

Stock Code: 2533.HK



BLACK SESAME TECHNOLOGIES

Corporate Introduction

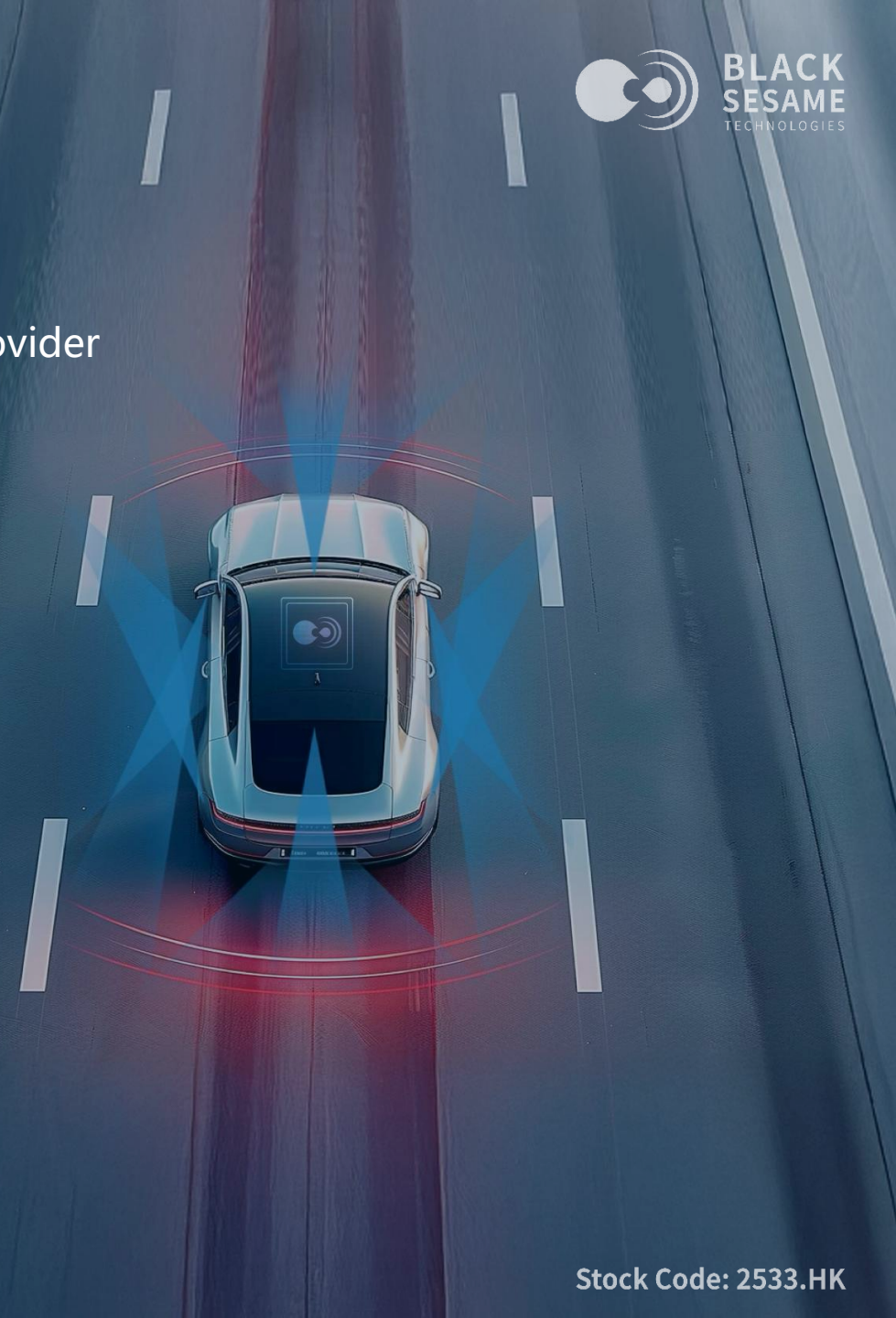
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About Black Sesame Technologies

- **Company Founded:** 2016
- Industry-leading Intelligent Vehicle Computing Chip and Solution Provider
- **Positioning:** A dedicated Tier2 supplier in the automotive industry, focusing on SoC chips and solution empowering our partners
- **Team:** Over 1,000 employees, 50+PhDs, >85% R&D team



The first automotive AI chips company listed on the main board of the HKEX in 2024



