

MANUFACTURING AI

CODEVISION INC.

Autonomous AI Agent Company

Vertical AI
Physical AI
Human-Centered VLM
Ontology-based AI



POWERING THE NEXT ERA OF AGENTIC INDUSTRIAL INTELLIGENCE

OUR MISSION

CODEVISION helps manufacturers reduce defects, prevent unexpected downtime, and turn site data into practical decisions.
We deliver field-ready AI solutions across vision inspection, edge AI deployment, AI agents, and manufacturing intelligence platforms.

ORGANIZATION CHART



BUSINESS AREAS



Industrial AI Data Engineering

Industrial data acquisition, annotation, preprocessing, and AI-ready dataset construction



Advanced Industrial AI R&D

Vision AI, Edge AI, Agentic AI, and Industrial Intelligence R&D



AI Platforms & Industrial Applications

Scalable AI platforms and enterprise-grade industrial applications

COMPANY

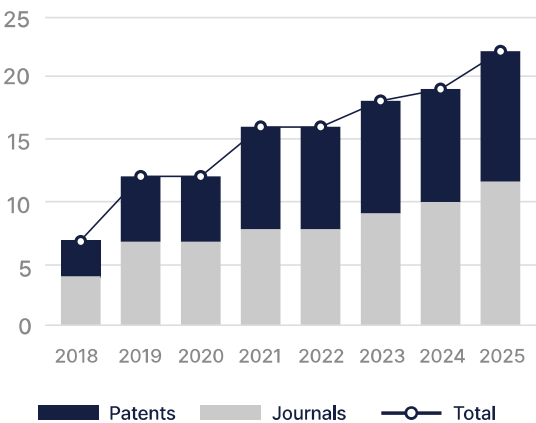
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CEO	Eungyeol Song
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FOUNDED	November, 2018
Website	https://codevision.kr/en

TECHNOLOGY ACHIEVEMENTS

AI Research Publications **12**

AI Patents **10**

AI R&D Cumulative Achievements



INDUSTRIAL AI SOLUTION PORTFOLIO

- ✓ AI-Powered Coastal Algal Bloom Forecasting
- ✓ Predictive Fault Detection for Power Infrastructure
- ✓ AI-Based Predictive Maintenance for Motor Valves
- ✓ Edge AI Deployment using Domestic AI Semiconductors
- ✓ SaaS-Based AI Video Background Removal
- ✓ K-NPU Based Manufacturing LLM Solutions
- ✓ AI-Powered Press Machine Monitoring
- ✓ AI-Based Injection Process Monitoring

HISTORY

- 2026**
- Carried out the Digital Media Innovation Technology Development Project
 - Conducted the K-Spirits Strategic Research Project
 - Launched COVI AI-LLM for Manufacturing Intelligence
- 2025**
- Published research paper on AI-based beef carcass grading in MDPI Applied Sciences
 - Carried out AI convergence projects for the manufacturing industry
 - Selected as a specialized AI Factory company
 - Recognized as an Outstanding Company in AI Semiconductor Application Demonstration
 - Awarded the Grand Prize, Minister's Award, in the R&D Match-Up Challenge
 - Recognized as a smart manufacturing best practice by the Ministry of SMEs and Startups
 - Certified with TTA AI Trustworthiness Certification for (COVI Press Monitoring Solution)
 - Certified with TTA AI Trustworthiness Certification for(COVI Press Defect Monitoring Solution)
- 2024**
- Registered as a Specialized Research Business Entity
 - Published AI vision research in MDPI Applied Sciences
 - Registered patents in AI-assisted video editing and content generation
 - Conducted AI Convergence Technology Diffusion and Support Projects
 - Launched AI Monitoring Solution for manufacturing operations
 - Launched COVI MLOps Platform for AI model operations
- 2023**
- Established the Affiliated Research Institute
- 2022**
- Approved as a Professional R&D Institution in Engineering R&D
 - Carried out a startup growth technology development project in the nuclear power sector
 - Published adaptive machine learning research in MDPI Sensors
 - Registered patents in water prediction and industrial information systems
 - Received the Korea Personality Awards
- 2021**
- Established CODEVISION Inc.
- 2018**
- Published human skeleton detection research in Multimedia Tools and Applications.
 - Published AI vision research in IEEE Access and SCOPUS journals
 - Participated in Yonsei University's Early Startup Package Program
 - Developed core robotics technologies
 - Published AI and computer vision research in IEEE Access and SCOPUS-indexed journals
 - Published international AI research in MDPI Sensors, IEEE ICIP, and SCOPUS-indexed journals

END-TO-END AI ADOPTION

CODEVISION guides manufacturers through every stage of AI adoption, from site assessment and data acquisition to model development, deployment, and ongoing operation. By managing the process end to end, we help turn AI projects into practical systems that work reliably on the factory floor.

