



Advanced Computer Vision Solution

EZAOI Vision Platform (AOI + AI)



UPMOST EZAOI
AOI Software with
High-Precision Image
Pre-Processing



AISVision(UPMOST)
Professional AI model training
software with 5 different
algorithms.



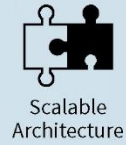
No Code
Workflow Management



Quick
Parameter Setup



Faster
Development



Scalable
Architecture



Flexible
Modules

EZAOI Vision Platform is a no-code, scalable vision platform designed for fast deployment through simple parameter adjustments.

Its user-friendly and efficient architecture helps reduce false positives, overkill, and missed defects—eliminating the need for programming expertise.

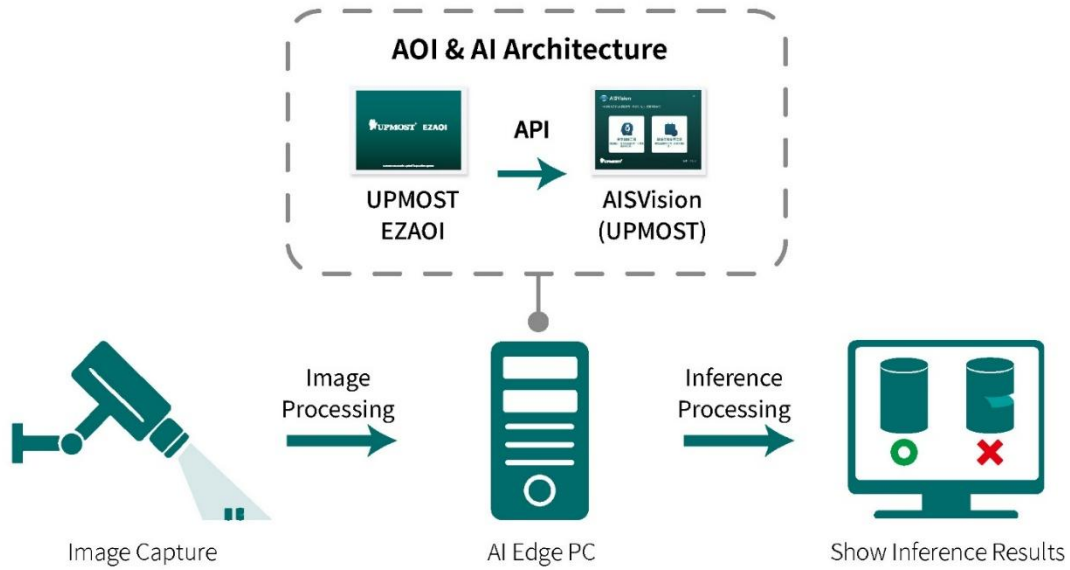
- **No-code Workflow Management:** No programming required — built on a process-driven architecture.
- **Quick Parameter Setup:** Configured by non-technical users through simple parameter adjustments.
- **Faster Development:** Significantly reduces both development and maintenance costs.
- **Scalability Architecture:** Built with a robust architecture for both hardware and technology expansion.
- **Flexible Modules:** Reusable modules significantly reduce the need for coding, testing, validation.

See it. Capture it. Inspect it.

No matter how small or fast an object is—if the camera captures it, Computer Vision Suite can detect and recognize it.



Architecture : UPMOST EZA0I + AISVision(UPMOST)



Diverse Application Use Cases

EZA0I Vision Platform supports a wide range of industries —from semiconductor packaging and solder joint inspection to missing part detection and print defect analysis —all in one unified platform.



Semiconductor Industry
Wafer Packaging Inspection



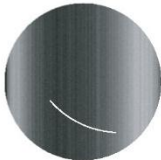
Manufacturing Industry
Soldering Point Inspection