Key Applications



Automotive-
grade SoCs for
Smart Vehicles



Robotaxi
&
Robovan



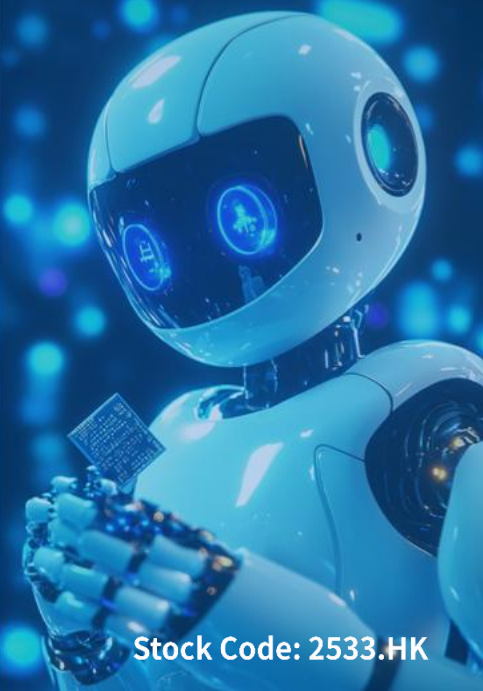
Commercial
Vehicle
Solutions



V2X Solutions



Computing
Platforms for
Smart Robotics



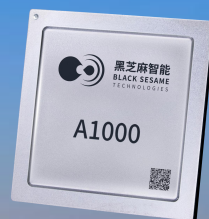
From Autonomous Driving to Cross-domain Fusion



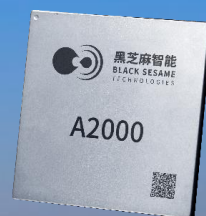
Black Sesame Technologies chip product lines fully support L2-L4 autonomous driving and solutions of cross-domain computing platform in need of different customer requirements.

Huashan Series

High Performance & Cost-effective Autonomous Driving Chip Platform



A1000 Family



A2000 Family

Wudang Series

Industry's First Intelligent Vehicle Cross-domain Computing Chip Platform



C1200 Family

Self-developed Core IP



ISP auto-grade image processing

Imaging ▪ See clear

Our automotive grade ISP provides exceptional image processing capabilities, ensuring that everything on the road is crystal clear.

- > Matured technology
- > Full scenarios covered
- > Better cost and power consumption
- > Integration of traditional ISP technology and deep learning



NPU auto-grade deep neural network accelerator

Intelligence ▪ See through

Our automotive grade NPU for deep learning delivers high-performance neural processing capabilities, transforming vehicles into intelligent companions.

- > Low power consumption and low latency
- > High bandwidth data throughput
- > Support Transformer
- > Accelerator fully decoupled with algorithms

