Drive the Ubiquity of Intelligent Robots.

Mech-Mind Robotics Product Catalog

MECH MIND

Mech-Eye Industrial 3D Camera
Mech-Vision Graphical Machine Vision Software
Mech-DL Kit Offline Deep Learning Tool
Mech-Viz Intelligent Robot Programming Environment

Mech-Mind
Pioneer in AI+3D Field

Aiming to drive the ubiquity of intelligent robots, Mech-Mind has made an unparalleled commitment to R&D and its product portfolio including 3D cameras, machine vision algorithms and software, an offline deep learning tool, and an intelligent robot programming environment.
Our products can be applied to typical scenarios such as order picking, locating, assembly, industrial inspection/measurement, etc.

- **High Intelligence:** Enabled by powerful AI algorithms, our solutions can handle different objects and deal with various complex situations.

- **Stability and Reliability:** Mech-Eye Industrial 3D Camera has been tested continuously for more than 10000 hours. The camera is dust and water proof with IP65 enclosures standards. It can operate long hours in harsh environments. Mech-Eye has obtained CE, FCC, VCCI, and RoHS certifications.

- **Competitive Price:** The price is only half of the same type of typical products.

- **Easy Integration:** Our products can be adapted to various mainstream brands' robots and support integrating with various systems.

- **Easy to Deploy and Use:** The plug-and-play solutions save a lot of deployment time. The fully visualized, code-free programming interface dramatically lowers the threshold for operators to deploy.

- **Wide-range Application Cases:** Our solution have been successfully deployed in hundreds of leading companies in China, the United States, South Korea, Japan, Germany, Spain and other countries.
Previous applications cover palletizing, depalletizing, order picking, machine tending, gluing, locating, assembling, detecting, etc.
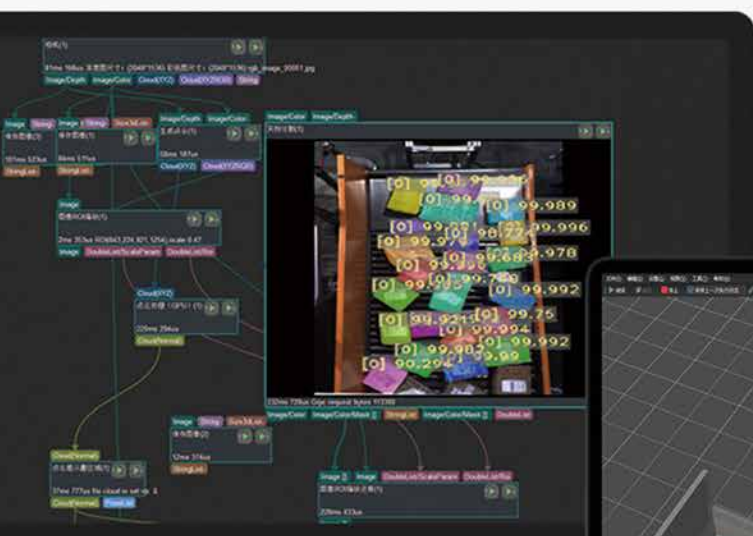
AI + 3D + Industrial Robot Solution

Products Portfolio

Mech-Eye Industrial 3D Camera

Mech-Eye Industrial 3D Camera can generate high-quality 3D data for various objects.

Ambient light resistance, high precision, high speed, and small sizes. Can be well suited in different scenarios.

Produce high-quality 3D data

Mech-Vision
Graphical Machine Vision Software

Support code-free depalletizing, machine tending, bin picking, gluing/spraying, precise locating, defect detection, size measurement, etc.

Built-in advanced algorithms such as 3D vision and deep learning can meet various complex practical needs.

Built-in Mech-DL Kit enables integrators to train deep learning models autonomously.

Complete visual functions such as recognition, locating, and measurement under complex conditions.

Mech-Viz
Intelligent Robot Programming Environment

The visualized and code-free programming interface enables one-click simulation.

Intelligent algorithms such as path planning, collision detection and picking planning are built in. The environment can be adapted to various mainstream robot brands in China and abroad.

AI enabled industrial automation for robotics

Support and Services

With a team of more than 500 experts, we provide support and services including delivery, training, samples and conference for robot integrator, etc.