Traditional Industry



Production Line
Quality Control



Steel Industry
Scratch Detection



Medical Industry
Drug Quality Control



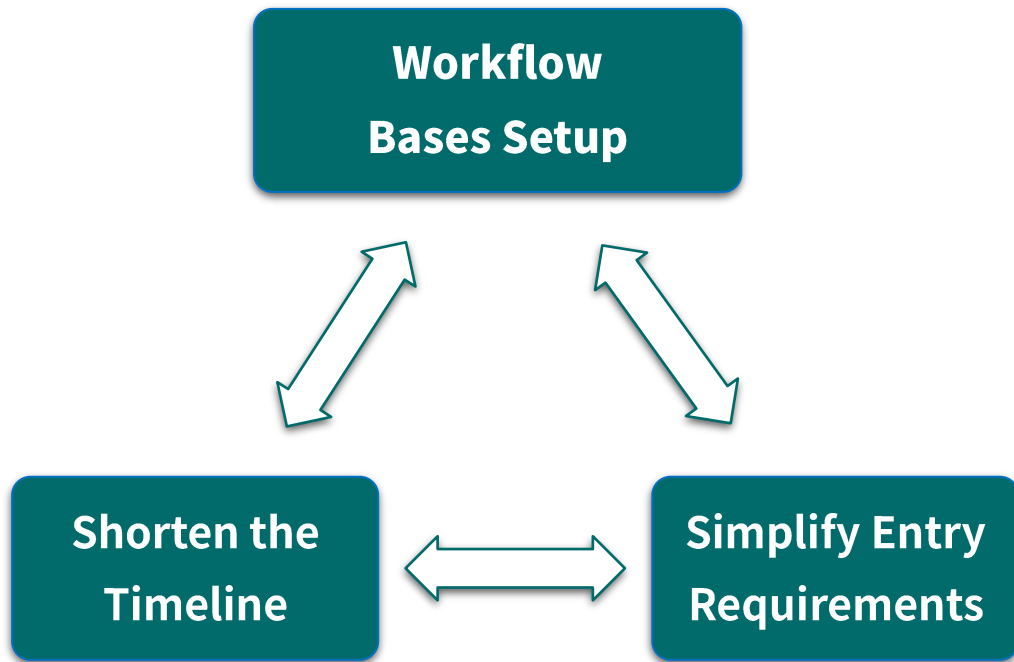
Optical Industry
Lens Scratch Detection



Cultural Creative Industry
Print Flaw Recognition

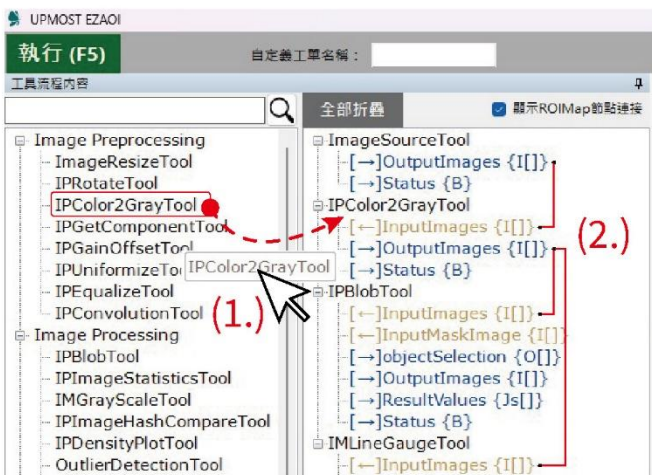
Industry Category	Defect Type	Core Tech	Key Functional Combination
PCB/SMT	Insufficient solder / Solder bridging / Cold solder joint	AOI	Geometric measurement + Edge matching
Consumer Products	Surface scratches / Damage / Assembly misalignment / Missing parts	AOI	Surface defect detection + Alignment matching + Texture analysis
Automotive Components	Insufficient solder paste / Wrong soldering / Missing parts / Cracks	AOI	Alignment measurement + Defect matching + Edge recognition
Printing	Ink color deviation / Uneven ink layer	AI	Color learning + Image classification
Display Industry	Transparent material foreign objects (bubbles, stains)	AI	Background variation learning + Detail magnification recognition
Food Packaging	Barcode misprint / Scan failure	AI	Blur recognition + Character recognition
Steel Inspection	Surface oxidation / Indentation / Cold cracks	AOI + AI	Contour tracking + Steel texture modeling + AI defect matching
PCB/SMT	Broken lines / Pin offset	AOI + AI	Line detection + Object classification
Textile	Frayed edges / Tears	AOI + AI	Edge analysis + Defect learning

I . Technical Advantage



① No-code & workflow-based operation

No programming skills required. The intuitive user interface is simple, easy to use, and quick to learn.



(1) Model Settings:

Click and drag with the left mouse button.