WHY CODEVISION?

AI Built for Your Factory

CODEVISION studies your production line before building the AI Solution

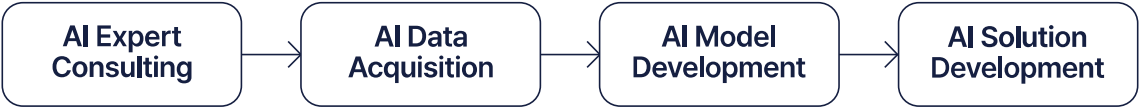
- ▶ We review the inspection target, defect types, camera position, and operating conditions.
- ▶ We design the model around your actual process, not generic sample data.

From Data to Operations

CODEVISION delivers custom AI systems for your factory environment.

- ▶ The system is built around your products, processes, data, and operating conditions.
- ▶ This helps solve the production issues that matter most to your site.

PROCESS



AI Data Acquisition & Engineering [3 months]

- ▶ Camera and sensor data collection designed for real factory conditions.
- ▶ High-quality datasets built through cleansing, labeling, and validation.



AI Model Development [2 months]

- ▶ Site-specific AI model training using normal, defect, and edge cases.
- ▶ Model validation based on process-specific requirements.



AI Solution Development [1 month]

- ▶ User-Friendly Platforms for Managers and Workers
- ▶ Enhancing AI model performance through newly collected data



INDUSTRIES WE SERVE

- Automotive / Machinery Parts
- Electronics · Semiconductors
- Steel · Metals · Materials
- Chemicals
- Food · Biotechnology
- Textiles · Fashion
- Energy · Plant

CODEVISION DATA SOLUTIONS

Reliable AI starts with reliable site data.

Successful industrial AI adoption depends on data from real production environments. CODEVISION provides consulting, data collection, dataset development, and data management so each model learns from realistic cases, not ideal laboratory conditions.

INDUSTRIAL DATA ENGINEERING

COVI DATA

01

Customized Data Consulting

- Review the target process, site constraints, and client requirements.
- Turn the site review into a practical data construction plan.

02

Optimized Data Development

- CODEVISION collects, cleans, labels, processes, and validates site data.
- Build datasets that can be used for AI development under real production conditions.

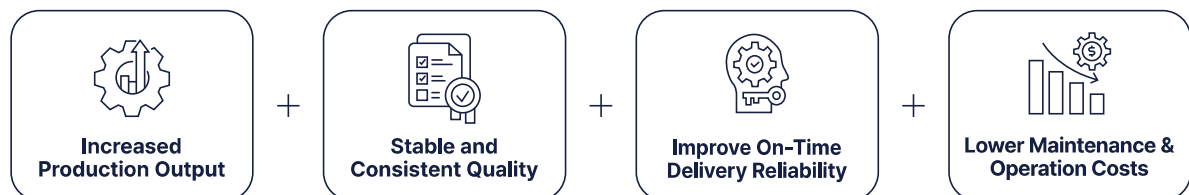
03

Systematic Data Management

- Keep data quality stable through inspection, validation, and testing.
- CODEVISION continuously improves datasets as more site data is collected.

BENEFITS OF BUILDING HIGH-QUALITY DATA

AI developed with high quality datasets performs better



CODEVISION'S FOCUSED DATA SOLUTION

CODEVISION experts help industries achieve innovation through data

1 Specialist / 1 Month USD 2,000
Basic(6 months) + N months

Example Calculation

2 Specialists / 6 months : USD 24,000
3 Specialists / 12 months : USD 72,000

Basic 1 Specialist /
6 months USD 12,000

Extendable by 1 month

Max Specialist / 12 months
USD 24,000

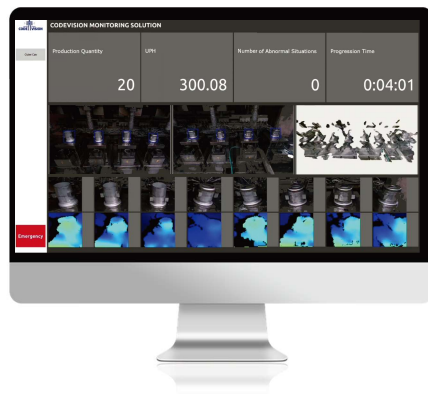
- ✓ N-month contract
- ✓ Task adjustments within the contract period
- ✓ Expert replacement available
- ✓ Client requests reflected

Costs are calculated based on monthly specialist allocation and the contract period.

