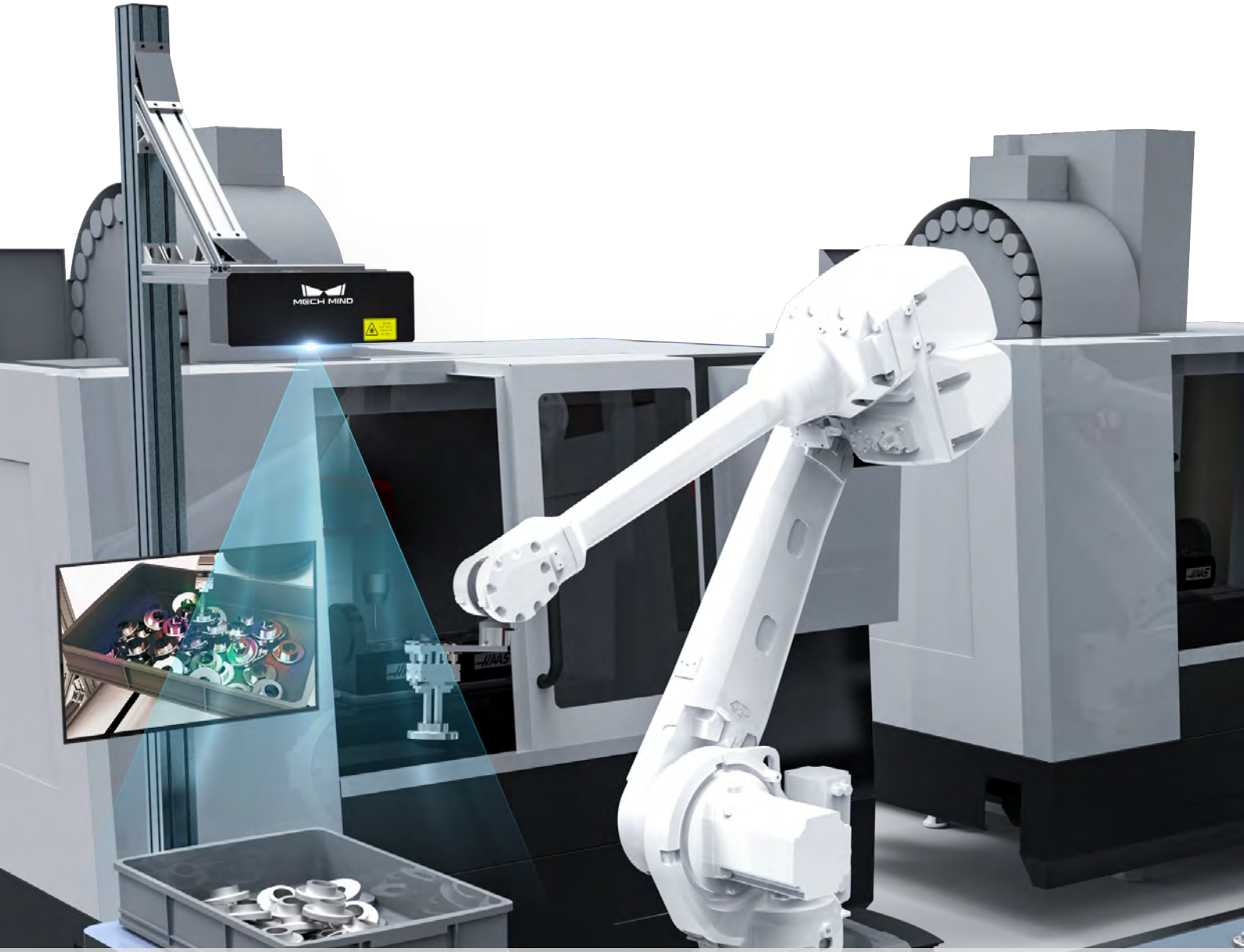
Drive the Ubiquity of Intelligent Robots