Fully assist our business partners to enhance competitiveness and seize opportunities.
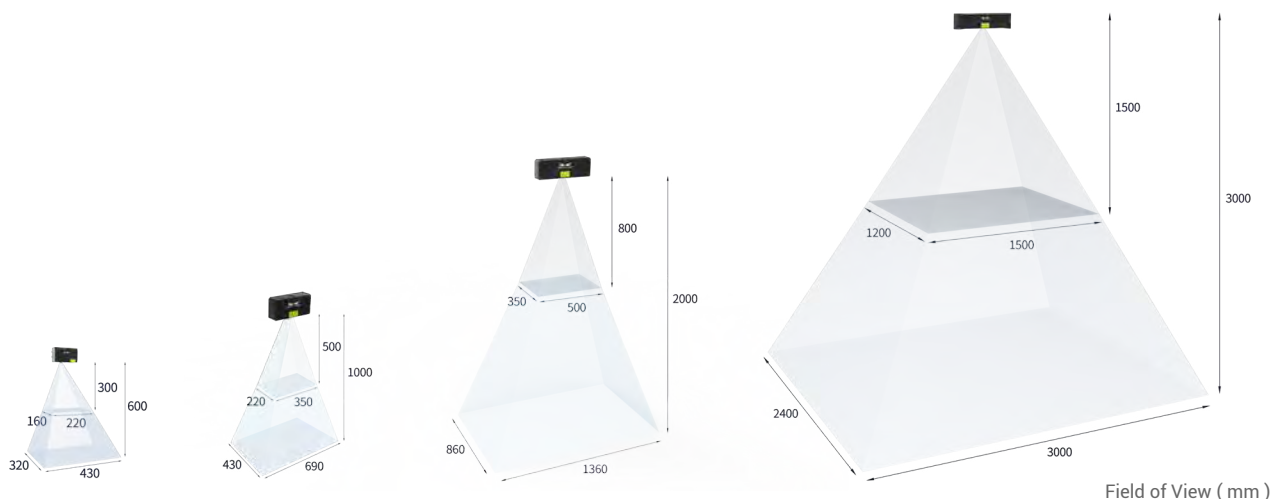
Mech-Eye Industrial 3D Camera
A Perfect Combination of Excellent Performance and Cost Effectiveness

Mech-Eye Industrial 3D Camera can generate high-quality 3D data for various objects. Our cameras can be well suited in various complex scenarios and meet the customers' needs such as ambient light resistance, high precision, high speed, and small sizes, etc.

Mech-Eye Signature Products			
Mech-Eye Nano	Short Distance	Small size, high precision and high flexibility. Suitable to be installed on the robot arm.	Suitable for scenarios with high requirements for precision such as assembly, screw driving, high-precision picking and inspection. Especially suitable to be installed in the hand of small-sized robots.
Mech-Eye Pro S Enhanced	Middle Distance	Small size and high precision. Able to generate accurate and precise point cloud data for objects such as metal parts, plastics, woods, etc.	Suitable for with random picking, industrial inspection, measurement, academic research, etc.
Mech-Eye Pro M Enhanced	Middle Distance	High precision and small size. Able to generate accurate and precise point cloud data for objects such as metal parts, plastics, woods, etc.	Suitable for with random picking, industrial inspection, measurement, academic research, etc.
Mech-Eye Laser	Long Distance	3D-structured laser light, high precision with an extended field of view, robust against ambient light.	Suitable for scenarios with high requirements for precision and ambient light resistance such as machine tending, etc.

Mech-Eye Nano	Mech-Eye Pro S Enhanced	Mech-Eye Pro M Enhanced	Mech-Eye Laser L

Field of View (mm)