(2.) Model Connections:

1 Output → 1 Input

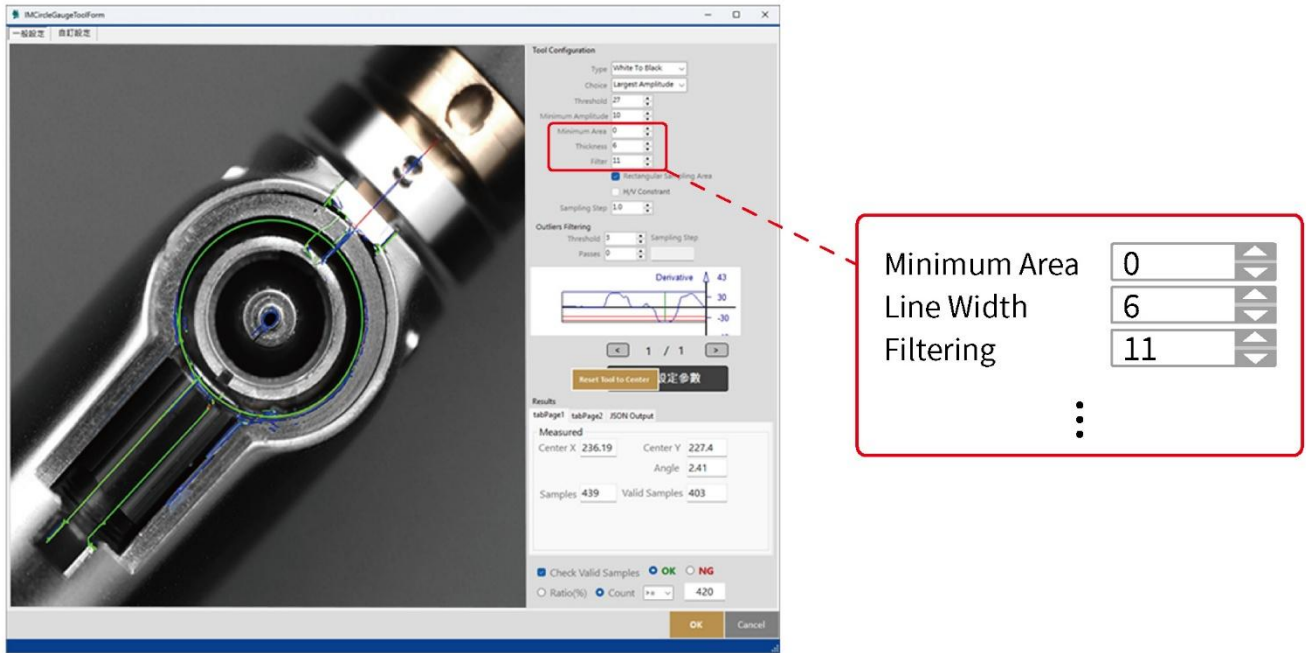


1 Output → Multiple Inputs (Shared)



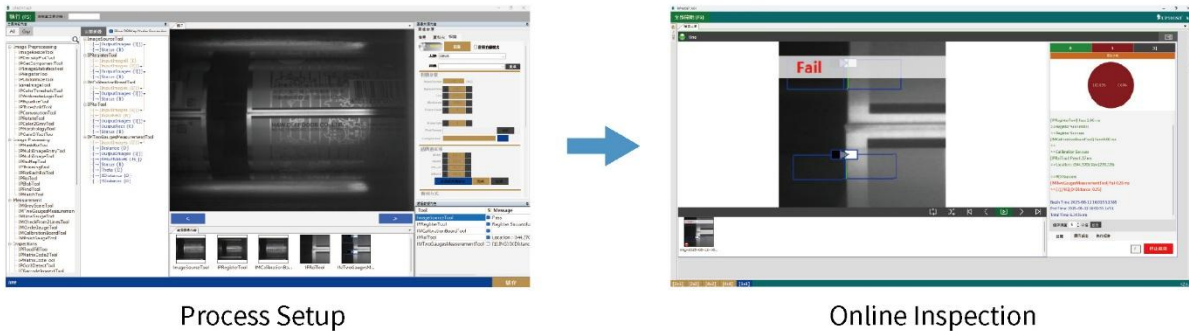
② Parameter-based & Quick setup

Easily configure measurement zones, positions, angles, and scale through a user-friendly parameter interface.