Black Sesame Technologies New Product line

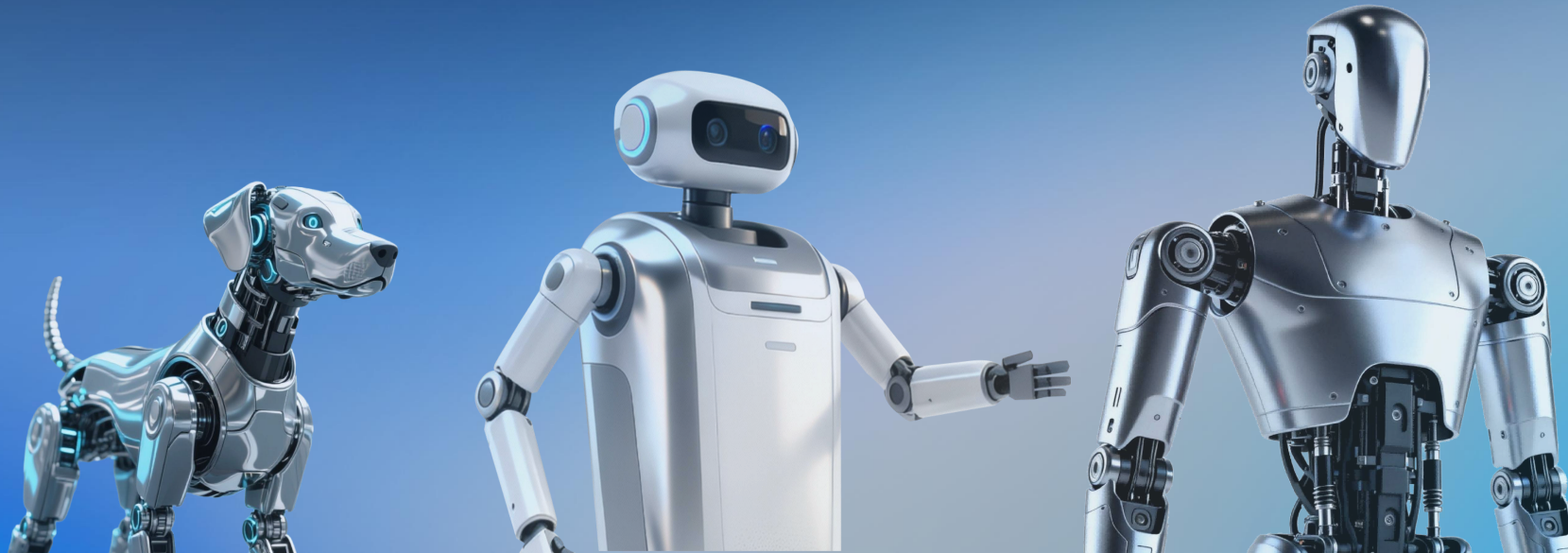


SesameX

Multi-dimensional Embodied Intelligence
Computing Platform

The Premier Partner for Robotic Commercial Deployment

The industry's First "**Full-Stack Self-Evolving & Whole-Brain AI Platform**"
A robot computing platform for full-scenario application deployment that
integrates perception, cognition, decision-making, control and safety closure.

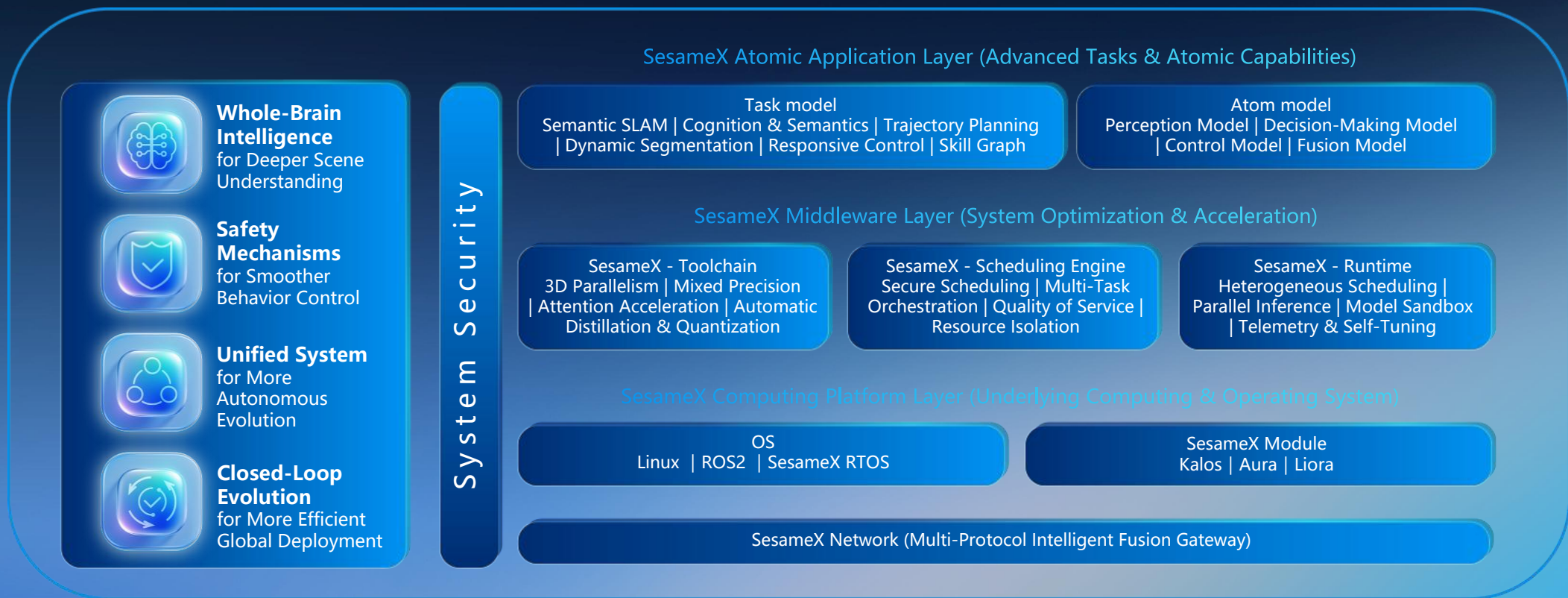


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Multi-dimensional Embodied Intelligence Computing Platform

Full-Stack Computing Platform for Robotics: Whole-Brain AI & Multi-Dimensional Computing



The software architecture of the SesameX platform is based on the overarching design philosophy of "Whole-Brain AI & Multi-Dimensional Computing, mapping the human cognitive structure into a scalable software system. It is the implementation of the robotic "nervous system" from perception to action.