Mech-Mind Robotics Product Catalog

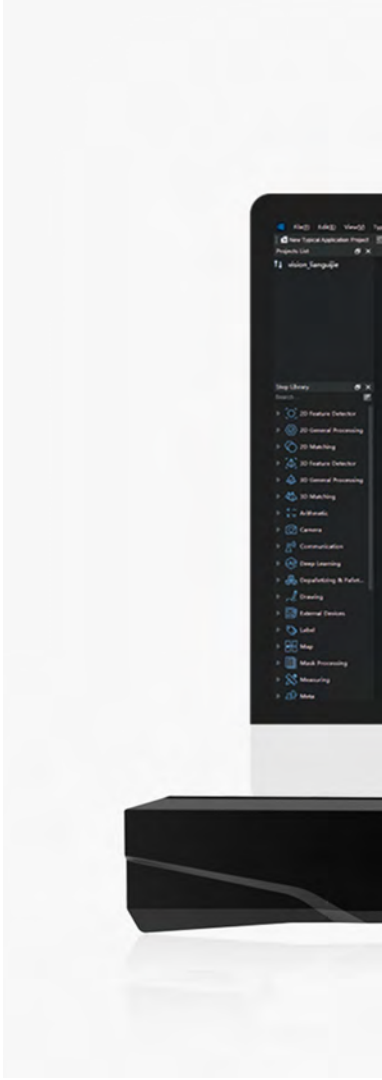


Mech-Eye Industrial 3D Camera
Mech-Vision Graphical Machine Vision Software
Mech-DLK Deep Learning Software
Mech-Viz Intelligent Robot Programming Environment

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 a broad range of 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.
- **Thousands of Use Cases**: Our solutions 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, piece picking, machine tending, gluing, locating, assembling, detecting, etc.




MECH MIND
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MECH MIND


MECH MIND

AI+3D+Industrial Robot Solution

Products Portfolio

Mech-Eye Industrial 3D Camera

Mech-Eye Industrial 3D Camera can generate high-quality 3D data for a broad range of objects.

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

Produce high-quality 3D data

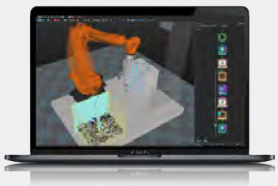
Mech-Vision
Graphical Machine Vision Software

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.

Mech-DLK enables integrators to train deep learning models locally.

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.

Built-in intelligent algorithms such as path planning, collision detection, grasping strategy, etc. It can be adapted to various mainstream robot brands worldwide.

AI enabled industrial automation for robotics

Support and Services

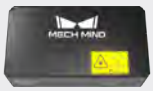
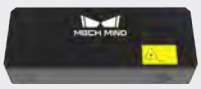
With a team of more than 600 experts, we provide integrators with technical support and attentive services including delivery, staff training, demos, conference assistance, etc.

Fully assist our business partners to enhance competitiveness and seize opportunities.

