Drive the ubiquity of intelligent robots

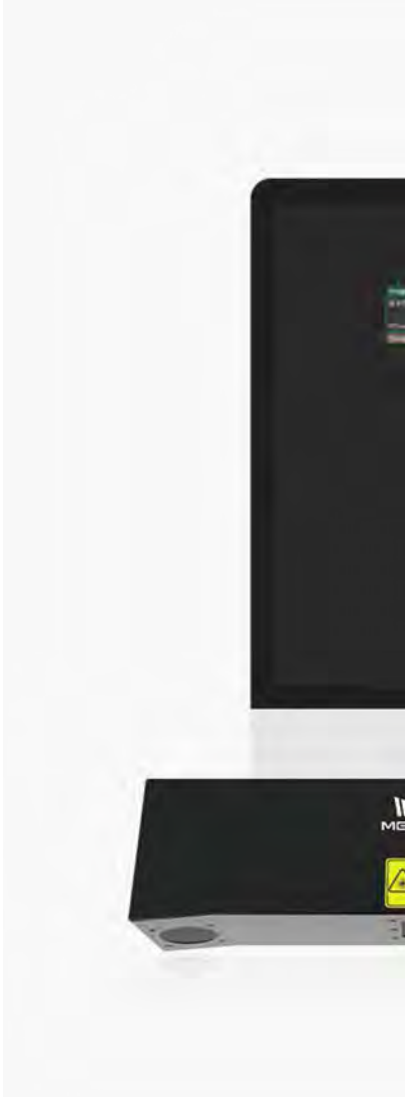
Mech-Mind Robotics Product Catalog

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
Expert in AI+3D Field

Aiming to drive the ubiquity of intelligent robots, Mech-Mind has developed a full R&D infrastructure and product portfolio including 3D cameras, machine vision algorithms and software, offline deep learning tool, and 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 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 robot brands and support integrating with various systems and the secondary software development.
- **Easy to Deploy and Use:** The plug-and-play solutions save a lot of deployment time. The fully visualized, code-free programming interface dramatically reduces the usage difficulty and deployment costs.
- **Wide-range application cases:** Our solution has 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.




MECH MIND
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MECH MIND


MECH MIND

AI + 3D + Industrial Robot Solution

Full Infrastructure and Products Portfolio

Mech-Eye Industrial 3D Camera

Mech-Eye Industrial 3D Camera with high performance can generate high-quality 3D data for various goods.

Ambient light resistance, high precision, high speed, and small sizes in different scenarios.

Produce high-quality 3D data

Mech-Vision
Graphical Machine Vision Software

A code-free graphical interface.Depalletizing, machine tending, bin picking, gluing/spraying, precise locating, defect detection, size measurement, etc.

Built-in advanced algorithm modules such as 3D vision and deep learning.

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

Equipped with a visualized and code-free programming interface which 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.

AI enabled industrial automation for robotics

Support and Services

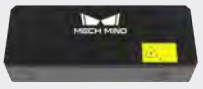
With a team of more than 500 experts, we provide support and services including delivery, training, samples and conference for robot integrator, etc.