COVI PRESS PROCESS ANOMALY MONITORING SOLUTION

COVI Press Process Anomaly Monitoring Solution detects abnormal press-line conditions in real time to help prevent stoppages and mold damage.

Using trained AI models, the solution monitors press production, identifies abnormal patterns, alerts operators, and supports response actions when critical risks are detected.



DETECTABLE DEFECT TYPES



TILT

Tilted or deformed outer can shape



CRACK

Cracks or fractures on the can surface



OUT

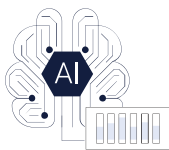
Shifted or separated outer can position



STUCK

Outer can stuck in the process

DATA ACQUISITION



Data acquisition setup for press production environments.

AI MODEL DEVELOPMENT



AI model development for press process anomaly detection.

AI PLATFORM DEVELOPMENT



Development of a centralized platform for press process monitoring and management.

KEY FEATURES

Real-Time Monitoring

- ▶ Continuously monitors process conditions in real time to detect abnormalities early.

Anomaly Detection

- ▶ Identifies abnormal patterns and deviations from operating standards.

Anomaly Alerts

- ▶ Notifies operators immediately when abnormal conditions are detected.

Automated Process Shutdown

- ▶ Automatically stops the process when mold damage is detected to prevent further defects and equipment damage.

FLEXIBLE DEPLOYMENT CONFIGURATIONS

ON-PREMISE	CODEVISION SERVER	CLOUD SERVER
Deployment on the client's server Strong security and flexible operation	High performance GPU server (NVIDIA A100, H200) High performance and easier operation	Deployment on domestic and global cloud platforms High availability and scalability

COST REDUCTION EFFECT

PRODUCTIVITY IMPROVEMENT	QUALITY IMPROVEMENT	RESOURCE OPTIMIZATION
 Downtime	 \$140 Defect rework cost	 3 managers
 5% Reduction	 3 Workers	 1h/day
 COVI Downtime	 1 Rework/day	 250 days/year
 50 Workers	 250 Days/Year	 750 hr
 3 Shifts	 USD 108,000 Annual savings	 USD 13,400 Annual value
 8 Hour/Day		
 USD 225,000 USD14/hr Annual Productivity Gain [50 workers × 8h × 250 days × 3 shifts]		

Client-Specific Packages

- ✓ Customized solutions for factory environments
- ✓ Software customized for client needs
- ✓ Gradual adoption possible

CUSTOMIZED OPTIONS

SERVICE COMPONENTS

 Hardware (sensor, camera, server)	 AI model development and software deployment	 Maintenance support by dedicated engineers
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MAINTENANCE SUBSCRIPTION

 Regular Inspection Service Complimentary hardware and software upgrades after six months	 Emergency support Fast remote or on-site response when unexpected issues occur	 Continuous Upgrades Ongoing updates with improved AI algorithms, features, and operational enhancements
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COVI solutions help companies prevent more than USD 270,000 in annual losses, depending on site conditions.

COVI INJECTION MOLDING DEFECT MONITORING SOLUTION

COVI Injection Molding Defect Monitoring Solution detects defects in injection-molded parts under changing lighting and environmental conditions.

By combining AI inspection, dashboard visualization, automatic result upload, and inspection history management, the solution supports consistent and traceable quality control.



INSPECTABLE ASSEMBLY POINTS



GROMMET

Presence / Position



SCREW

Presence / Position



CLIP

Presence / Assembly Status



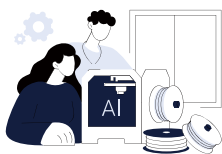
HOLE

Position / Shape

AS-IS

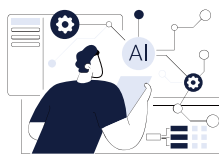
TO-BE

CONVENTIONAL VISION INSPECTION



Vulnerable to lighting and environmental changes, which can cause false or missed detections.

