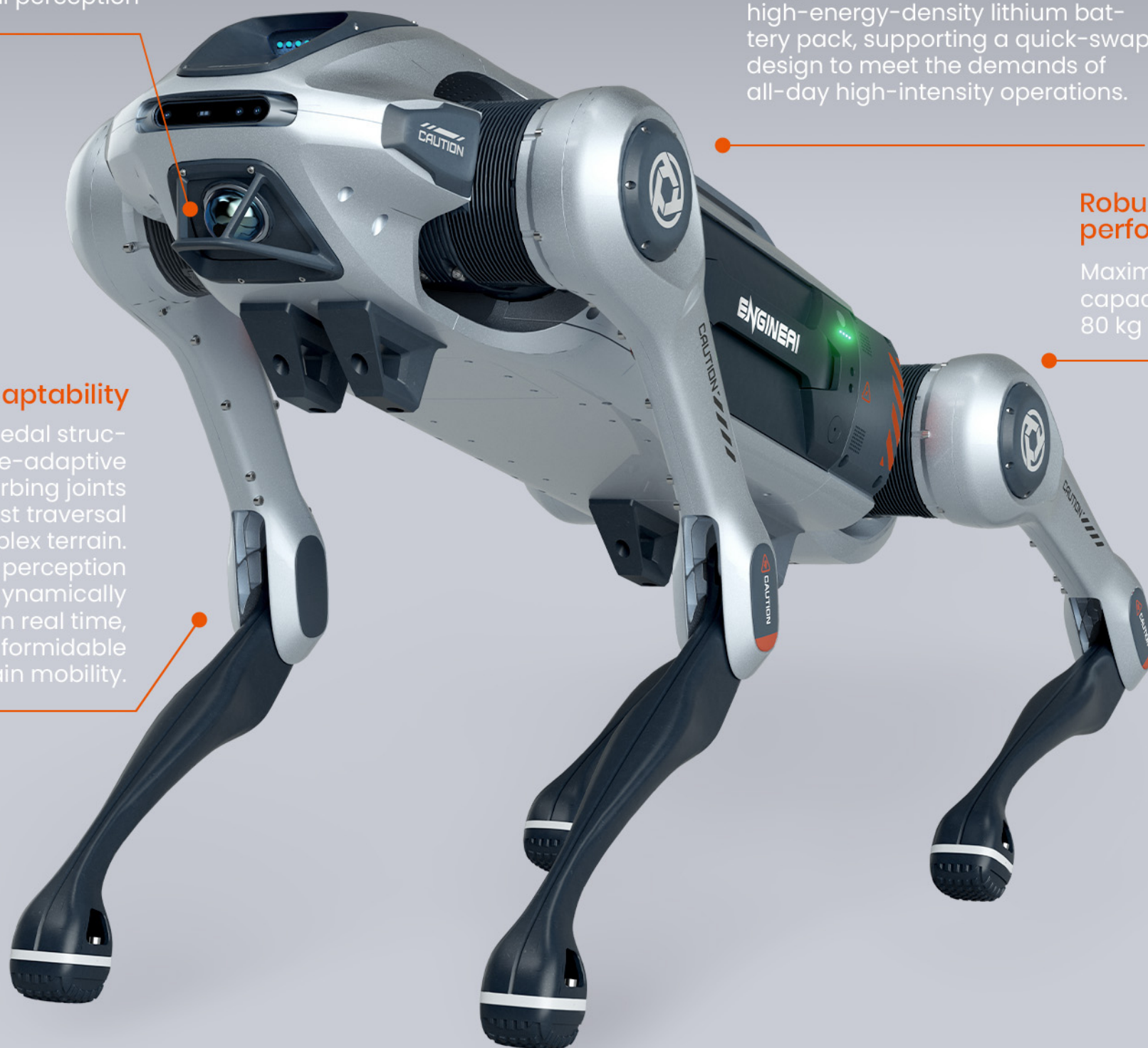
Equipped with a 50Ah/48.1V high-energy-density lithium battery pack, supporting a quick-swap design to meet the demands of all-day high-intensity operations.

Robust load performance

Maximum load capacity up to 80 kg

All-terrain adaptability

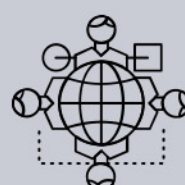
Bionic quadrupedal structure with white-adaptive shock-absorbing joints enables robust traversal across complex terrain. Built-in terrain perception algorithms dynamically adjust gait in real time, ensuring formidable all-terrain mobility.