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

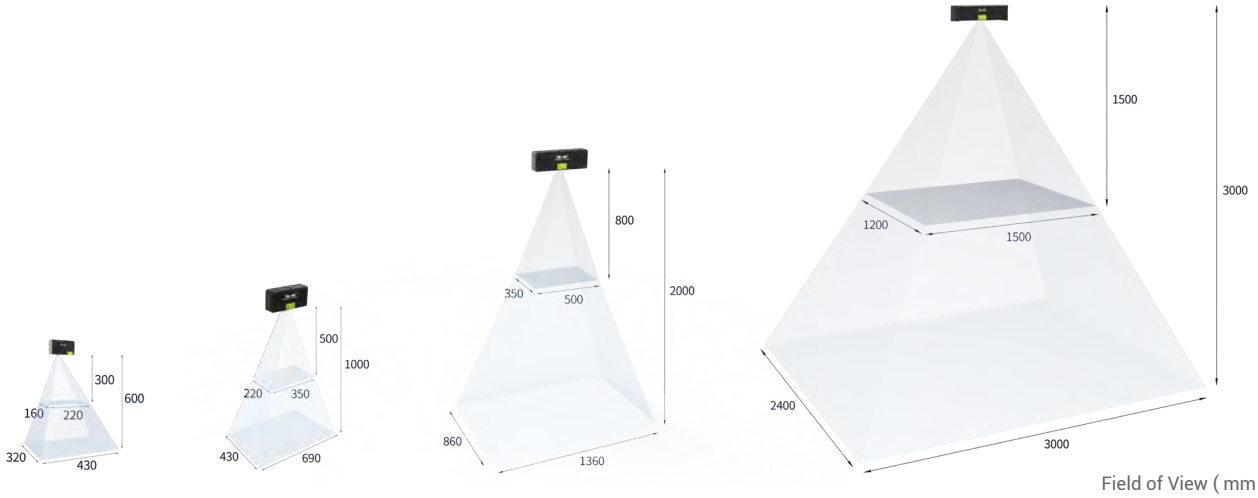
Mech-Eye Industrial 3D Camera

Delicate Offering with High-performance and Cost-effectiveness

Mech-Eye Industrial 3D Camera with high performance can generate high-quality 3D data for various goods. Our model options can satisfy needs of ambient light resistance, high precision, high speed, and small sizes in different scenarios.

Mech-Eye flagship products			
 Mech-Eye Nano	Short Distance	Small size with high precision and 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	High precision with small sizes. Able to generate accurate and delicate point cloud data for objects like metal parts, plastics, woods, etc.	Suitable for with Mixed-order picking, industrial inspection, measurement, academic research, etc.
 Mech-Eye Pro M Enhanced	Middle Distance	High precision with small sizes. Able to generate accurate and delicate point cloud data for objects like metal parts, plastics, woods, etc.	Suitable for with Mixed-order picking, industrial inspection, measurement, academic research, etc.
 Mech-Eye Laser	Long Distance	3D-structured laser light, high precision with 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

Delicate Offering with High-performance and Cost-effectiveness

Product Parameters	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)	0.8 - 1.3	0.5 - 0.8	0.5 - 0.8	0.6 - 1.3
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			

Product Parameters	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	0.8 - 1.3
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		

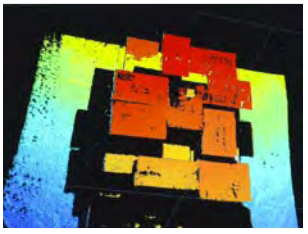
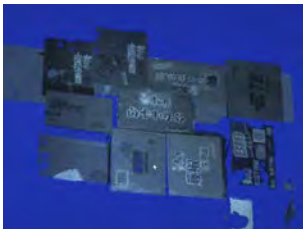
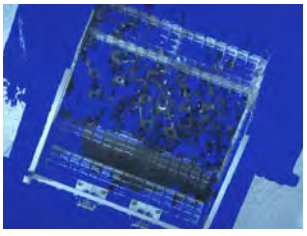
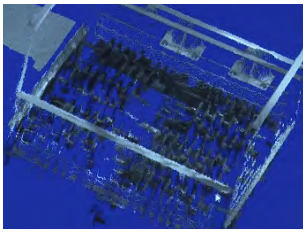
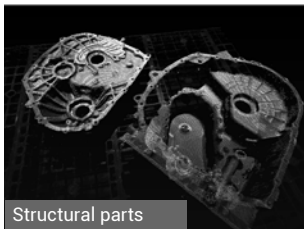
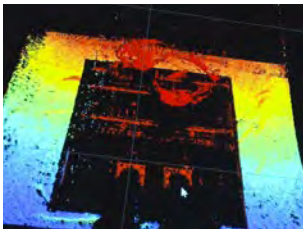
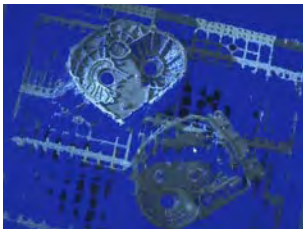
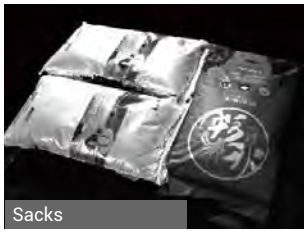
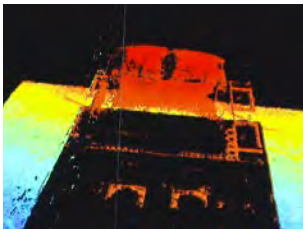
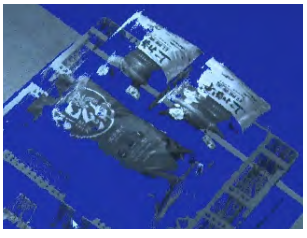
Mech-Eye Industrial 3D Camera

Delicate Offering with High-performance and Cost-effectiveness

Mech-Eye Laser: The New Industrial 3D Camera

Experiment in actual typical factory under demanding light (>15000lx), Mech-Eye Laser is able to generate complete, accurate and delicate point cloud data for objects like cartons, sacks and workpieces.