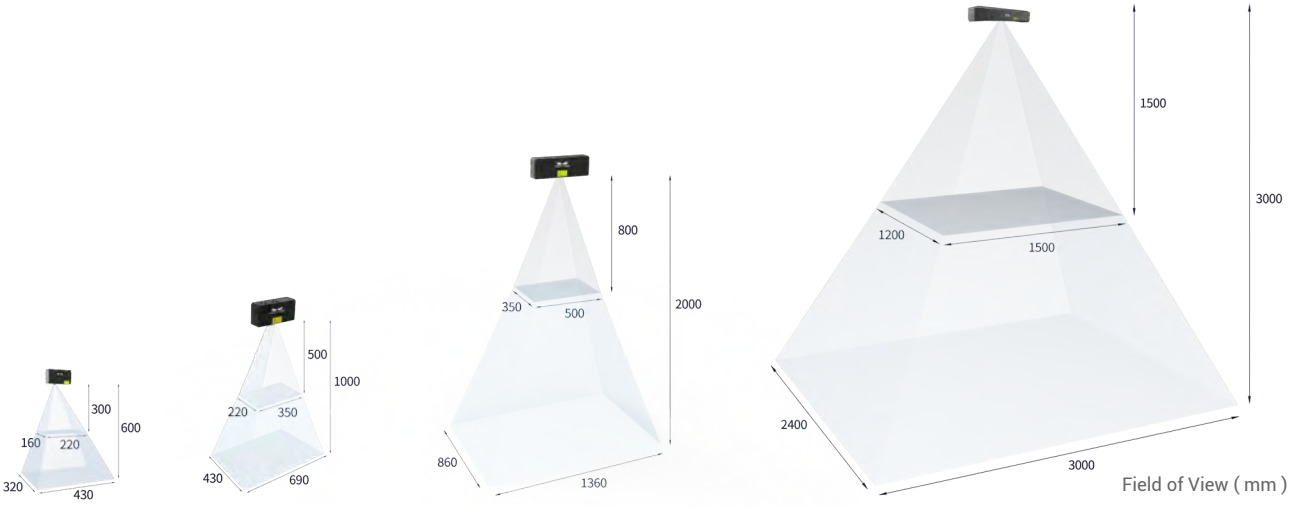
Mech-Eye Industrial 3D Camera

A Perfect Combination of Excellent Performance and High Cost Effectiveness

Mech-Eye Industrial 3D Camera can generate high-quality 3D data for a broad range of 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 size, etc.

Mech-Eye Industrial 3D Camera			
 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, high-precision picking and inspection. Especially suitable to be installed in 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 dealing 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 dealing 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, bin picking, 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 High 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			
Image Sensor	Sony CMOS for High-end Machine Vision			
Power Supply	24V DC			
Safety and EMC	CE/FCC/VCCI			
Protection Class	IP65			
Cooling	Passive			

Specification Sheet	UHP-140	Pro XS	Log S	Log M	Deep
					
Optimal Scanning Range (mm)	300 ± 20	300 - 600	500 - 1000	800 - 2000	1200 - 3500
Near FoV (mm)	135 × 90 @ 0.28 m	220 × 160 @ 0.3 m	360 × 250 @ 0.5 m	520 × 390 @ 0.8 m	970 × 1160 @ 1.2 m
Far FoV (mm)	150 × 100 @ 0.32 m	430 × 320 @ 0.6 m	710 × 490 @ 1.0 m	1410 × 960 @ 2.0 m	2830 × 3320 @ 3.5 m
Resolution	2048 × 1536	1280 × 1024	1280 × 1024	1280 × 1024	2048 × 1536
Megapixels (MP)	3.0	1.3	1.3	1.3	3.0
Z Repeatability(σ)	*Point : 2.6 μm **Region: 0.09 μm	0.1 mm @ 0.5 m	0.1 mm @ 1 m	0.3 mm @ 2 m	1.0 mm @ 3 m
Accuracy	***0.03 mm @ 0.3 m	0.1 mm @ 0.5 m	0.2 mm @ 1 m	0.3 mm @ 2 m	3.0 mm @ 3 m
Typical Capture Time (s)	0.6 - 0.9	0.7 - 1.1	0.3 - 0.5	0.3 - 0.5	0.7 - 1.1
Baseline (mm)	80	93	150	280	400
Dimensions (mm)	260 × 65 × 142	160 × 52 × 87	270 × 72 × 130	387 × 72 × 130	481 × 98 × 145
Weight (kg)	1.9	0.8	2.2	2.4	4.3
Operating Temperature	0 - 45°C				
Communication Interface	Ethernet				
Image Sensor	Sony CMOS for High-end Machine Vision				
Power Supply	24V DC				
Safety and EMC	CE/FCC/VCCI				
Protection Class	IP65				
Cooling	Passive				

*The standard deviation of the single point Z value for 100 measurements, The measurement target is a ceramic plate.

* * The standard deviation of the difference of the average Z value in two local regions for 100 measurements, The measurement target is a ceramic plate.

* * * Refer to VDI/VDE2634 Part II.

