



湖南比邻星科技有限公司 & 湖南睿图智能科技有限公司

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About Us







1.1 Company Introduction

Hunan REETO Intelligent Technology Co., Ltd. is a product and solution provider with intelligent robots and machine vision as core technologies. Hunan Blinx Technology Co., Ltd. is a robot company owned by Ruitu Intelligent Holdings and government funds. The company was founded under the guidance of Academician Wang Yaonan of the Chinese Academy of Engineering, mainly providing a series of intelligent robot products for the smart education industry, as well as overall solutions for digitalization, networking, and intelligence in the industry.



1.2 Development History



1.3 School project construction



More than 100 schools use our products



1.4 Enterprise project construction







BlueSword 兰剑 物流科技创新





























More than 2000 companies use our technology



Product Matrix and System Construction



2.1 Al+Product Matrix



2.1 Al+Product Matrix



2.2.1 Laboratory configuration plan—Al Plus



2.2.2 Laboratory configuration plan-Robot



2.2.3 Laboratory configuration plan—Intelligent manufacturing



2.2.4 Laboratory configuration plan—Video Introduction



BLS AI



BLS IML D V2.0







Product Introduction



Intelligent Manufacturing Mobile robot Industrial mobile robots Industrial robot AI Plus NLP **Robots and Vision** and Operations BLS AI **BLS OTP** 人工智能智慧教学与实验平台 以培养人工智能产业应用型人才 ourse resources and ourse resources and 为主导的课程和实践体系 实验资源丰富,从基础实验到综合实验,案例全面来自 产业真实项目案例,全面提升工程实践能力 knowledge points knowledge points Ascend Lt श E Alto Python Programming Introduction to Artificial 精品课程 machine learning Intelligence 人工智能导论 机器学习 神经网络与深度学习 Python 语言程序设计 Deep learning Deep learning digital image processing machine learning FREAK LINES ALL SHE PPT 45 1 422 45 1 520 natural language processing machine vision 计算机视觉 基于深度学习的 自然语言处理 . 数据分析与挖掘 Deep vision computer vision Speech recognition and Intelligent speech sensors recognition Embedded systems and Practical cases • Algorithm visualization: supports visual teaching applications of multiple algorithms, supports real-time • Ready to use out of the box: integrated Visual based robot interaction, and can observe changes in results design, equipped with a 17 inch screen, applications by adjusting algorithm parameters: Provide the following keyboard, mouse, and a variety of experimental • Experimental training supervision: supports realteaching aids: time status monitoring, which can show the status functional modules:

of students' experiments not yet started, in

• Enterprise level project practice: supports

submitting experimental reports:

task driven mode.

progress, requesting assistance, completed, and

complete project teaching from the early stage of

project initiation, project development process,

to project testing and review, breaking down the

entire process of practice into a fine-grained

- Integrate six types of AI modules: including edge computing terminals, 2D vision, depth vision, robotic arms, voice modules, embedded sensors, and support the practical teaching of multiple courses:
- Open experimental environment: Based on Linux operating system, using Jupyter Notebook interactive programming environment and Python development language.

Support the following

functional applications:

- Al+visual sorting
- Al+Deep Vision
- Al+speech recognition
- Al+embedded sensors

- Data Annotations
- Algorithm development training

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- Algorithm deployment and application
- Resource and student management
- Mocha ITOM
- Algorithm Warehouse

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Al Plus	NLP	Robots and Vision	Mobile robot	Industrial mobile robots	Industrial robot	Intelligent Manufacturing and Operations
Course resources knowledge points Speech signal processing speech recognition Voice wake-up speech synthesis	and	BLS IVB		• The device can also detect the user's voice (set voice commands i.e. wake-up words) while in slee or lock mode, allowing the device in sleep mode to directly enter waiting command state.	s, s, sep a sep a support conversion support conversion corresponding supporting ve conversion video, and an generating su	recognition erting the voice audio into g language and text, pice to text f recorded audio and utomatically ubtitles.
Dialogue system Voice robot				speech synthesis	Dialo	gue system
		~		• Compart conding tout data to	● Can analyze a	and process the text,

- Structural features: Integrated design, equipped with a 17 inch screen, keyboard, and mouse, ready to use out of the box;
- Multiple Al capability access: can provide service system access with ≥ 10 Al capabilities, including but not limited to voice wake-up, machine translation, speech recognition, speech synthesis, oral evaluation, etc;
- Software environment: Adopting Windows operating system and Python programming language, providing all voice development interfaces, making it convenient to complete various voice application practices

- Support sending text data to speech synthesis services via HTTP request body or WebSocket, and returning synthesized audio data in one go or in real time;
- Each request supports a maximum of 300 characters.
- Can analyze and process the text, identify the semantic information contained within it, and respond according to the context;
- Support the system to automatically determine the type of conversation and provide corresponding responses after the user inputs the dialogue text.