SesameX | Platform Advantages

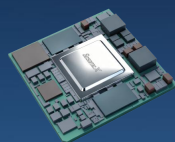


SesameX Kalos

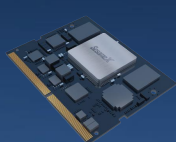
Dedicated Platform
for Commercial Service Robots

SCENARIOS

Low-speed Wheeled Robots: Delivery Robots / Reception Robots / Inspection Robots / Cleaning Robots / Logistics Robots / Educational Robots



Automotive-grade
SIP Module



Kalos Module



Kalos DevKit

High performance NPU (CNN & Transformer)	48 TOPS (INT8)
Integrated Motion & Control	8 x A55 CPU + 2 x Cortex - R5 MCU (Dual - core Lockstep)
Multi-channel Visual Perception	2 x MIPI CSI + ISP + CV DSP 8 channels of 1080p@30fps
Various I / O	PCIe Gen3, TSN Gigabit Ethernet, CAN / I2C / UART / SPI / ADC / PWM
Dimensions	Automotive - grade: 52mm x 52mm BGA Industrial - grade: 69mm x 55mm 260 PIN (Compatible with mainstream carrier boards)

ADVANTAGES

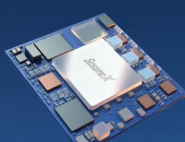
The most mature and cost-effective robot computing core — balancing visual perception and motion control, enabling robots to “see clearly and move steadily” .

SesameX Aura

Advanced Computing Platform
for Multi-Task Robots

SCENARIOS

Legged Robots: Inspection & Maintenance Robots (Industrial / Power / Port) Smart Robotic Arms & Collaborative Robotic Arms
Humanoid Robots: Teleoperated Robots / Industrial Collaborative Robots



Automotive-grade
SIP Module



Aura Module



Aura DevKit

High performance NPU (CNN & Transformer)	70 TOPS (INT8)
General-Purpose Processor	8xCortex-A78AE CPU, 150K DMIPS
Heterogeneous Motion & Control Processor	2xCortex-A78AE +6xCortex-R5F (DCLS) , 42K DMIPS
Multi-channel Visual Perception	3 x MIPI CSI + ISP + CV DSP 12x1080p@30fps / 4x4K@30fps
Various I / O	PCIe Gen4, TSN 10 - Gigabit Ethernet, CAN / I2C / UART / SPI / ADC / PWM
Dimensions	Automotive - grade: 52mm x 52mm BGA Industrial - grade: 69mm x 55mm 260 PIN (Compatible with mainstream carrier boards)

ADVANTAGES

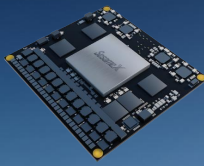
The most agile and reliable robot action brain — fusing multi-modal perception and safety control, enabling robots to “understand the world and act precisely”

SesameX Liora

All-Round Computing Platform
for Embodied Intelligence "Brain"

SCENARIOS

Humanoid Robots (Service/Education/Research) **Advanced Bionic Robots** (Dual-Arm Collaboration/Emotional Interaction) **Intelligent Tour Guide / Teaching Assistant Robots**
Multi-Robot Collaboration Systems (Swarm/Smart Dispatch Center)



Liora Module



Liora DevKit

High performance NPU (CNN & Transformer)	Nearly 600 TOPS (INT8)
General - Purpose Processor	16xCortex-A78AE CPU, 300K DMIPS
Motion & Control Processor	6xCortex-R52 , 20K+ DMIPS
Multi-channel Visual Perception	6 x MIPI CSI2 + ISP + CV DSP 24 channels of 1080p@30fps
Various I / O	PCIe Gen4, TSN ,CAN/I2C/UART/SPI/ADC/PWM
Dimensions	100 mm x 110 mm, 699 pin B2B Connector

ADVANTAGES

The fastest and safest "Thinking Brain" — supporting world models and E2E control, enabling robots to “think, predict, and make autonomous decisions”.

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International Talents and Global Offices

The company has set up worldwide R&D and sales centers, and currently has more than 1,000 employees, with a core team from top companies in the industry, such as Bosch, OV, Nvidia, Ambarella, Microsoft, Qualcomm & etc., with an average of 15+ years experience in the industry.