Mech-Eye Industrial 3D Camera

A Perfect Combination of Excellent Performance and Cost Effectiveness

Specification Sheet	Nano	Pro S Enhanced	Pro M Enhanced	Laser L
Optimal Scanning Range (mm)	300 - 600	500 - 1000	800 - 2000	1500 - 3000
Near FOV (mm)	220 × 160 @ 0.3 m	350 × 220 @ 0.5 m	500 × 350 @ 0.8 m	1500 × 1200 @ 1.5 m
Far FOV (mm)	430 × 320 @ 0.6 m	690 × 430 @ 1.0 m	1360 × 860 @ 2.0 m	3000 × 2400 @ 3.0 m
Resolution	1280 × 1024	1920 × 1200	1920 × 1200	2048 × 1536
Megapixels (MP)	1.3	2.3	2.3	3.0
Z Repeatability(σ)	0.1 mm @ 0.5 m	0.05 mm @ 1 m	0.2 mm @ 2 m	0.5 mm @ 3 m
Accuracy	0.1 mm @ 0.5 m	0.1 mm @ 1 m	0.2 mm @ 2 m	1.0 mm @ 3 m
Typical Capture Time (s)	0.6 - 1.1	0.5 - 0.8	0.5 - 0.8	0.5 - 0.9
Baseline (mm)	68	150	280	400
Dimensions (mm)	145 × 51 × 85	270 × 72 × 130	387 × 72 × 130	459 × 89 × 145
Weight (kg)	0.7	2.2	2.4	3.7
Operating Temperature	0 - 45°C			-10 - 45°C
Communication Interface	Ethernet			
Power Supply	24V DC			
Safety and EMC	CE/FCC/VCCI			
Protection Class	IP65			
Cooling	Passive			

Specification Sheet	Log S	Log M	Deep
Optimal Scanning Range (mm)	500 - 1000	800 - 2000	1200 - 3500
Near FOV (mm)	360 × 250 @ 0.5 m	520 × 390 @ 0.8 m	970 × 1160 @ 1.2 m
Far FOV (mm)	710 × 490 @ 1.0 m	1410 × 960 @ 2.0 m	2830 × 3320 @ 3.5 m
Resolution	1280 × 1024	1280 × 1024	2048 × 1536
Megapixels (MP)	1.3	1.3	3.0
Z Repeatability(σ)	0.1 mm @ 1 m	0.3 mm @ 2 m	1.0 mm @ 3 m
Accuracy	0.2 mm @ 1 m	0.3 mm @ 2 m	3.0 mm @ 3 m
Typical Capture Time (s)	0.3 - 0.5	0.3 - 0.5	0.7 - 1.1
Baseline (mm)	150	280	400
Dimensions (mm)	270 × 72 × 130	387 × 72 × 130	481 × 98 × 145
Weight (kg)	2.2	2.4	4.3
Operating Temperature	0 - 45°C		
Communication Interface	Ethernet		
Power Supply	24V DC		
Safety and EMC	CE/FCC/VCCI		
Protection Class	IP65		
Cooling	Passive		

Mech-Eye Industrial 3D Camera

A Perfect Combination of Excellent Performance and Cost Effectiveness

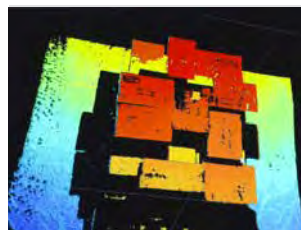### Mech-Eye Laser : The New-generation Industrial 3D Camera

Under the typical light (>15000lx) in real factories and warehouses, Mech-Eye Laser is able to generate complete, accurate and precise point cloud data for objects such as cartons, sacks and workpieces.

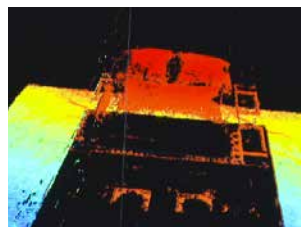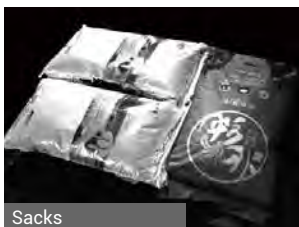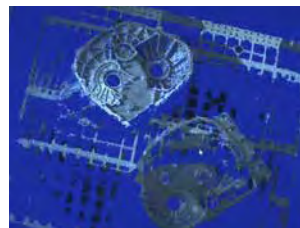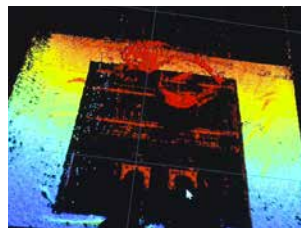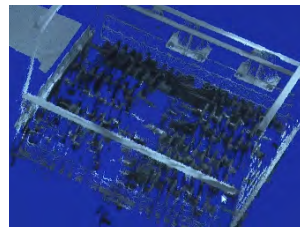### Living Examples of the High-quality Imaging