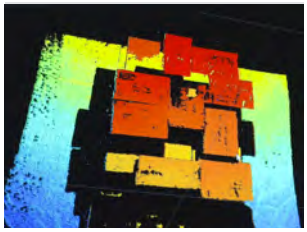
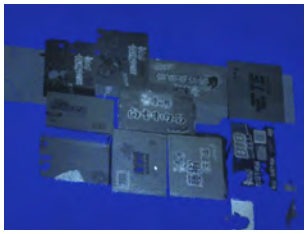
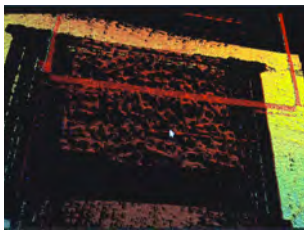
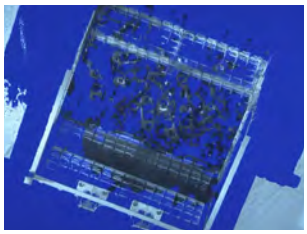
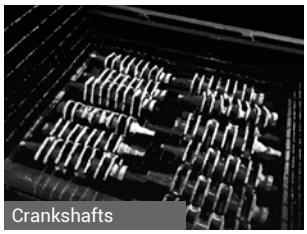
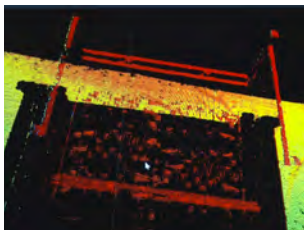
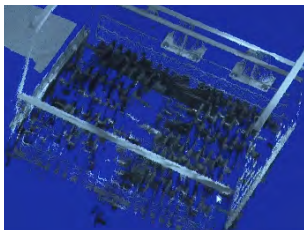
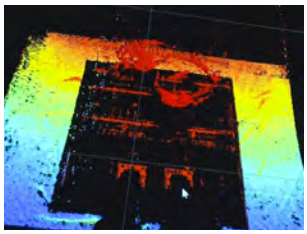
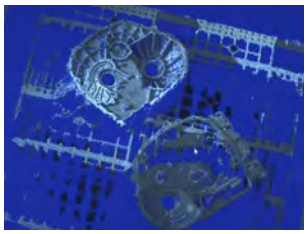
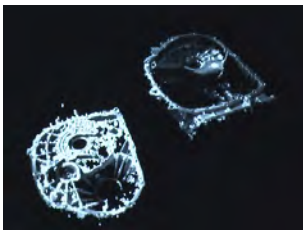
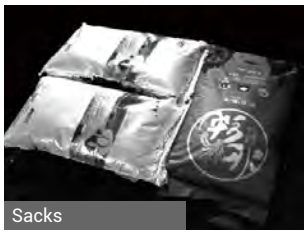
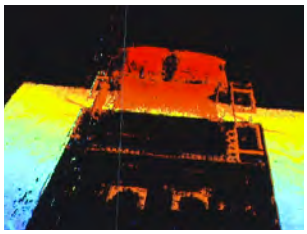
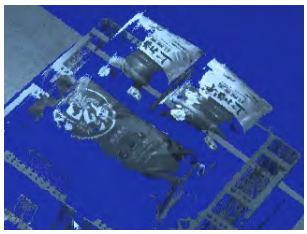
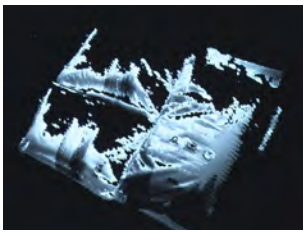
Mech-Eye Industrial 3D Camera

A Perfect Combination of Excellent Performance and High 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			

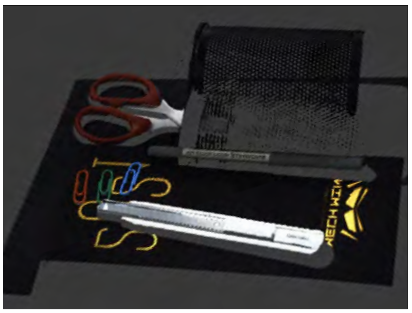
Under the same light (>15000 lx), the point cloud data produced by Mech-Eye Laser is significantly better than other 3D cameras.