AI MODEL DEVELOPMENT



Defect detection algorithms trained with real defect cases and edge cases.

MACHINE VISION INSPECTION



AI-based inspection that supports more consistent quality decisions.

KEY FEATURES

Real-Time Monitoring

- ▶ Visualizes the defect inspection process in real time.

Automatic Upload of AI Inspection Results

- ▶ Stores AI inspection results for production and quality review.

Dashboard

- ▶ Shows OK/NG status, production counts, and inspection trends.

Inspection History Management

- ▶ Supports search, analysis, and traceability of historical inspection data.

COVI PRESS DEFECT MONITORING SOLUTION

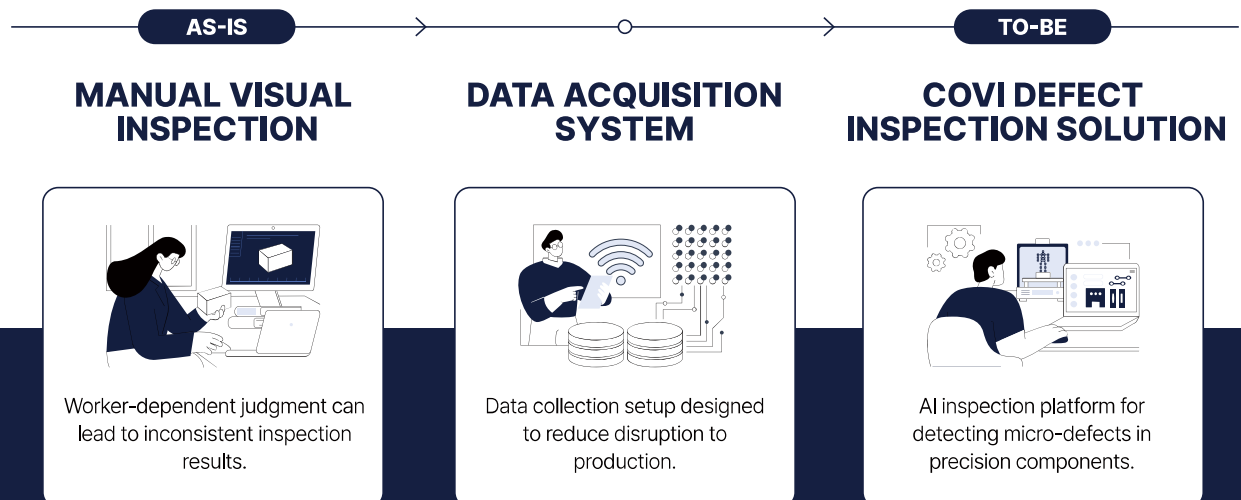
COVI Press Defect Monitoring Solution detects micro-defects in precision press components under difficult production conditions.

The solution reduces inspection variability caused by oil stains, foreign substances, process variation, and worker-dependent visual inspection.



INSPECTION SCOPE

- 1 Semiconductor pin inspection
- 2 Pin length measurement
- 3 Profile-based analysis
- 4 Automated inspection process



EXPECTED EFFECT

Maintenance Optimization

- ▶ Reduces manpower and time required for repetitive process management.

Quality Stabilization

- ▶ Detects micro-defects early to prevent faulty parts from spreading.

Improved Production Efficiency

- ▶ Minimizes rework through AI-driven defect screening.

Customer Trust

- ▶ Accurate Production Forecasts for Stable Delivery Schedules

COVI K-NPU SOLUTION

COVI K-NPU Solution adds high-speed AI inference to existing factory PCs without replacing the entire infrastructure.

Powered by a K-NPU, the solution enables fast and reliable on-site AI operation in manufacturing environments.



CONVENIENCE

Connects to existing PCs or equipment without major infrastructure changes.



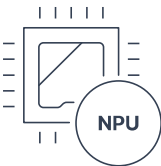
INSTALLATION FLEXIBILITY

Compact design that fits diverse factory environments.