The Benchmark Testing

Mech-Eye Laser	Typical 3D Camera A	Typical 3D Camera B	Typical 3D Camera C
 Cartons			
 Tracklinks			
 Crankshafts			
 Structural parts			
 Sacks			

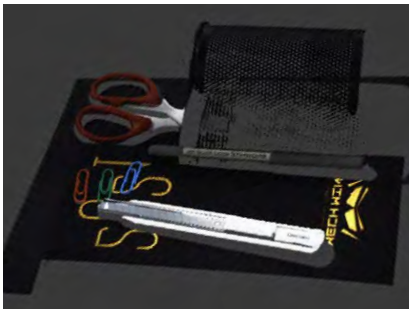
Under the same demanding light (>15000 lx), the point cloud data produced by Mech-Eye Laser is significantly better than other 3D cameras.

Mech-Eye Industrial 3D Camera

Delicate Offering with High-performance and Cost-effectiveness

Mech-Eye Pro Enhanced Industrial 3D Camera

High precision with small sizes. Dust and water proof with IP65 enclosures standards. Able to generate complete, accurate and delicate point cloud data for objects like metal parts, plastics, woods, etc.

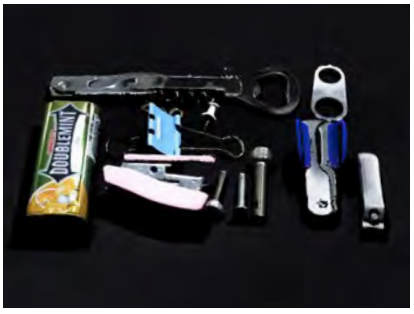


Detail-rich Stationary

Cards

Metal Parts

Colored Objects



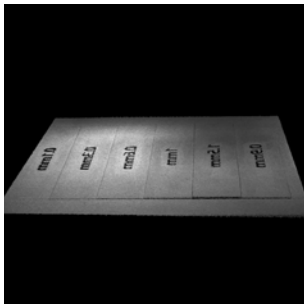
Considerably Reflective Objects

Dark Objects

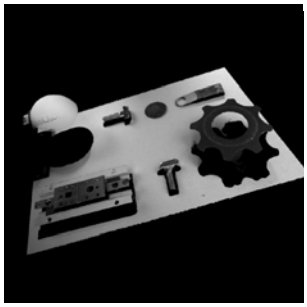
Mech-Eye Nano ultra-small volume industrial grade 3D camera

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

Screws, nuts



Stairs with a height difference of 0.1 mm on Z-axis



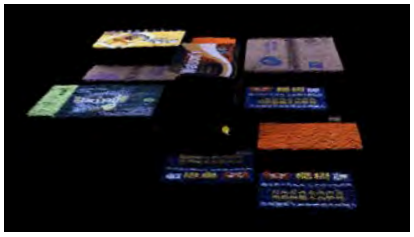
Considerably reflective / dark workpieces

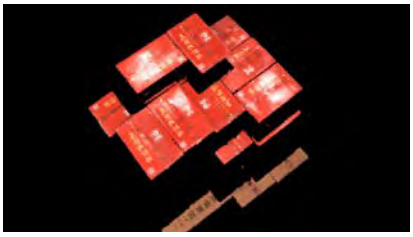
Mech-Eye Industrial 3D Camera

Delicate Offering with High-performance and Cost-effectiveness

The cameras can produce high-quality 3D data of various objects like cartons, sacks, metal parts, goods, express parcels, etc.

Tightly-packed Cartons with Patterns and Tapes

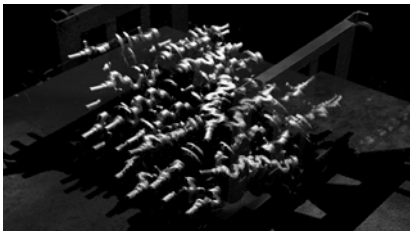
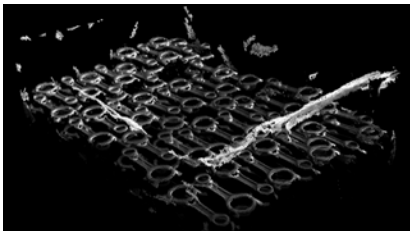