Mech-Eye Industrial 3D Camera

A Perfect Combination of Excellent Performance and High 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

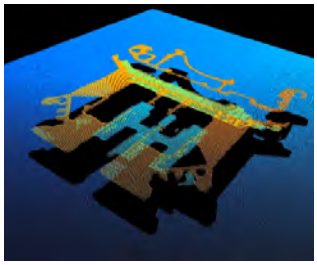
Colored Objects

Considerably Reflective Objects

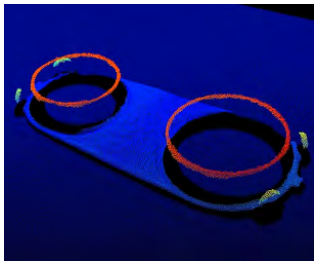
Dark Objects

Mech-Eye Nano Palm-Sized Industrial 3D Camera

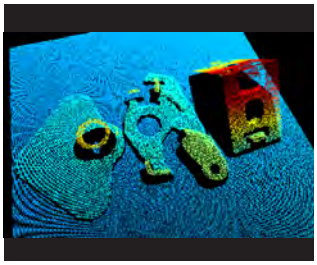
Small size with high precision and flexibility.
Suitable to be installed on the robot arm. Can produce high-quality 3D data for various objects.



Precision Component



Parts of Merely 0.68 mm Thickness



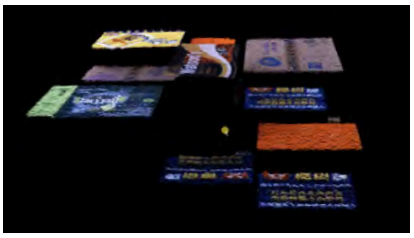
Various Small Workpieces

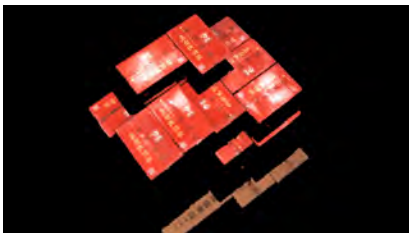
Mech-Eye Industrial 3D Camera

A Perfect Combination of Excellent Performance and High Cost Effectiveness

Mech-Eye Industrial 3D Camera can produce high-quality 3D data for a broad range of objects such as cartons, sacks, metal parts, express parcels, etc.

Tightly-Packed Cartons with Patterns and Tapes

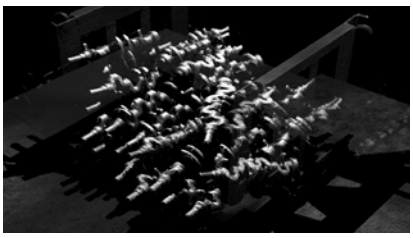
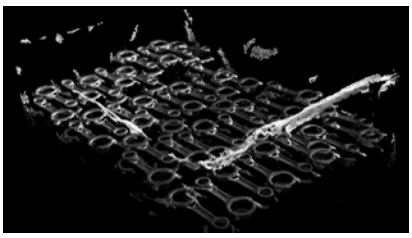




Tightly-Packed Sacks with Patterns



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

Various Common Goods



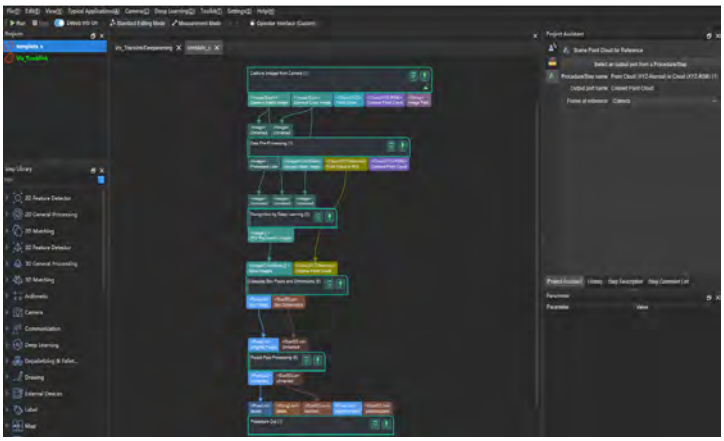
Randomly-Placed Real Express Parcels



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.