IMPROVED ENERGY EFFICIENCY

Uses less power than conventional GPU-based systems, helping reduce operating costs



K-NPU ACCELERATION

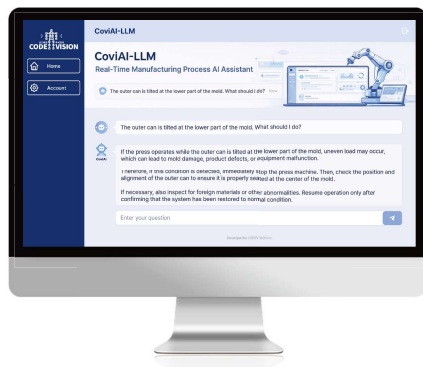
Accelerates on-site AI inference with a K-NPU

PACKAGE	FUNCTIONALITY	COMPONENT	
	AI Computing	NPU	(Furiosa AI WARBOY, RNGD)
	Graphics Processing	GPU-Dock	(85W PD GPU Dock)
	Connectivity	Cable	(Thunderbolt Cable 3/4)

COVI AI-LLM

COVI AI-LLM gives workers a manufacturing knowledge assistant that connects site knowledge, equipment data, quality standards, and operating procedures for manufacturing operations.

Through a conversational interface, workers can access guidance, check production and line status, respond to quality or equipment issues, and generate QA and production reports.



AGENT WORKFLOW

- 1 Integrate site knowledge
- 2 Analyze equipment & process data
- 3 Guide real-time operations
- 4 Generate QA & production reports

KNOWLEDGE INTEGRATION MANAGEMENT



Integrates manuals, quality standards, equipment data, and expert know-how into a unified knowledge base

ERP/MES INTEGRATION



Connects ERP/MES data to check production quantities, output status, and line operation data.

LLM-BASED REPORT SUPPORT



Generates QA reports from production, quality, and operation data.

KEY FEATURES

Faster Knowledge Access

- ▶ Helps workers quickly find the information they need

Consistent Work Guidance

- ▶ Reduces dependency on individual experience through standardized guidance.

Productivity & Efficiency

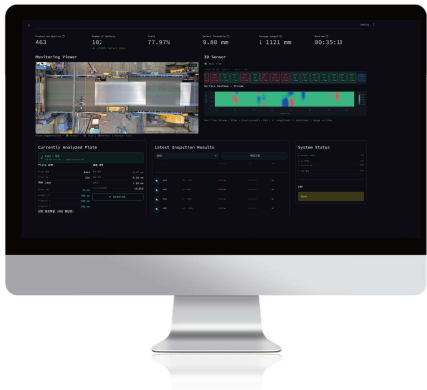
- ▶ Saves time and supports faster response to on-site issues.

Training & Knowledge Transfer

- ▶ Helps new employees learn faster and preserves expert know-how

COVI STEEL SHAPE DEFECT MONITORING SOLUTION

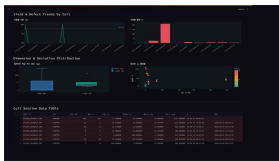
COVI Steel Shape solution uses AI-powered vision to measure steel sheet flatness in real time and track production output on conveyor lines. Through a unified dashboard, it monitors production volume, sheet length, defect count, and production time to enable faster defect detection, improved quality control, and higher production efficiency.



INSPECTION FLOW

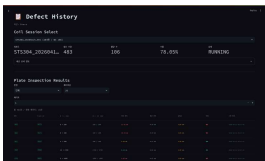
- 1 Capture plate data
- 2 Inspect flatness and defects
- 3 Review results on dashboard
- 4 Analyze history and statistics

DEFECT HISTORY PAGE



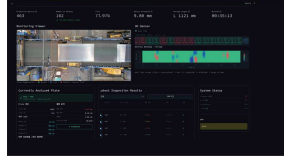
- Coil history lookup
- Flatness inspection result review
- Plate inspection records

STATISTICAL ANALYSIS PAGE



- Yield by coil
- Average Plate Dimension Distribution
- Production Volume and Defect Rate

SOLUTION MAIN PAGE



- Real-Time Monitoring
- Flatness Pass/Fail Evaluation
- Production Volume and Dimension Inspection
- System Status Monitoring Result

KEY FEATURES

Real-Time Monitoring

- ▶ Real-time Visualization of Defect Inspection Process

Automatic Upload of AI Inspection Results

- ▶ Dashboard for intuitive visualization of inspection results

Dashboard

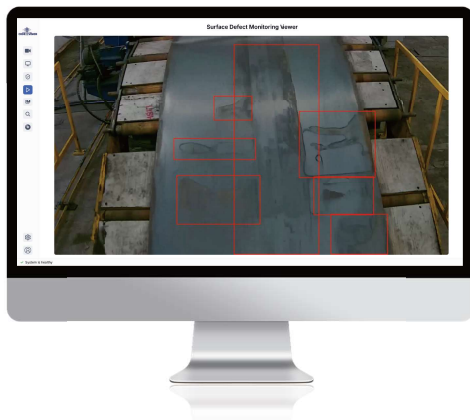
- ▶ Dashboard for intuitive inspection result visualization