Tightly-packed Sacks with Patterns



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

Various Common Goods



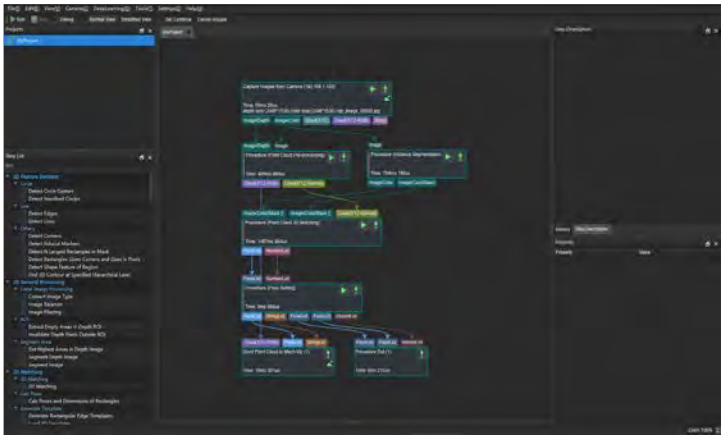
Randomly-placed Real Express Parcels



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.

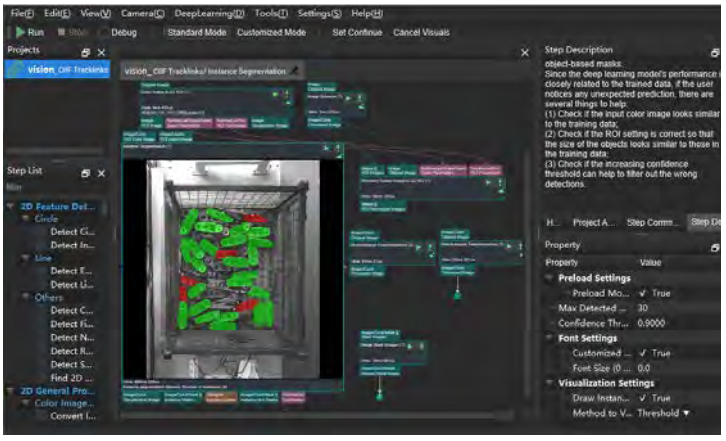


Graphical Interface with No Code, Easy to Use

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.

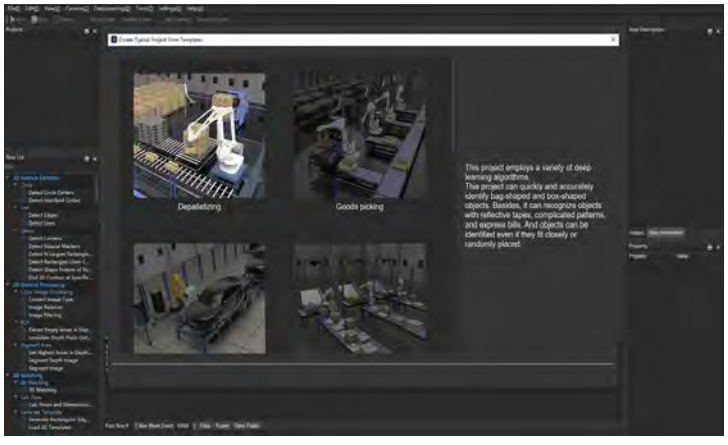


Built-in Advanced Algorithm Modules

Built-in advanced algorithm modules such as deep learning, which 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

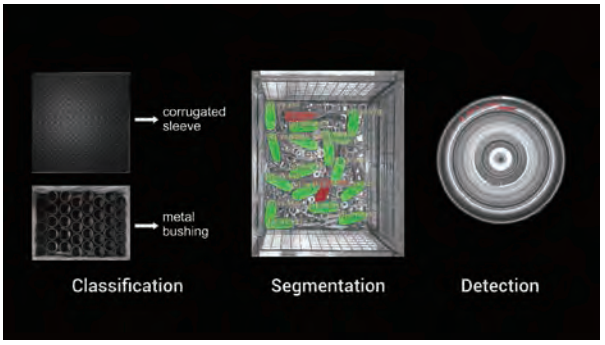
With integrated various application plug-ins such as random feeding, carton depalletizing, express parcel feeding, registration-free goods grasping, high precision positioning, guided gluing, etc.

Users can easily deploy multiple typical applications of intelligent robots.