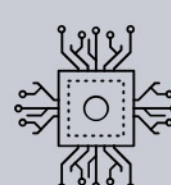
Centimeter-level
precision navigation



All-terrain robust passage



360° Omnidirectional
Perception



Modular Expansion
Platform

Maximum Standing Load	Maximum load capacity up to 80 kg
Maximum Climbing Height	Maximum climbing angle up to 45.9 degrees
Operating Time	Continuous operation for 6 hours
Movement Speed	3 m/s

Extra-long battery life

Equipped with a 50Ah/48.1V high-energy-density lithium battery pack, supporting a quick-swap design to meet the demands of all-day high-intensity operations.



Mechanical Aesthetic Design

A signature design language—evolving the beauty of our classics.



All-terrain adaptability

Bionic quadrupedal structure with adaptive shock-absorbing joints enables robust traversal across complex terrain. Built-in terrain perception algorithms dynamically adjust gait in real time, ensuring formidable all-terrain mobility.



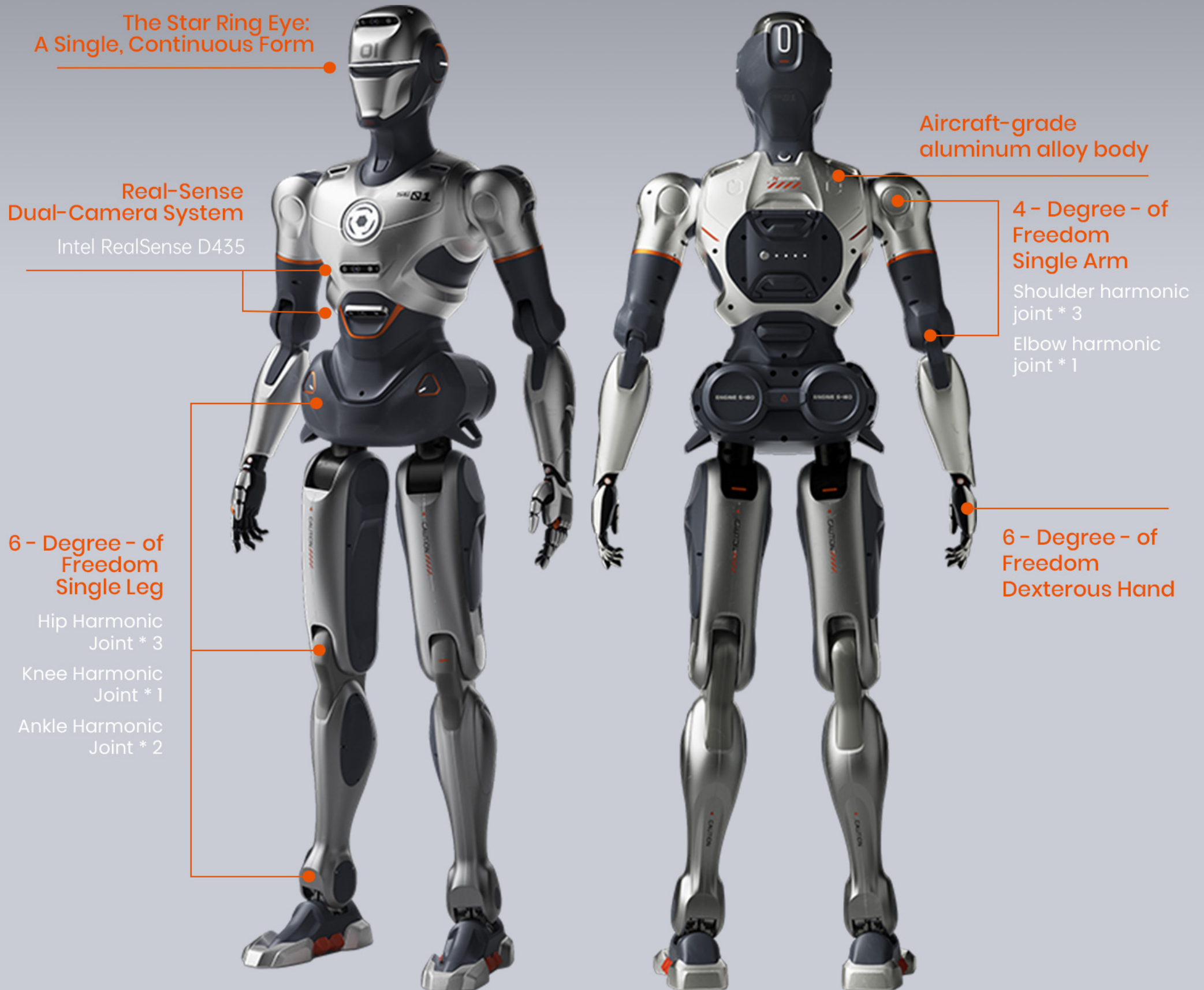
Robust load performance

Maximum load capacity up to 80 kg

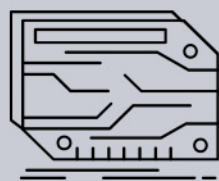


STEADY PROGRESS LEADS TO FAR-REACHING SUCCESS. TOGETHER WE CAN GO ANYWHERE.

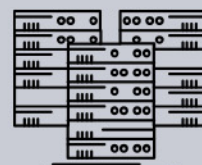
ENGINEAI SEO1



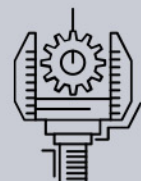
Mechanical and