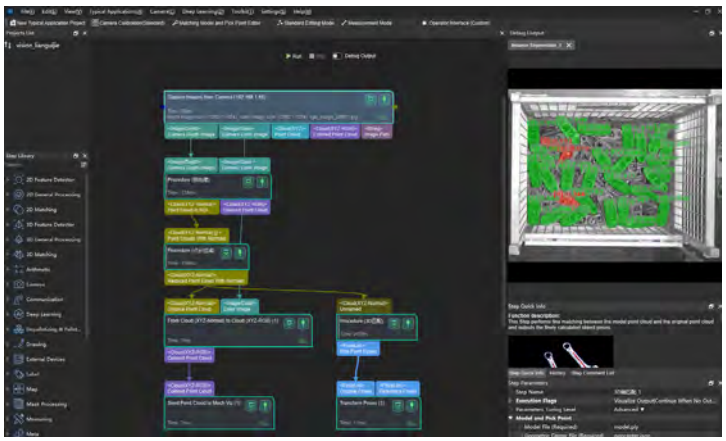


Code-free Graphical Interface, Easy to Use

Code-free graphical interface, 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.

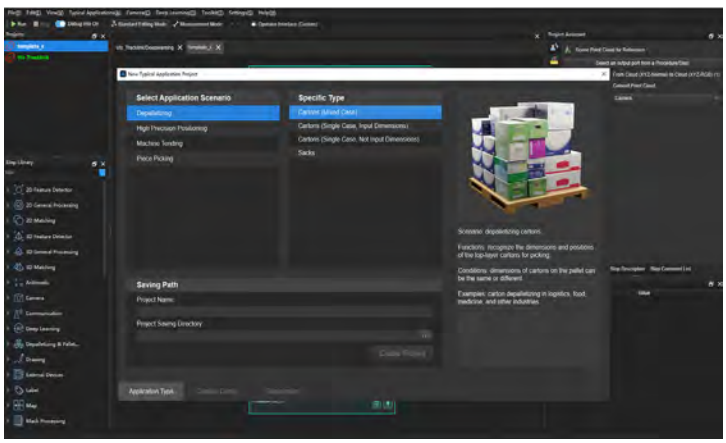


Built-in Advanced Algorithm Modules

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

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

Can complete visual functions such as recognition, positioning, and measurement under complex conditions.



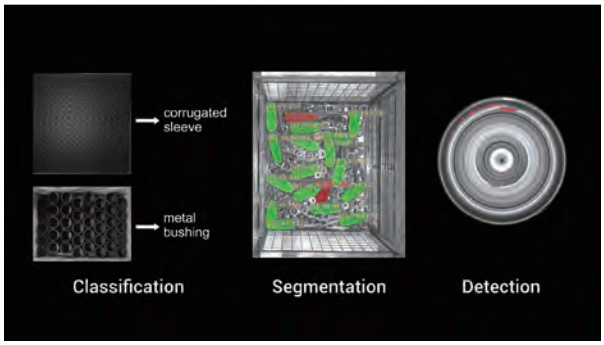
Various Built-in Typical Application Plug-ins

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-DLK

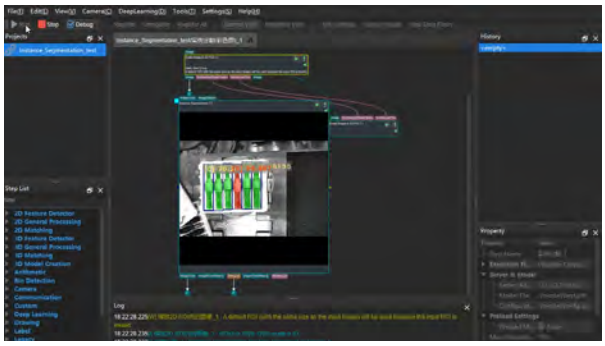
Deep Learning Software

Mech-DLK is a newly launched deep learning autonomous training tool, which integrates the entire process of data collection, 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.