Mech-Eye Laser	Typical 3D Camera A	Typical 3D Camera B	Typical 3D Camera C

Cartons

Tracklinks

Crankshafts

Structural Parts

Sacks
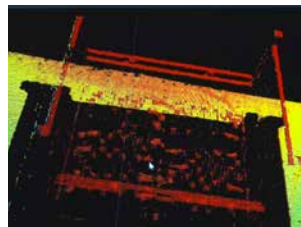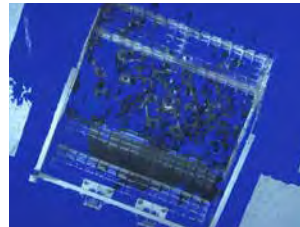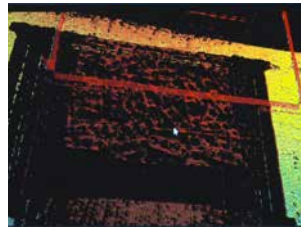
Under the same light (>15000 lx), the point cloud data produced by Mech-Eye Laser is significantly better than other 3D cameras.

Mech-Eye Industrial 3D Camera
A Perfect Combination of Excellent Performance and Cost Effectiveness

Mech-Eye Pro Enhanced Industrial 3D Camera

High precision and small size. Dust and water proof with IP65 enclosures standards. Able to generate complete, accurate and precise point cloud data for objects such as metal parts, plastics, woods, etc.
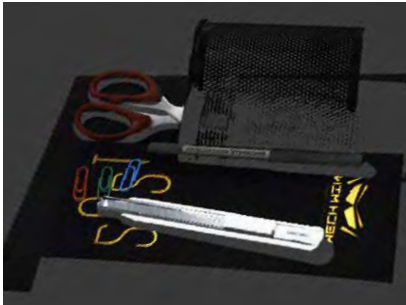
Detail-rich Stationary

Cards

Metal Parts

Colored Objects

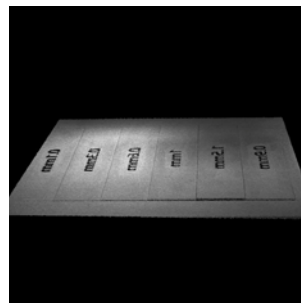Considerably Reflective Objects

Dark Objects

Mech-Eye Nano Ultra-small Volume Industrial 3D Camera

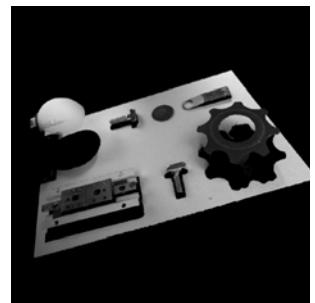Small size with high precision and flexibility.
Suitable to be installed on the robot arm. Can produce high-quality 3D data for various objects.

Screws, Nuts


Stairs with A Height Difference of 0.1 mm on Z-axis

Considerably Reflective / Dark Workpieces

Mech-Eye Industrial 3D Camera
A Perfect Combination of Excellent Performance and Cost Effectiveness

The cameras can produce high-quality 3D data for various objects such as cartons, sacks, metal parts, goods, express parcels, etc.
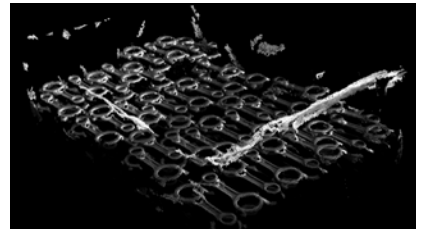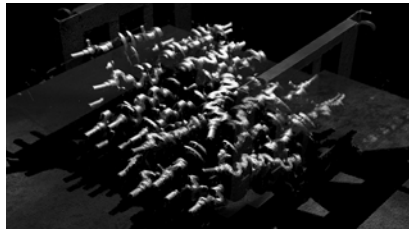
Tightly-packed Cartons with Patterns and Tapes
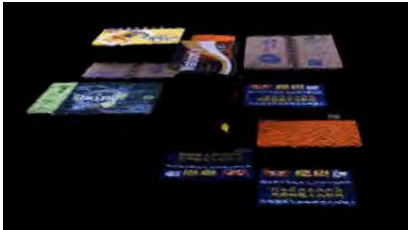
Tightly-packed Sacks with Patterns