50+ PhD



> 85% R&D Team



Avg. 15+ yrs
Dedicated Experience



Top Computer
Vision Experts
Worldwide



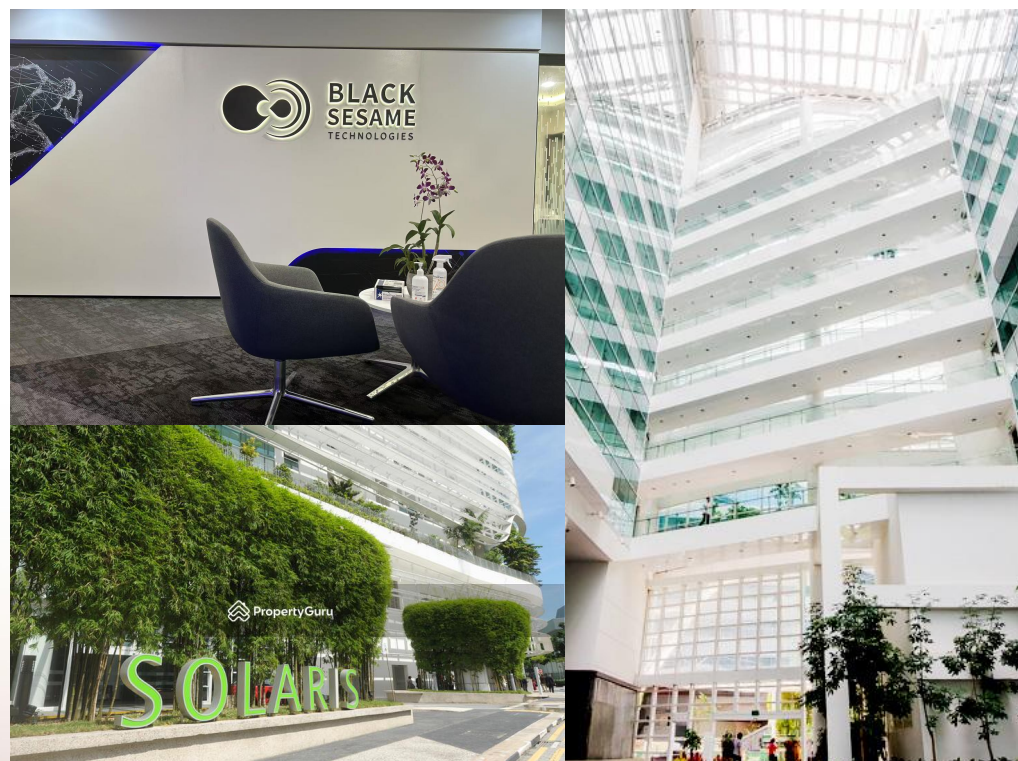
Solid SoC Design
Capability

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Black Sesame Technologies Singapore Overview



70+ Employees in Singapore



Strong Local Presence

- Start from 2018, 70+ staff based in Singapore
- Functions include BD, tech support, R&D, and delivery
- Deeply rooted in the local ecosystem

Regional & Global Hub

- Serves SEA and Global markets
- Acts as the global operations and coordination center
- Bridges global innovation with local execution

Technical Capabilities & Support

- Local experts in Robotics, AI, vision algorithms, and system integration
- End-to-end support: from chip selection to deployment
- Fast response and flexible customization for partners

SEA and Global Operational Center

Local Support

20+ PhD

Start from 2018

Industrial Application and Solutions in Singapore

BST User Case 1: L4 Low-Speed Commercial Service Robots

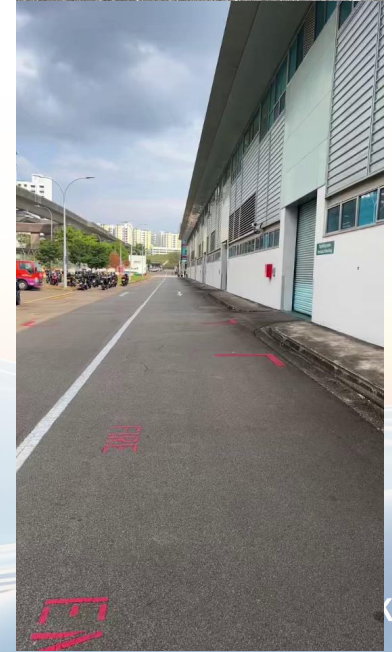
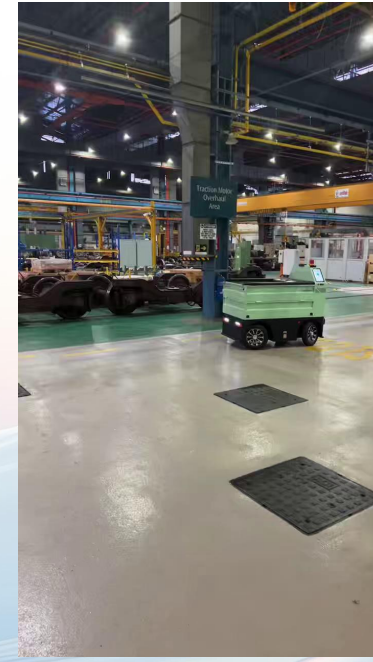
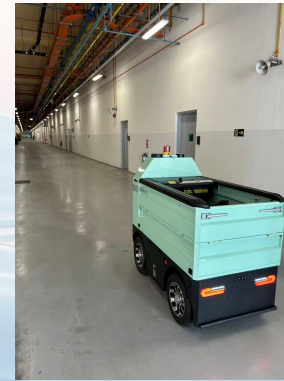