③ Rapid development

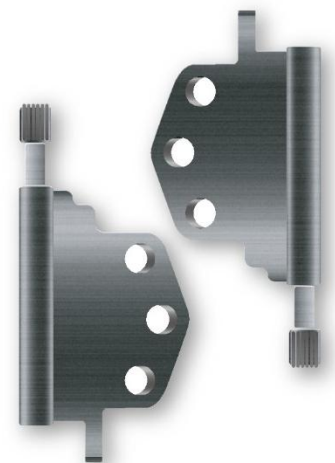
Completed UPMOST EZA01 deployment in only 2 weeks.



④ Application Example : 6 Surfaces Captured, 12 Defect Types, 25 Inspection Tasks

Completed robot arm integration and laptop hinge inspection system development in about 2 and 3 months, respectively.

Item	Inspection surface					
	A	C1	C2	B1	B2	B3
1. Bushing no mounting holes / threading			✓			
2. Check Rib(Drilled holes, Corner defects)			✓			
3. Shaft not aligned		✓				✓
4. Piece Count / Debris / Color Difference	✓	✓				
5. Laser marking missing/displacement		✓				
6. Mount overpressure deformation		✓				✓
7. DTM-pressure mark				✓		
8. Surface scratch / abrasion	✓	✓				✓
9. Missing solder / burn marks	✓	✓				
10. Bushing misalignment		✓				
11. Shaft indentation	✓	✓		✓	✓	✓
12. Shaft indentation / embossing	✓	✓		✓		✓



⑤ Scalability

Built-in with a variety of functional modules — including AI, PLC, Data, and Image Preprocessing/Processing.



⑥ Extensive Tool List

分類	Image Preprocessing	Image Processing	Measurement/Gauge	Inspection	AI	Data	Numeric	Logical
功能模組 Module	ImageResizeTool	IPMaskRoiTool	IMGrayScaleTool	IPFoodFillTool	AISVisionTool	PointTool	CalculateTool	BooleanTool
	IPGetComponentTool	IPRoiMapTool	IMLineGaugeTool	IPMatrixCode2Tool	MLInspectionCriteriaTool	ConvertBooleanToTextTool	NumberTool	ORTool
	IPMultiMaskTool	IPThinningTool	IMCheckFrom2LinesTool	IPMatrixCodeTool	MLDetectTool	ConvertDecimalToTextTool		IFNotTool
	IPRegisterTool	IPMultiImageEntryTool	IMEdgeSegmentDifferenceTool	ICBarcodeInspectTool	ImageClassifyTool	DrawTool		AndTool
	IPUniformizeTool	IPMultiImageTool	IMCircleGaugeTool	ICSilverPaintInspectTool	ImageSupervisedSegmentTool	OutputMessageTool		NotTool
	SaveImageTool	IPFoEachRoiTool	IMEasyCalibrationTool	IPBarcodeTool	ImageUnsupervisedSegmentTool	ConvertImageToBase64Tool		IFTool
	IPOTSuThresholdTool	IPRoiTool	IMCalibrationBoardTool	IPocrDetectTool	YoloTool	ExportDataTool		
	IPArithmeticLogicTool	IPBlobTool	IMPPointGaugeTool	IPocvInspectTool		LogicAndTool		
	IPEqualizeTool	IPFindTool	IMDistanceFromPointPointTool					
	IPInvertTool	IPFixImageTool						
	IPThresholdTool	IPMatchTool						
	IPAdaptiveThresholdTool							
	IPCalibrateTool							
	IPConvolutionTool							
	IPRotateTool							
	IPColor2GrayTool							
IPMorphologyTool								
IPGainOffsetTool								

分類	Comparison	Validation	Activities	Graphic	Network	PLC	Other
功能模組 Module	EqualNumberTool	DecimalValidateTool	CallTemplateTool	LineTool	DataTransTcpIpServerTool	KevencePLCTool	ResultReporterTool
	BiggerNumberTool	StringCompareTool	WarningSoundTool		ModbusSlaveTool	ModBusTCPConnectTool	GroupTool
			CounterTool			MPLCTool	
			ExternalTool			MPLC_IPConnectTool	
			DelayTool			PLCWriteTool	
			DOTool			PLCReadTool	
			IFDOTool				