Structural Beauty



Aircraft-grade
aluminum alloy body



High-capacity
quick-release battery



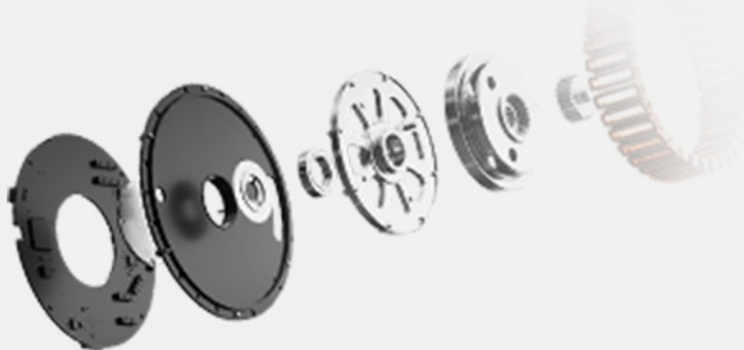
In-house developed
high-performance joints

SE01

Critical Dimensions	1700x520x270mm
Total Weight	Approximately 55 kg
Maximum Joint Torque	330N·m
Battery Capacity	10Ah(0.546KWh), Maximum voltage: 54.6V
Base Computing Power	4-core high-performance CPU Intel N92
Perception Sensors	Depth Camera (Intel RealSense D435)
Lower Leg and Thigh Length	0.8M
Arm Reach	0.65m
athletic ability	Normal walking speed is approximately 2 m/s.
Joint Encoders	Dual Absolute Magnetic Encoder
Maintenance Support	Lifetime Maintenance (Customer bears the cost of parts, materials, and shipping)
High-Performance Computing Module	NVIDIA Jetson Orin Nano

Full-stack proprietary joint

Integrated harmonic joint module achieves force control accuracy of 0.2 N·m



Mechanical and Structural Aesthetics

170cm 55kg
Proportional Universal Humanoid AI
Hollow-wire joint design
Full harmonic force control design



Aircraft-grade aluminum alloy body

Service life up to 10 years



All-New Generation Anthropomorphic ID Design

Humanized Configuration
Bionic panoramic dual-eye surround stereo speakers, mimicking the direction of human speech.