Intelligent Manufacturing Al Plus Mobile robot Industrial mobile robots Industrial robot NLP Robots and Visio and Operations BLS RB6-410 主要技术参数 Number of axles: 6 Payload: 1kg Working radius: 410mm ourse resources and knowledge points weight: 2.8kg Repetitive positioning accuracy: ± 0.5 mm ROS robot operating system Communication method: USB/WiFi/Bluetooth/RJ45 Base size: 153mm×153mm robot kinematics Basic Robot Operations 1axis range: $\pm 150^\circ$, speed: 30° /s | 2axis range: $\pm 90^\circ$, speed: 60° /s machine vision Visual based robot 3axis range: $\pm 90^{\circ}$, speed: 25° /s 4axis range: $\pm 150^{\circ}$, speed: 100° /s applications 5axis range: $\pm 90^{\circ}$, speed: 30° /s 6axis range: ±150°, speed: 60°/s

Open kinematic algorithm

• Open source code for modeling and controlling motion from the bottom to the upper level, enabling the construction of basic kinematic forward and inverse models and source code learning, which helps users

Based on ROS operating system

 Adopting the ROS robot operating system, it supports the rapid development and deployment of common functions such as vision, voice, and sensors on a universal platform.

Code and graphical programming methods

• Having rich data interaction interfaces and code, supporting multiple programming languages such as C, C++, Python, and supporting graphical programming methods, it is easy to operate and get started.

Support touch operation

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• The robot base is equipped with a high-definition LCD screen, which supports touch based motion control of various joints of the robot, enabling quick teaching and deployment of the robot.

Intelligent Manufacturing AI Plus Mobile robot Industrial mobile robots Industrial robot NLP Robots and Visio and Operations BLS HDR-5 Main technical parameters Quantity: 2 approximately: 70cm Wrist load: 1.5kg 手 Research and 臂 application fields Number of joints in a single arm: $5\uparrow$ ROS robot operating Number of joints: 2 Visual module: depth vision system De Che 头 robot kinematics 部 Other perceptual abilities: auditory, speech Five axis robotic arm operation Processor: i7 CPU, 8G memory, 512G SSD, 6Ggraphics memory machine vision 其他 Research and application of humanoid robots Weight: 35kg Half body height: 110cm Power supply: lithium battery or external power supply

Completely anthropomorphic structural design

• The arm adopts a completely humanoid structural design, with 3 joints in the shoulder, 1 joint in the elbow, and 1 joint in the wrist, which can highly simulate the flexibility of human arms and achieve more

Deep Vision and Environmental Perception

• The robot head is equipped with a high-resolution depth camera, which can transmit more accurate threedimensional environmental information to the arm through point cloud analysis, guiding it to complete complex human-machine interaction actions.

Adapt to large language models

 Robots support adaptation to large language models, and can autonomously decompose execution instructions through artificial intelligence engines, generate action plans, and ultimately synthesize them into the operation trajectory to be

Open kinematic algorithm

比邻星科技

• Open source code for modeling and controlling motion from the bottom to the upper level, enabling the construction of basic kinematic forward and inverse models and source code learning, which helps users master the control principles of robots.





Al Plus	NLP	Robots and Vision	Mobile robot	Industrial mobile robots	Industrial robot	Intelligent Manufacturir and Operations	
		BLS MRC		Main te	chnical parameters		
				Application scenario: Used for QR code navigation and laser navigation of mobile robots, as its control brain.			
REALENING CONTRACTOR				CPU: intel i7 11th generation memory: 8G SSD: 512G graphics mem			
				Interface: Gigabit Ethernet port \times 5, USB3.0 \times 4, USB2.0 \times 6, HDMI \times 2			
				External dimensions) : 210×17	70×120mm Navigation accu	ı <mark>racy:</mark> ±15mm, ±2°	
			Working temperature and humid	ity: Temperature: -15 [~] 45° C	; / Humidity: 10~90%		
				Automatic charging: Supports e	xpansion		

Integrated calculation and control

 Integrating computation and control, and providing various external interfaces necessary for expanding the functions of mobile robots such as LAN, USB, RS232, GP10, etc.

Large model+application scenarios

• Deploy large models such as visual and audio to meet the requirements of multiple scenarios such as inspection, logistics transportation, cleaning, and welcoming guests.

Rapid development and deployment

• The ROS system for deep secondary development supports rapid deployment of peripherals such as radar, vision, motors, and sensors that have already been adapted.

Functionally rich control software

• Deploy self-developed mobile robot control software that supports fast positioning and navigation, robot clusters, and 3D reconstruction of the environment.