Multi-Sensor Fusion Perception & Control Unit Powered by 48
Tops Module, for Cross-Platform L4 Low-Speed Commercial
Service Robots

A current Singapore Depot Case



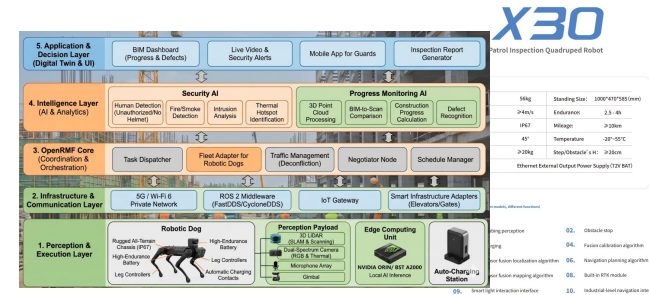
a real-world application of our autonomous logistics solution at a Singapore **Depot**. We are currently piloting a medium-sized cargo vehicle designed to bridge the gap between warehouses, workshops, and expansive outdoor areas.



BST User Case 2: Construction Site: Patrol , Inspection and Progress Monitoring

Construction Site Management Challenges

- **Safety Risks:** High-frequency hazards (PPE, power, obstacles) make manual inspections complex and overwhelming.
- **Security Gaps:** Fixed camera blind spots necessitate costly, labor-intensive manual patrols and perimeter checks.
- **Tracking Issues:** Ad hoc reporting lacks the standardized data and fixed viewpoints required for accurate progress monitoring.



BST Quadraped Robot Solution

- **Phase 1:** Automates hazard detection and perimeter checks to streamline safety inspections.
- **Phase 2:** Eliminates surveillance blind spots through integrated, real-time autonomous patrolling.
- **Phase 3:** Provides standardized, repeatable data for consistent and scalable site monitoring.

BST User Case 3: Outdoor & Indoor Patrol & Inspection



BST User Case 4: Indoor Patrol & Inspection



BST User Case 5: Indoor Patrol and Inspection - Lite3



Walking with Terrain Reconstruction Learning to Traverse Risky Sparse Footholds



Ruiqi Yu, Qianshi Wang, Yizhen Wang, Zhicheng Wang, Jun Wu, Qiuguo Zhu



**Robotics & Machine
Intelligence Lab**

BST User Case 6: Hotel/Hospital Delivery Robot

DUAL CABIN DELIVERY ROBOT-GOGO

High-Efficiency Delivery / On-Demand Service / AI-Powered Transport

Overall Dimensions	L490 * W420 * H1000 (mm)
Dimension of the Bin	L409 * W320 * H315 (upper bin) / H.235 (lower bin) (mm)
Weight of the Robot	55kg
Load	15kg
Obstacle Avoidance	Laser + Vision
Battery Life for Vacant Load	8-10h
Climbing Ability	10°[Optional High-Torque Version Max. Climbing Angle: 13°]

Renderings show custom sticker designs - actual robot comes in pure white.



BST User Case 7: Humanoid - Full size

| MagicLab: General-purpose Humanoid Robot Xiaomai

China's First General-purpose Humanoid Robots achieving multi-agent collaboration in factories

- 42 active degrees of freedom across the entire body
- Equipped with in-house developed Magic-Hand (advanced dexterous hands) and joint modules
- Powered by our proprietary industry-specialized AI model, "MagicMind", enabling deployment across industrial, commercial, and home environments

Dimensions (Height × Width × Depth): 174 × 58 × 28cm

Arm Span: 160cm

Calf+Thigh Length: 96cm (51cm+45cm)

Total Weight: Approximately 70kg

Power System Battery Capacity: 25 Ah (1.35 kWh)

Max Voltage: 62.25V

Performance Motion Speed: ≥2m/s

Max Load (Both Arms): 15kg

Max Joint Torque: ≥350N·m

Max Slope Climbing Angle: ≥20°

Dexterous Hand Configuration: 11-DOF Tactile Dexterous Hand (Optional)

Single Arm Degrees of Freedom: 7 (Shoulder ×3, Elbow ×1, Wrist ×3)

Single Leg Degrees of Freedom: 6 (Hip ×3, Knee ×1, Ankle ×2)

Computing & Sensors Compute Module: High-performance Compute Unit (standard)