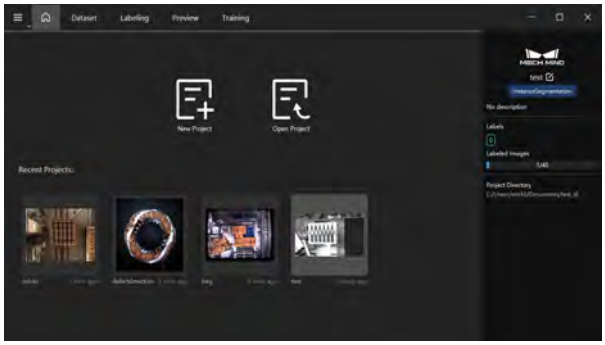
All-in-one Solution

It makes Mech-DLK well suited for dealing with complex materials and components 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-DLK 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

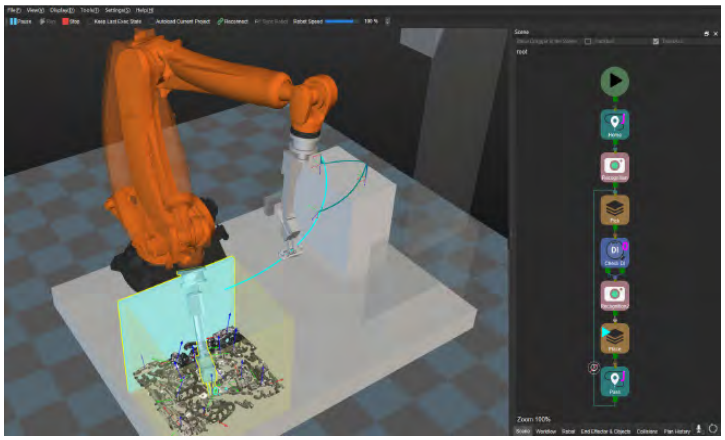
Intelligent Robot Programming Environment

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 Use Cases

A Large Pharmaceutical Factory

Vision-Guided Case Depalletizing

The robot picks 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.
- Cartons with cable ties, tapes, patterns,and texts 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 from the pallet one by one according to the order requirements and places them on the conveyor line.

- Deformed sacks or sacks with wrinkles and patterns on the surface can all be well handled.
- Support any pallet pattern.
- It can be adapted to a variety of 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 processing speed.
- Support a variety of different express parcels (including soft bags, various cartons, foam envelopes, etc.);
- Support tightly packed or randomly placed parcels.
- It can work together 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 well handled.
- Seamless integration with logistic equipment such as the WMS system and AGV.

Typical Use Cases

A Large Machinery Factory

Vision-Guided Machine Tending of Track Links

The vision-guided robot grabs randomly-placed metal parts one by one and distinguishes the front and back sides. The robots place the right-side-up parts on the worktable. And those right-side-downs are to be processed through the turning mechanism, then loaded on the worktable afterward.

- More than ten kinds of metal parts are on site.
- Randomly-placed workpieces and workpieces with similar front and black sides can be well handled.
- Path planning, collision detection, and other AI algorithms guide robots avoid collision, improving stability.
- Mech-Eye 3D Laser can work well under ambient light interference.

A Large Bus Factory

Vision-Guided Cabin Doors Gluing

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

- Adaptable to dozens of different workpieces (there're more than 20 kinds of cabin doors on site).
- Support workpieces randomly placed on the conveyor belt.
- 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.
- Randomly-placed objects and considerably reflective or dark workpieces can be well handled.

A Large Automotive OEMs

Vision-Guided Wheels Assembly

The vision-guided robot recognizes and picks randomly-placed wheels, locates the assembly position in motion, precisely and assembles the workpiece.

- Adaptable to workpieces of various sizes.
- Randomly-placed objects, or considerably reflective or dark workpieces can be well handled.
- Assembly can operate stably and precisely, while the production line is up and 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 protruding steel bar section and excute abeling.

- High-precision and high-efficiency labeling can be performed on various rebar bundles (diameter 8-30 mm).
- Identify a proper position to make firm labeling, avoiding external force causing the label to fall off.
- 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 (Product Center) and Shanghai (Sales and Deployment) with branch offices in Munich, Tokyo, Shenzhen, Hangzhou, Guangzhou, Changsha, Qingdao, and Jinan.

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 600 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

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