Inspection History Management

- ▶ Traceability and analysis of historical inspection data

COVI STEEL SHAPE DEFECT MONITORING SOLUTION

COVI Steel Shape Defect Monitoring Solution is an AI vision-based system that measures steel sheet flatness in real time on conveyor lines and automatically counts produced sheets. It also provides integrated monitoring of key production indicators, including output volume, sheet length, defect count, and production time, all on a single screen. This enables rapid defect detection and supports improved quality control and production efficiency.



DETECTABLE DEFECT TYPES



Scratches

Linear or streak-type scratches on the steel surface



Contamination

Oil, stains, or foreign substances on the surface



Rust

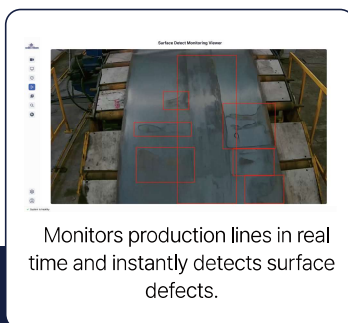
Rust spots or corrosion on the steel surface



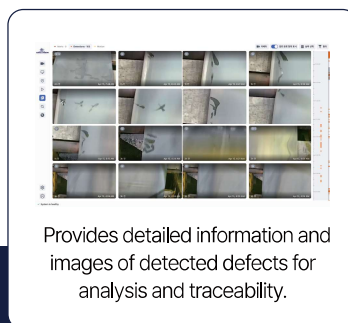
Dents

Pressed or impact marks on the steel surface

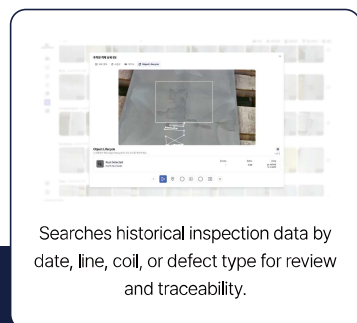
REAL-TIME DEFECT MONITORING



DEFECT EVENT DETAILS



HISTORICAL SEARCH AND REVIEW



KEY FEATURES

Early defect identification

- ▶ Detect surface defects in real time to prevent Defect leakage.

Reduced manual inspection workload

- ▶ Minimizes manual inspection efforts and improves productivity.

Consistent inspection quality

- ▶ AI-based detection ensures stable and consistent Inspection performance

Improved production traceability

- ▶ Accurate defect data and image records enhance trace ability across the production line

BUSINESS VALUE / ROI

CODEVISION helps turn AI investment into measurable operational value. After a site assessment, CODEVISION can estimate value based on downtime, defect cost, labor cost, rework, production volume, and infrastructure requirements.

INDUSTRIAL DATA ENGINEERING

COVI DATA

01 — Assess the Current Site

- CODEVISION reviews the target line, current defect rate, downtime patterns, rework process, inspection workload, and available operating data.

02 — Identify Value Opportunities

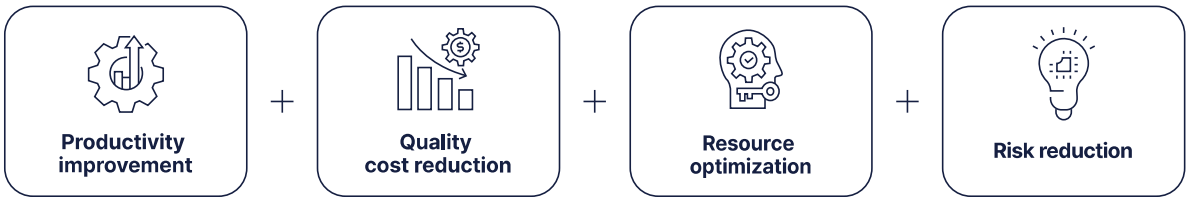
- CODEVISION identifies where AI monitoring, defect detection, data engineering, or AI-LLM support can reduce measurable losses.

03 — Estimate ROI Plan Deployment

- CODEVISION estimates ROI based on labor cost, production value, operating days, defect cost, and infrastructure requirements, then proposes a phased deployment plan starting with the highest-value use case.