Comparison - Traditional AOI vs. AI-Powered Inspection

Function Category	AOI	AI	Application Examples
Dimension Measurement	✓ High-speed / High-precision	Handles general dimensions	Abnormal hole size, component misalignment
Alignment Inspection	✓ Line/edge/shape matching	✓ Pattern structure recognition	Die-cut misalignment, double-layer printing error
Color Difference Check	Color thresholding; low accuracy	✓ Color learning; high accuracy	Print color shift, uneven ink
Surface Defect Detection	Limited handling on glossy surfaces	✓ Can detect dents/embossing/cracks	Metal scratches, foreign object dents
Damage Inspection	✓ Edge comparison ✓	✓ Learns and reinforces damage patterns	Missing holes, broken pieces, fractures
Foreign Object Detection	Limited to shape anomalies	✓ Diverse foreign object recognition	Oil stains, dust, splatter
Barcode / OCR	Barcode scanning, text matching	✓ Can read blurred or stylized text	Wrong barcode, font error, missing characters
Texture Judgment	Not supported	✓ Detects fabric texture / ink embossing	Mura, fabric embossing, dot patterns
Image Classification	No learning capability	✓ Auto-learning and classification	Overall appearance anomaly detection
Complex Defect Detection	Easily misjudged, hard to rule-based	✓ Learns irregular anomaly patterns	Irregular oil stains, cracks, uneven coating

II. Main Features – UPMOST EZA01



Image Adjustment:

Image Scaling, Rotation, and Flipping.



Dimensional Measurement:

Measure length, width, distance, and other dimensions.



Alignment Adjustment:

Align and Correct Images to Fix Camera Angle Issues.



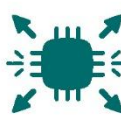
Blob Analysis Tool:

Morphological Processing (Dilation, Erosion, Opening, Closing)



Brightness Adjustment:

Brightness Equalization.