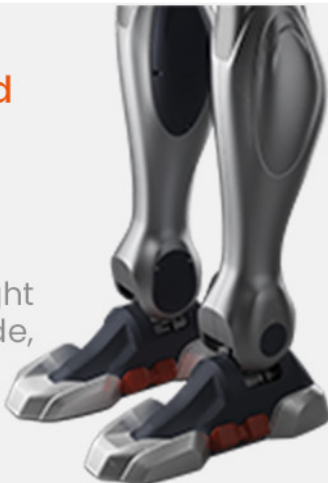
High-capacity quick-release battery

10000mAh
2-hour battery life



Reinforcement Learning-Based Motion Control

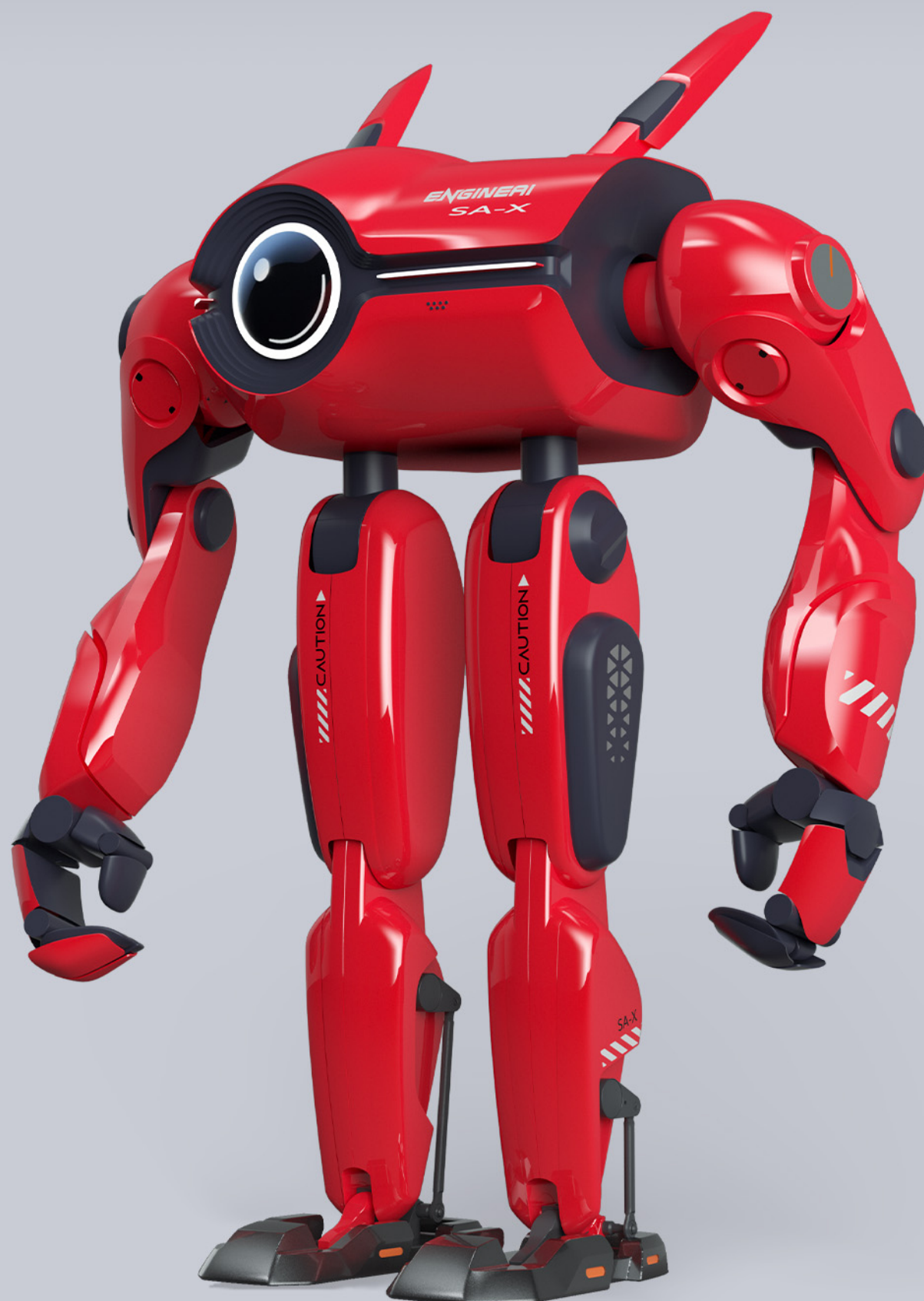
Employing neural networks to address the natural gait algorithm Light and graceful stride, steady and far-reaching



ORIGINAL IP SERVICE ROBOT

ENGINEAI S2

BIG EYES IS A HUMANOID ROBOT PRIMARILY DESIGNED FOR CULTURAL TOURISM SCENARIOS. BUILDING UPON A BIPEDAL BASE, IT FEATURES EXTENDED ARMS, A HEAD, AND A DISPLAY SCREEN WITH DYNAMIC EFFECTS SIMULATING HUMAN EYES. IN THE FUTURE, IT WILL INTEGRATE EMBODIED LARGE LANGUAGE MODELS TO ENABLE MULTIMODAL INTERACTIONS WITH HUMANS THROUGH LANGUAGE AND GESTURES. AS A KEY PRODUCT IN THE COMPANY'S SELF-DEVELOPED IP SERIES



"TOP PLAYER"

ENGINEAI SA02

Young People's First Humanoid Companion Robot Ultra-Lightweight Design

Height: Approx. 1.25m Weight: Approx. 25kg

Degrees of Freedom: 26+2 (Fingers) Built-in Large Language

Model High-Fidelity Speakers 2x HD Cameras