Sensor Suite: 3D LiDAR, Depth Camera, Triple Camera

Audio Module: Omnidirectional Microphone and Speaker

Communication Module: 5G Module (Optional), Bluetooth 5.2, Wi-Fi 6

Reducers: Planetary Reducer, Harmonic Reducer



BST User Case 8: Humanoid - Mini Hero

| MagicLab: Humanoid Robot MagicBotZ1

The Intelligent & Agile Mini Hero

- 24 base Degrees of Freedom (expandable to 50 DoF)
- Ultra-wide 320° joint motion range | 130N·m peak torque
- Rapid evolution: Achieves human-like motions in 24 hours via imitation & reinforcement learning
- Multi-scenario ready: Academic research | Exhibition & Tourism Guide |

Commercial Shows | Home Companion

Specifications: Z1 Developer Edition

Dimensions (H×W×D, standing): 1369 × 422 × 200mm

Weight (with battery): 40kg+

Total DoF (joint motors): 24-50

Head DoF: 1 (pan/tilt)

Waist DoF: 1 (yaw)

Single Leg DoF: 6

Single Arm DoF: 5+ (optional +2 wrist DoF)

Dexterous Hand : optional 11-DoF tactile manipulator

Knee Joint Peak Torque: 130N·m

Arm Max Payload: 3kg

Thigh + Shin Length: 0.6m

Arm Span: 0.5m

Head Z-Axis ROM: ±40°

Waist Z-Axis ROM: ±160°

Knee ROM: 0-152°

Hip ROM: P±160°,R-30~+110°,Y±160°

Basic computing power:

8-core high-performance CPU; optional high-computing power module

Sensors: 3D LiDAR, Depth vision, Dual fisheye cameras

Smart Battery (Quick-Swap): 10,000mAh

OTA/Secondary Dev: Supported

Demonstration Locomotion: Human-like walking/running, Lateral stand-up

Voice Interaction: Voice commands, Chatbots

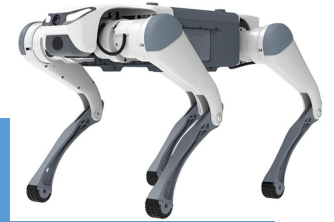
Advanced Functions: Exhibition guide services



* Peak torque, maximum arm payload, endurance time, and other metrics were measured under laboratory conditions.
* Please note that actual performance may vary across different application scenarios and robotics configurations.

Research & Education Solutions

ROS, Robotic, Humanoid, Quadruped and etc.



Date & Time	Humanoid Class	Quadruped Class
Module 1	- Introduction to ROS2 and Humanoid Robotics - Overview of Robot spec - Basic Operation of Humanoid robot	- Introduction to ROS2 and Quadruped Robotics - Overview of DEEP Robotics Lite 3 - Basic Operation of DEEP Robotics Lite 3
Module 2	- Introduction to LinkCraft & LinkSoul - Create Robot Dance and Speech using LinkCraft & LinkSoul - Introduction to LLM	- Environment Setup and Introduction to DEEP Robotics Lite 3 SDK - Robot Motion Control with Locomotion SDK - Robot Perception with Perception SDK
Module 3	- Environment Setup and Introduction to the Robot SDK - Robot Motion Control with Locomotion SDK - Robot Perception with Perception SDK	- Introduction to LLM - Apply LLM on DEEP Robotics Lite 3 - Communicate with DEEP Robotics Lite 3
Module 4	- Brainstorming Applications of Humanoid Robots - Project Development, Team Collaboration & Final Demonstration	- Brainstorming Applications of Quadruped Robots - Project Development, Team Collaboration & Final Demonstration



Lite3

Extraordinary locomotion
Modify with your imagination

Jueying Lite3 is an ideal platform for education and research, providing deep development interfaces such as joint torque and position control.

Researchers and students can develop and validate intelligent algorithms based on deep learning, reinforcement learning, and other AI methods, enabling flexible motion control and behavior learning.

The system also supports advanced perception research, including autonomous navigation, obstacle detection and avoidance, visual localization, and environment reconstruction.