Randomly-placed Metal Parts (e.g. Rotors, Crankshafts, Engine Rods)

Various Common Goods


Randomly-placed Real Express Parcels

Mech-Vision
Graphical Machine Vision Software

Mech-Vision is the new generation machine vision software, which can complete depalletizing, machine tending, registration-free order picking, gluing/spraying, precise locating, defect detection, size measurement, etc. through a code-free graphical interface. The built-in advanced algorithm modules such as 3D vision and deep learning can meet complex and diverse practical needs.
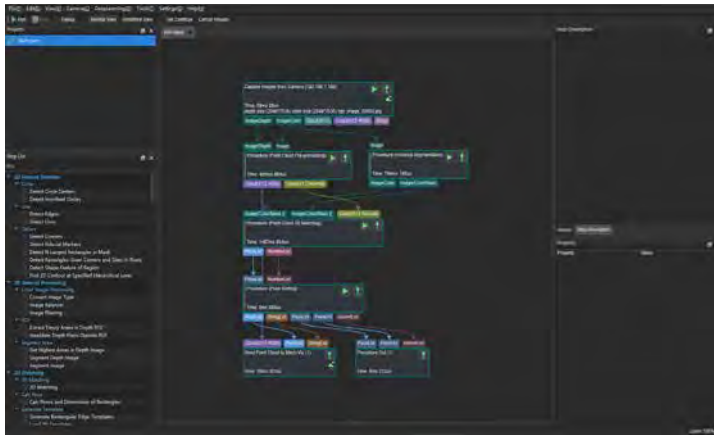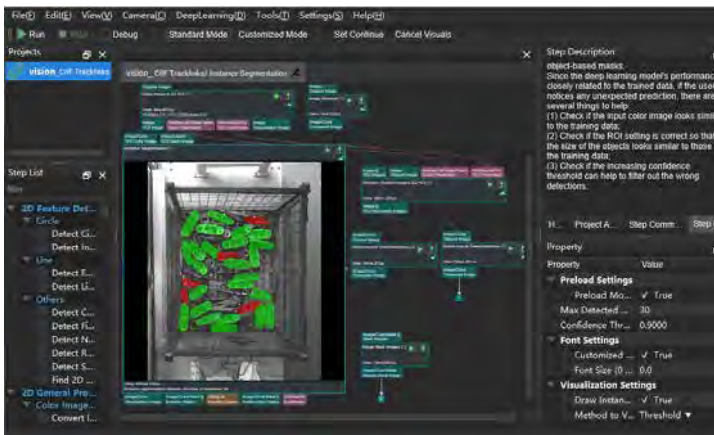

Graphical Interface with No Code, Easy to Use

Graphical interface with no code, concise UI design, and clear-cut functional partitions.

Professional programming skills are not required for users to realize visual engineering construction.

The software enables integrators to develop models autonomously.

Built-in Advanced Algorithm Modules

Built-in advanced algorithm modules such as deep learning can meet complex and diverse practical needs.

Handle situations such as randomly-placed real objects, considerably reflective or dark objects.

Can complete visual functions such as recognition, positioning, and measurement under complex conditions.
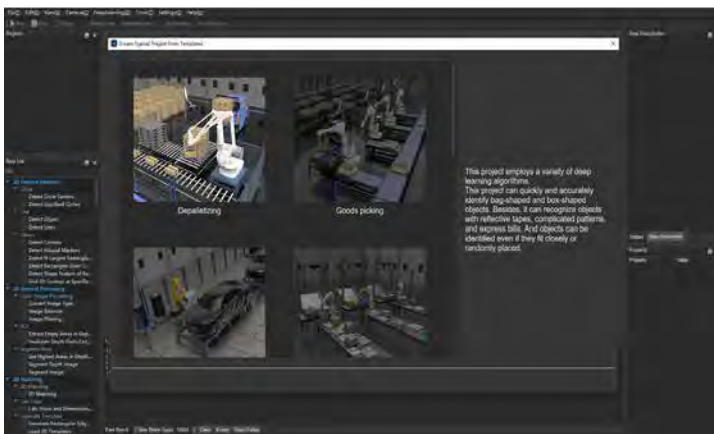
Various Built-in Typical Application Plug-ins

With integrated various application plug-ins such as random feeding, carton depalletizing, express parcel feeding, registration-free goods grasping, high-precision positioning, guided gluing, etc, users can easily deploy multiple typical applications of intelligent robots.