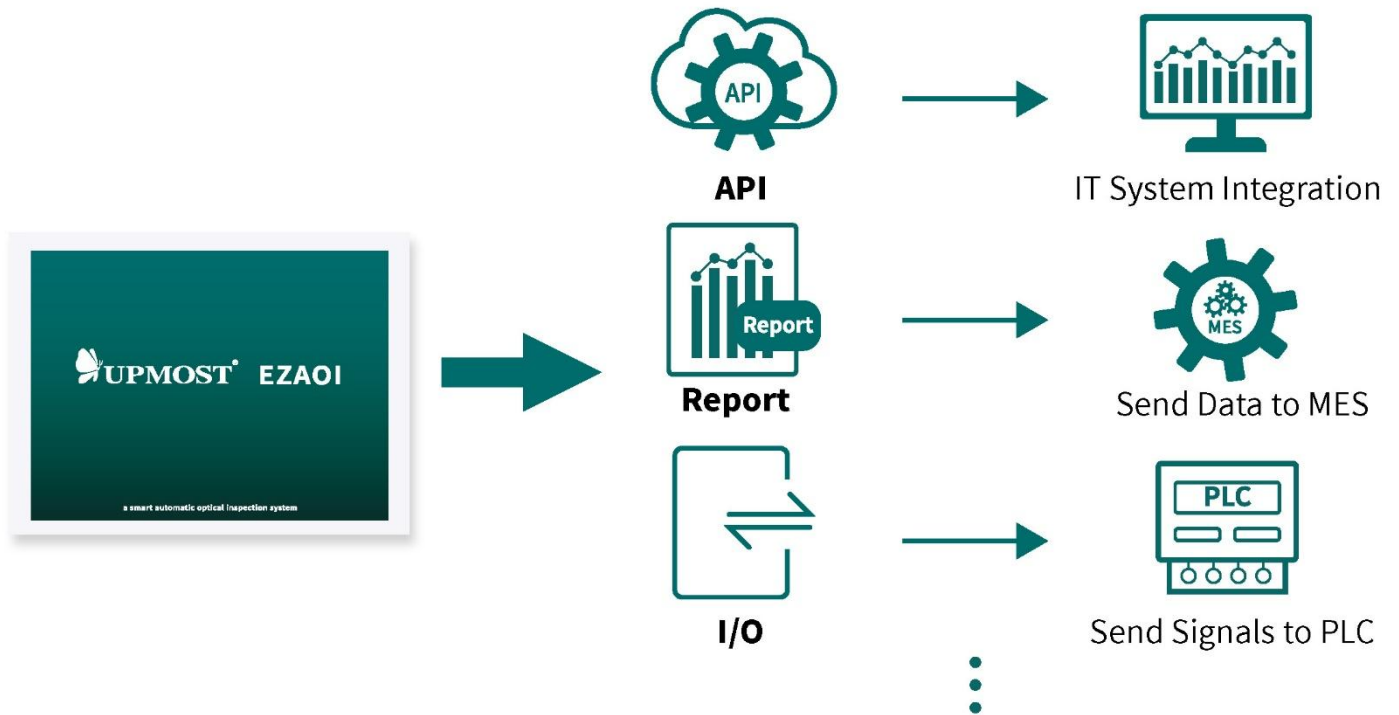


Morphological Processing:

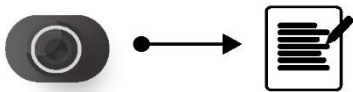
Object Contours and Statistics (Area, Centroid, Shape, etc.)

① Multiple Output Formats | UPMOST EZA01

UPMOST EZA01 supports multiple output formats, enabling inspection results to be exported in formats like **logs, reports, PLC**, and **I/O signals**, ensuring seamless system integration.

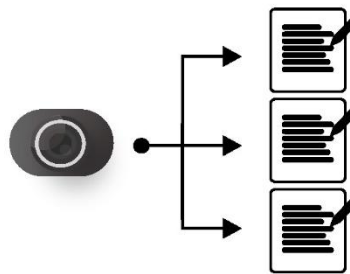


② 3 Operation Modes & Multi-Threaded Parallel Processing | UPMOST EZA01



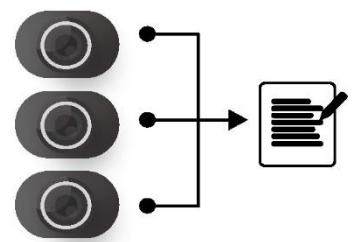
One-to-One

One inspection task per camera.



One-to-Many

Each camera handles multiple inspection tasks.



Many-to-One

Multiple captures correspond to a single inspection task.

III. Main Features — AISVision(UPMOST)



Auto Localization:
Find Misalignment.
No Matter the Position.



Micro Defect Detection:
Detects even the smallest scratches and contamination.



Auto Learning & Recognition:
Detects even irregular shapes with automatic learning.



Low Reflection Interference:
Detects reflective surfaces and abnormal textures.


















Background Detection:
AI ignores noise and detects defects with precision.



Multi-Product Inspection:
Automatically identifies product types and switches logic accurately.

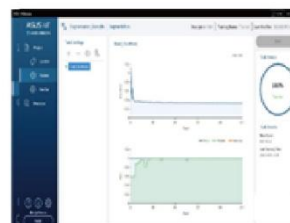
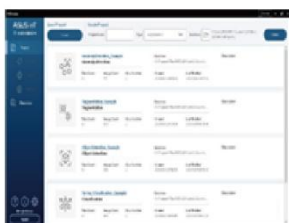
① 5 - AI Algorithms | AISVision(UPMOST)

Offers five different algorithms. allowing users to select the most suitable one based on industry and application needs.

Algorithms	Applications	Diagram	
		OK	NG
 <p>Oriented Object Detection</p>	<ul style="list-style-type: none"> • Ideal for multi-angle object arrangements. • Enhances labeling accuracy for defects at different angles. 		
 <p>Segmentation</p>	<ul style="list-style-type: none"> • Ideal for detecting small-area, fine defects. 		
 <p>Object Detection</p>	<ul style="list-style-type: none"> • Ideal for images with clear boundaries. • Ensures high-accuracy defect detection. 		
 <p>Classification</p>	<ul style="list-style-type: none"> • Ideal for images with clear features and adequate area coverage. 		
 <p>Anomaly Detection</p>	<ul style="list-style-type: none"> • Ideal for limited defect data scenarios. • Simple good/bad classification. • Detects unknown defects. 		

② 4 - Step Complete Model Training and Validation | AISVision(UPMOST)

An Intuitive, Rapid, and Streamlined Workflow for Project Model Development.



Select Model

Annotate Images

Train Model

Validate Model