VALUE AREAS

CODEVISION measures AI value through productivity gains, quality cost reduction, resource optimization, and risk reduction.



IMPORTANT NOTE FOR PROCUREMENT TEAMS

The numbers above are illustrative examples. Actual savings depend on site conditions, data availability, model performance, defect frequency, downtime cost, labor cost, integration scope, and maintenance policy. CODEVISION can provide a site-specific estimate after reviewing the target production environment.

START WITH THE RIGHT AI ADOPTION PLAN

CODEVISION helps manufacturers identify the right starting point, validate value through a focused pilot, and expand AI adoption into real production operations.

3-STEP ADOPTION PATH

01 Assess	02 Validate	03 Deploy & Improve
▸ Review the target process, available data, site constraints, integration needs, and expected business impact.	▸ Build a focused pilot with selected data, target issues, and clear success metrics.	▸ Deploy the AI system, connect it to the operating workflow, and improve performance with new site data.

WHAT MAKES THE PATH BUYER-FRIENDLY

This adoption path lets clients start with a focused problem, validate the value with measurable results, and expand only after the pilot supports internal approval and procurement. Deployment options can be selected based on security, budget, and infrastructure requirements.

PROCUREMENT CHECKLIST

Start with the information needed for a practical AI adoption plan.



TURN PLANNING INTO EXECUTION

CODEVISION turns the selected line, process, and business goals into a pilot plan, validates the results, and uses those results to guide successful AI adoption in the production environment.

FREQUENTLY ASKED QUESTIONS

Q1. Do we need existing data before starting?

- No. CODEVISION can begin with a site assessment, data planning, and dataset construction even when usable AI data is not available yet.

Q2. Will the solution interrupt production?

- CODEVISION designs data collection and deployment plans to minimize disruption to existing workflows, workers, and production lines.

Q3. Can the solution run on our own server?

- Yes. CODEVISION supports on-premise deployment, CODEVISION server configurations, cloud deployment, and K-NPU edge configurations depending on client requirements.

Q4. Can the solution connect to MES or ERP systems?

- Yes. Integration can be reviewed during project scoping. COVI AI-LLM can connect with ERP/MES data when access and security conditions are available.

Q5. What happens after launch?

- CODEVISION supports regular inspection, emergency response, model improvement, software updates, and maintenance according to the selected support plan.

Q6. How do we decide where to start?

- Start with the line or process where defects, downtime, rework, inspection workload, or knowledge gaps create the clearest operational loss.

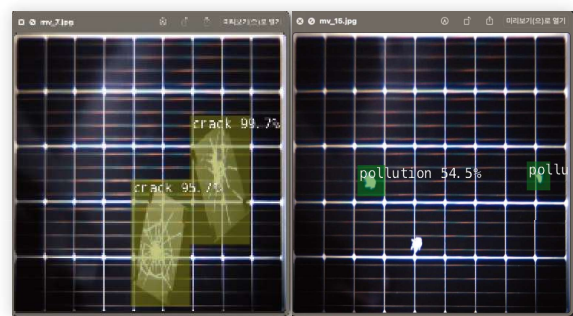
THE EASIEST WAY TO START IS NOT TO CHOOSE A PRODUCT NAME FIRST

Start by showing CODEVISION where losses occur in your factory. CODEVISION can then recommend whether the first project should focus on data construction, process monitoring, defect inspection, edge AI deployment, or AI-LLM knowledge support.

KEY REFERENCES

CODEVISION has successfully delivered AI solutions across diverse manufacturing environments.