Mech-DL Kit
Offline Training Tool for Deep Learning

Mech-DL Kit is a newly launched deep learning autonomous training tool, which integrates the entire process of data collecti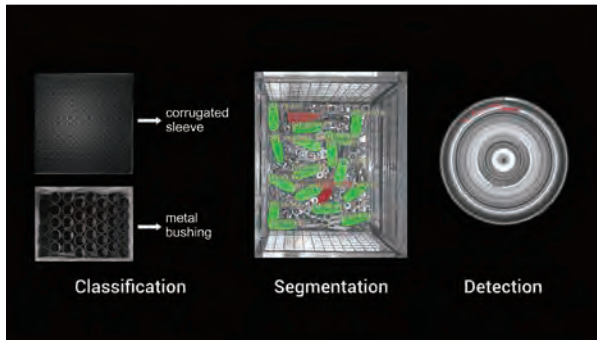on, screening, importing, labeling, model training, verification, and deployment of deep learning model training. The software is user-friendly, which improves training efficiency while ensuring data security throughout the process.

All-in-one Solution

It makes Mech-DL Kit well suited for dealing with complex materials and com-ponents in mobile, electronics, and automotive industries.
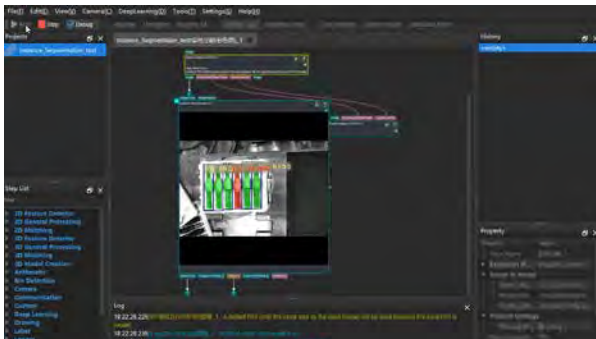
Consistently Reliable & Validated Results

Its highly consistent inspections archives images that can be reviewed offline, enabling end-users to understand and quickly rectify anomalous results.
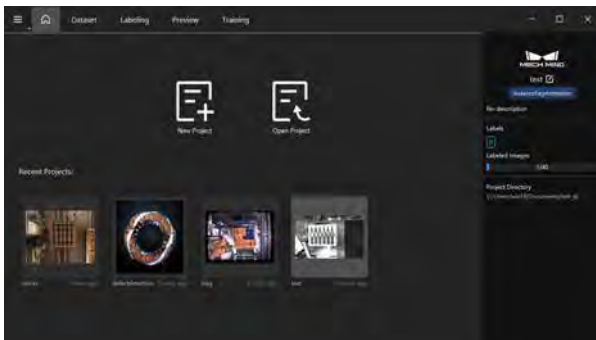
Easy to Develop and Use

End-users can operate Mech-DL Kit by controlling a few parameters offline, rather than repeated manual setting and wide parameter operation.

Smaller Image Sets Required

The deep learning algorithm's internal analysis process enhances upstream to reduce overkill and underkill rates to optimize quality and yield.