Mech-DL Kit

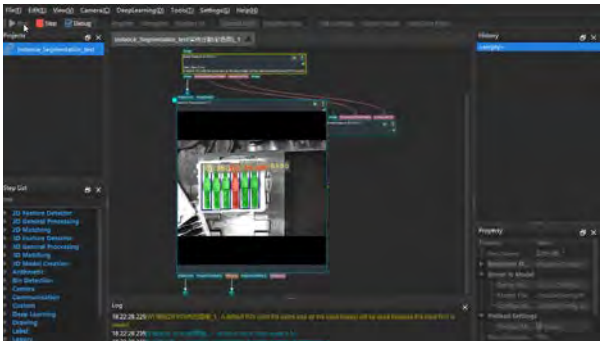
Offline Training Tools for Deep Learning

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



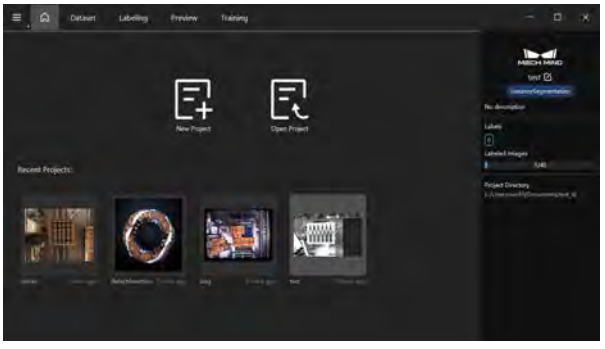
All-In-One Solution

It makes Mech-DL Kit well suited for complex materials and components for 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.

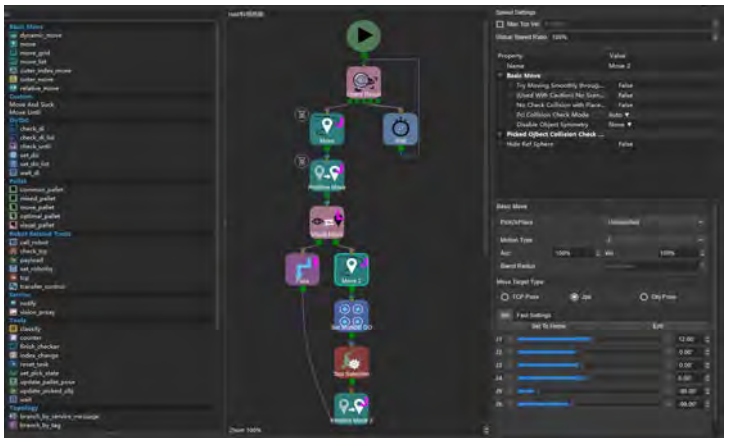
Smaller Image Sets Required

The deep learning algorithm's internal analysis process enhances quality upstream to reduce over kill 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 which 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 of a new brand robot only needs 3-5 days.

Typical Solutions and Applications

A large pharmaceutical factory

Vision-Guided Carton 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 do not affect recognition.
- When depalletizing, the number of boxes to be unloaded can be calculated simultaneously with high intelligence.

A large steel plant

Vision-Guided Sack Depalletizing

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 together used with logistic equipment such as barcode scanner, WMS system, and cross-belt sorter.

A large Cosmetics e-commerce

Vision-Guided Free Massive Objects 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 ecognized 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 complex poses of workpieces and similar front and back sides of the workpiece.
- Intelligent algorithms such as path planning, collision detection are built-in.
- Use the anti-reflective , adjust to changes of ambient light.

A large bus factory

Vision-Guided Gluing for Cabin Doors

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

- Adapt to dozens of different workpieces (the number of on-site hatches exceeds 20).
- Workpieces can be placed freely on the conveyor belt without affecting identification.
- 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 better than 1 mm.
- Handle situations such as randomly-placed real objects, considerably reflective or dark workpiece.

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.

- Adapt to a various sizes of workpieces.
- Handle situations such as randomly-placed real objects, considerably reflective or dark workpiece.
- Support the completion of the assembly during the movement of the production line, with high precision, high speed, and stability.

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, TOP3 Enterprise in AI Field in 2020 Zhongguancun International Frontier Technology Innovation Competition, 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 almost 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

ABB KUKA YASKAWA FANUC Kawasaki NACHI DENSO UNIVERSAL ROBOTS
STÄUBLI EFORT GREE格力 ROKAE 珞石 a2 配天机器人 TM ROBOT ESTUN ROBOTICS TURIN
AUBO DELTA QJAR 钱江机器人 QKM HAN'S ROBOT 大族机器人 HYUNDAI JAKA 节卡 SIASUN 新松

Customers and partnership

SIEMENS Honeywell NISSAN BMW VW TOYOTA 中国旅游 SANY 三一重工 五粮液 中国邮政 CHINA POST GREE格力 intel
Lenovo TSINGTAO 青岛啤酒 YUTONG Haier Midea SDS Continental DHL BOSCH WEICHAI 潍柴
brose CVTE 视源股份 ABB Kawasaki KUKA YASKAWA DENSO NACHI UNIVERSAL ROBOTS Microsoft ScaleUp

DRIVE THE UBIQUITY OF INTELLIGENT ROBOTS

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