SOLAR PANEL DEFECT DETECTION SOLUTION



Target Solar panel damage, contamination, and defect screening

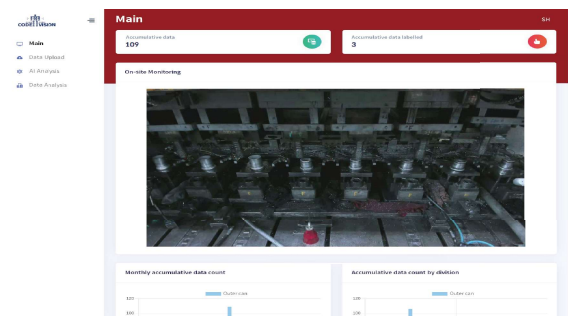


Tech Lightweight CNN-based edge AI defect detection



Value Enables real-time classification of high-risk panel defects

COVI MLOPS PLATFORM



Target End-to-end AI model management for manufacturing applications



Tech Data labeling, model training, monitoring, and retraining



Value Supports continuous AI performance improvement and maintenance

ENGINE OIL FILTER PLATE DEFECT DETECTION SOLUTION



Target Disk and spring defects in oil filter plate components

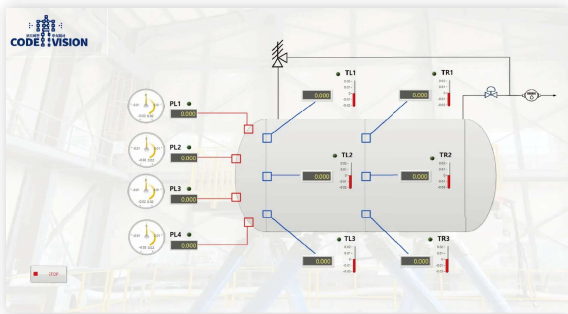


Tech Segmentation-based detection with embedded NPU deployment



Value Automates five defect-case classifications for QC efficiency

LNG/LH2 SHIP CARGO TANK MONITORING SOLUTION



Target Structural and thermal monitoring of LNG/LH2 cargo tanks

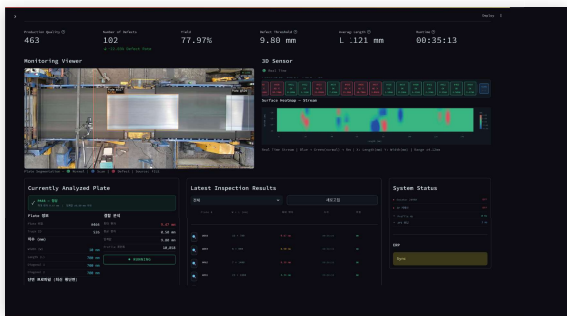


Tech Pressure/temperature sensing, DAQ, and web-based dashboard



Value Enhances operational safety through early anomaly detection

STEEL SHEETS DEFECT AI MONITORING SOLUTION



Target

Surface defects on hot-rolled steel sheet production lines



Tech

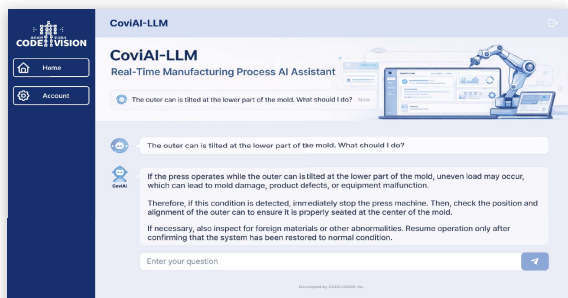
Vision and laser sensor-based real-time AI monitoring



Value

Improves defect detection reliability in overseas production sites

COVI AI-LLM



Target

Manufacturing knowledge search and operational support



Tech

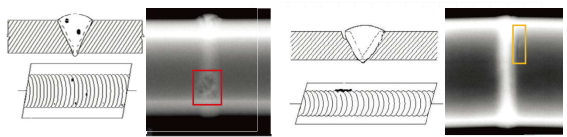
LLM-based document retrieval, Q&A, and workflow guidance



Value

Improves access to technical knowledge and decision support

WELD DEFECT DETECTION SOLUTION FOR RADIOGRAPHIC TESTING (RT)



Target

Weld defects in radiographic testing X-ray films



Tech

AI-based defect type, size, and location detection



Value

Reduces manual review time and improves inspection objectivity

COVI K-NPU SOLUTION



Target

Edge AI inference for industrial inspection environments



Tech

High-performance AI acceleration through simple USB-C connectivity



Value

Enables secure, low-power AI operation without cloud dependency

MANUFACTURING AI

codevision.kr/en



Instagram



Start with an on-site assessment and build a practical AI adoption plan

► **Request a Demo**

See how COVI Monitoring inspection, K-NPU deployment, or AI-LLM Support can work in a real manufacturing scenario

► **Schedule an On-site Assessment**

Review your target process, robot workflow, operation flow, and data acquisition environment

► **Receive a Tailored Quote**

Get a proposal covering deployment options, hardware requirements and ROI estimates

CODEVISION Inc.

Autonomous AI Agent Company

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