Mech-Viz

Intelligent Robot Programming Environment

Equipped with a visualized and code-free programming interface, the new generation intelligent robot programming environment can realize one-click simulation. Intelligent algorithms such as path planning, collision detection and picking planning are built in. The environment can be adapted to various mainstream robot brands in China and abroad.
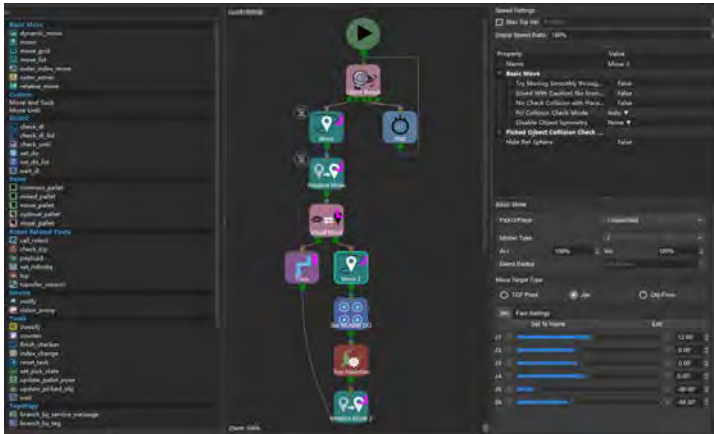

Process-Oriented Interface, One-Click Simulation, Easy to Operate

Visualized and code-free programming interface can realize one-click simulation.

Users without code programming experience can operate the robots.
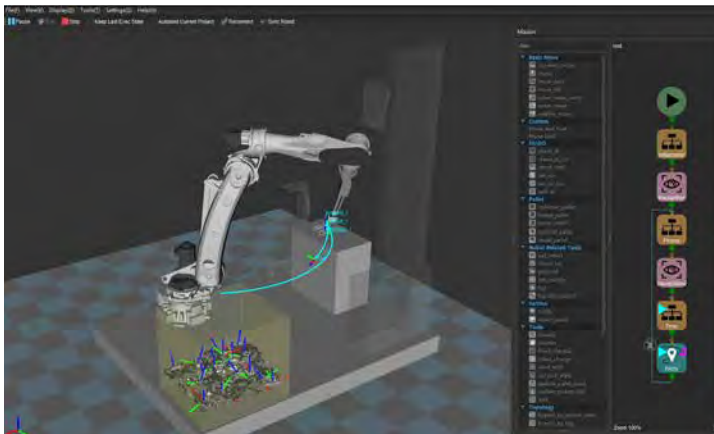
Built-in Intelligent Algorithms

Intelligent algorithms such as path planning, collision detection and picking planning are built-in to improve stability.

Adapted to Various Mainstream Robot Brands

The programming environment can be adapted to various mainstream robot brands.

The adapation to a new brand robot only needs 3-5 days.

Typical Solutions and Applications

A large pharmaceutical factory

Vision-guided Case Depalletizing

The robot grabs the corresponding number of cartons according to the order requirements and places them in the designated location.

- There are more than 500 kinds of cartons on-site.
- Cable ties/tapes/patterns/texts on cartons can be well handled.
- During the process of depalletizing, the vision-guided robots can calculate the number of cartons to be unloaded simultaneously.

A large steel plant

Vision-Guided Depalletizing of Sacks

The robot grabs the corresponding number of sacks of goods from the pallet one by one according to the order requirements and places them on the conveyor line.

- Complicated conditions such as wrinkles, deformation, and patterns on the surface of sacks can be dealt with.
- When the camera is mounted on the flange, it can be adapted to any pallet pattern.
- It can be adapted to a variety of different robots such as four-axis, six-axis, truss, etc.

A large delivery company

Vision-Guided Mixed Cage Trolley Palletizing

The vision-guided robot grabs randomly-placed express parcels one by one from the chute and places them in a designated location for code scanning. The package will then be sent to the crossbelt sorter.

- High speed, high efficiency.
- Support a variety of different express parcels (including soft bags, various cartons, foam envelopes, etc.);
- No impact on recognition and grabbing when parcels are packed tightly or placed randomly.
- It can be used with logistic equipment such as barcode scanner, WMS system, and cross-belt sorter.

A large Cosmetics e-commerce

Vision-Guided Order Picking

The robot grabs the corresponding quantity of goods from the bin according to the order and places them in the designated position.

- Support hundreds of different SKUs.
- Randomly-placed and tightly-packed goods, goods with express bills /films/intricate patterns and goods with pure black surfaces can all be recognized and handled.
- Seamless integration with logistic equipment such as the WMS system and AGV, is possible.

Typical Solutions and Applications

A large machinery factory

Vision-Guided Machine Tending (Track Links)

The vision-guided robot grabs randomly-placed metal parts one by one and distinguishes the front and back sides. The front side is directly placed on the worktable, and the backside is placed on the worktable after through the turning mechanism.