Al Plus

比邻圣科技 Intelligent Manufacturing Mobile robot Industrial robot NLP Industrial mobile robots **Robots and Vision** and Operations BLS CPBOT-P BLS HPB-150 Research and Research and application fields application fields Mobile robot control Mobile robot control Laser SLAM mapping Laser SLAM mapping autonomous navigation autonomous navigation Logistics Logistics transportation transportation • Object grasping based on depth vision: The Intelligent end of the arm is equipped with a depth • As a conveying platform: directly used as a Human machine camera, which can guide the robotic arm to conveying platform to complete the manufacturing collaboration transportation of 150kg level materials; grasp based on the posture of the object; Multi machine • Multiple human-machine collaborations: • As an external device installation platform: Indoor inspection suitable for various scenarios such as expand the robotic arm or other clamping collaboration intelligent workshop handling, new retail, mechanism, and reserve installation space hotel services, and modern agriculture. inside the platform. High precision Multi scenario universal Heavy load • Equipped with core map building and positioning • Equipped with a high-power motor, the mobile

- Using an industrial grade controller, the motion accuracy of the mobile platform can reach \pm 5mm, far exceeding the accuracy level of most current ROS mobile robots.
- chassis provides a driving capacity of over 150kg load, suitable for various scenarios of heavy object transportation.
- navigation functions, the body reserves rich upper layer mechanism expansion interfaces. which can guickly help users achieve various applications of mobile robots.

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- demonstration module, trajectory path module, suction cup module, material sorting module, three-dimensional warehouse module, conveyor line module, and rotary feeding module, which can be used for basic training and teaching;
- Scalable flexible control module: including 2D visual perception system, 3D visual perception system, human-machine interaction system, to enhance environmental perception ability;
- Robots and 2D/3D collaborative operations: complete various flexible production functions such as visual handling and palletizing, adaptive object sorting, and optimal motion planning.

Provide the following functional modules:

- 2D visual perception svstem
- 3D visual perception svstem
- Material conveying svstem
- Human computer interaction system
- Multiple practical training modules
- PLC electrical control system

- Virtual simulation software: supports students in the disassembly and assembly process and process learning of industrial robot body. electrical control, and maintenance knowledge in virtual scenes, meeting the teaching needs of combining virtual and real:
- Mobile virtual software: Provides a mobile Android installation package with AR scanning function. allowing students to learn about the structure, assembly, and maintenance of industrial robots anytime and anywhere;
- Multiple person simultaneous training: Support no less than 30 people to conduct disassembly and assembly simulation training simultaneously.

Provide the following

functional modules:

- 6kg industrial robot
- Rotating adjustable structure
- Electrical control cabinet
- Virtual simulation software



Al Plus NLP	Robots and Vision	Mobile robot	Industrial mobile robots	Industrial robot	Intelligent Manufacturing and Operations
			BLS IML D		
Course resources and knowledge points Python Programming digital image processing machine vision Robot control Visual based robot applications PLC electrical system control Production line system integration					

Structural characteristics

• Using multiple six axis robots, conveying systems, vision systems, and industrial control computers, an intelligent manufacturing system is built with common component assembly and classification as application scenarios.

Integration of multiple

• It integrates various technologies such as Linux system, deep learning, machine vision, robot control, vision robot collaboration, and production line system integration.

software environment

• Based on Linux operating system, using Jupyter Notebook interactive programming environment and Python development language.





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software environment

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Project Cases



四、部分项目案例

4.1 AI Plus

Hunan University of Technology

Selected products: BLS Al





Hunan First Normal University

Selected products: BLS AI, BLS 6RVL





Hunan University of Information Technology

产品配置: BLS AI、BLS 4RV





Hunan International Economics University

Selected products: BLS AI, BLS 6RVL, BLS BCBOT





4.2 Intelligent driving

Hunan University of Information Technology

Selected products: BLS ICV, BLS HPB-RDS





Hunan Institute of Engineering

Selected products: BLS ICV, BLS DC





Hunan First Normal University

Selected products: BLS ICV, BLS HPB-RDS





Xiangtan University

Selected products: BLS ICV, BLS DC





四、部分项目案例

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4.3 Industrial Robot

Central South University

Selected products: BLS IREP3





Hunan University of Science and Technology

Selected products: BLS IREP3



Shenzhen Technology University

Selected products: BLS MV3D





Hunan Institute of Science and Technology

Selected products: BLS MV3D





四、部分项目案例

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4.4 Intelligent Manufacturing and Operations

Hunan University

Selected products: BLS IMPL





Hunan Railway Professional Technology College

Selected products: BLS IMPL





Zhengzhou University

Selected products: BLS IMPL





Hunan University of Arts and Science

Selected products: BLS IMPL





Thank you!

湖南比邻星科技有限公司

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