Powerful
Expandability



Autonomous Obstacle
Avoidance



Autonomous
Navigation



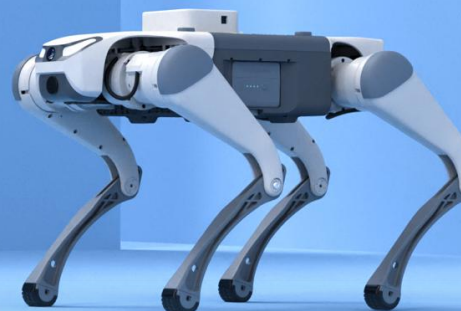
Environment
Reconstruction



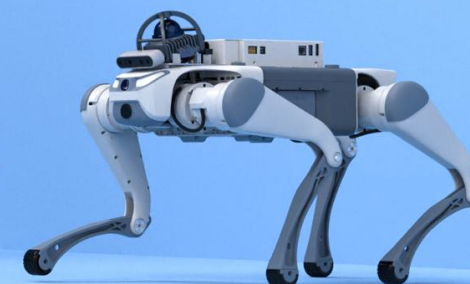
PRO



BASIC



VENTURE



LIDAR

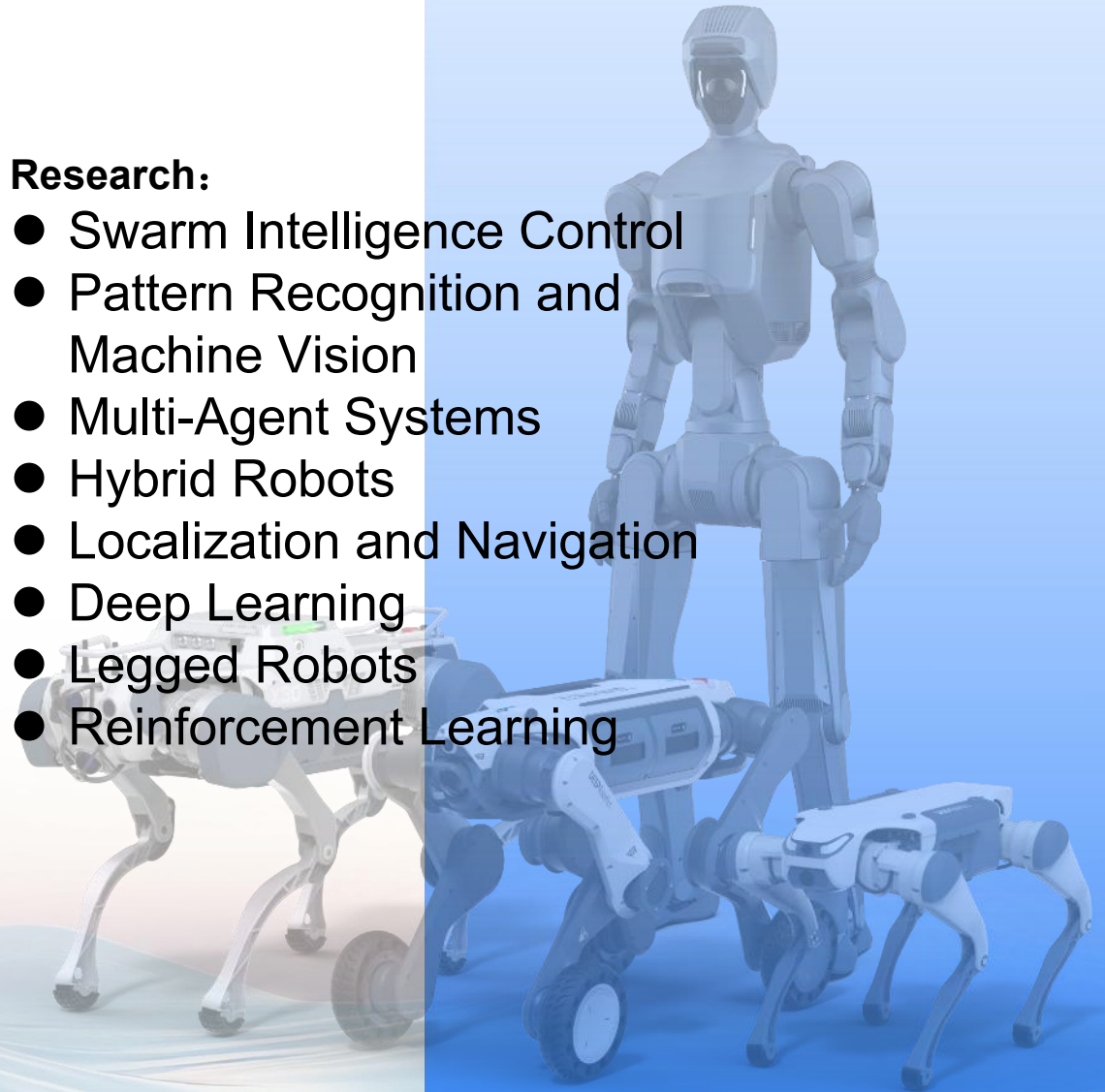
Support for Education and Research Applications:

Education:

- ROS Robot Programming and Practice
- Intelligent Sensor Technology
- Robot Motion Control
- Kinematics and Dynamics of Quadruped Robots
- Robot Simulation and Control Frameworks
- Intelligent Perception
((Machine Vision, Localization and Navigation, Deep Learning, etc.))

Research:

- Swarm Intelligence Control
- Pattern Recognition and Machine Vision
- Multi-Agent Systems
- Hybrid Robots
- Localization and Navigation
- Deep Learning
- Legged Robots
- Reinforcement Learning



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EMPOWERING FUTURE MOBILITY WITH CHIPS