- More than ten kinds of metal parts are on site.
- Handle complex situations such as randomly-placed workpieces and workpieces with similar front and black sides.
- Intelligent algorithms such as path planning, collision detection improve stability and avoid collisions.
- Mech-Eye 3D Laser can work well under ambient light interference.

A large bus factory

Vision-Guided Gluing for Cabin Doors

The vision-guided robot recognizes randomly-placed workpieces (cabin doors), and performs gluing according to the required trajectory.

- Adaptable to dozens of different workpieces (the number of on-site hatches exceeds 20).
- Workpieces randomly placed on the conveyor belt can be well handled.
- A wide range of cabin door gluing can be done with high precision (door size is about 2 m x 1.5 m), and the accuracy at 2.5 m is <1 mm.
- Handle situations such as randomly-placed real objects, considerably reflective or dark workpieces.
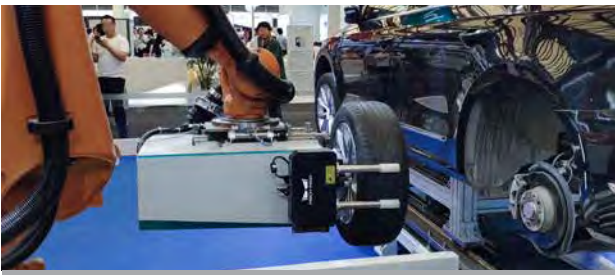
A large automotive OEMs

Vision-Guided Wheels Assembly

The vision-guided robot recognizes and grabs randomly-placed wheels, locates in motion, and assembles the workpiece on the bodywork as required.

- Adaptable to a various sizes of workpieces.
- Handle situations such as randomly-placed real objects, considerably reflective or dark workpiece.
- Assembly can operate stably, precisely, and quickly while the production line is running.

A large steel plant

Vision-Guided Rebar Locating (Labelling)

The vision-guided robot recognizes the cross section of the bundled steel bar and locates the most prominent steel bar section and labeling.

- High-precision and high-efficiency labeling can be performed on various sizes of rebar bundles (diameter 8-30 mm).
- Intelligently identify the labeling position, avoid external force causing the label to fall off effectively.
- Single mark and double mark are free to switch, and there is a re-shooting function to confirm dropped cards.

Aiming to drive the ubiquity of industrial robots, Mech-Mind was founded in 2016, based in Beijing (R&D) and Shanghai (Sales and Deployment) with branch offices in Munich and Tokyo.

Fast Growth

Mech-Mind has launched a full infrastructure and products portfolio and exhibited at 2020 CIIF at Shanghai and iREX2019 at Tokyo. Mech-Mind has been selected as 2019 Intel AI 100 Best Innovation Incentive Program and Microsoft Scaleup Member Enterprise. We have also received multiple rounds of funding from IDG Capital, Meituan, Sequoia Capital China, Source Code Capital, Intel, Qiming Venture Capital, Delian Capital, and China Growth Capital.

World-Class Team

We currently have more than 500 members, including engineers who graduated from Tsinghua University, Beihang University, Zhejiang University, Harbin Institute of Technology, Carnegie Mellon University, Munich University of Technology, Delft University of Technology, California Institute of Technology, The University of Tokyo, and other top universities in China and abroad. We have deep technical accumulation in 3D sensing, vision and robotics algorithms, robotics software, and industry application solutions. Mech-Mind has dozens of patent and software copyright applications that are filed or under review.

Recognition from Industry-Leading Enterprises

We have already deployed solutions for automotive plants, home appliance plants, steel plants, food plants, logistic warehouses, pharmacy, and banks. The applications include depalletizing, palletizing, bin-picking, machine tending, assembly, gluing, and locating, etc. We have successfully deployed over 1000 solutions in for clients and partners from China, Japan, South Korea, Singapore, Germany, Italy, Switzerland, the United States, Turkey, Thailand, and other countries.

Compatible with Most Mainstream Robot Brands Globally

Customers and Partners

DRIVE THE UBIQUITY OF INTELLIGENT ROBOTS

Mech-Mind Robotics Technologies Ltd.

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