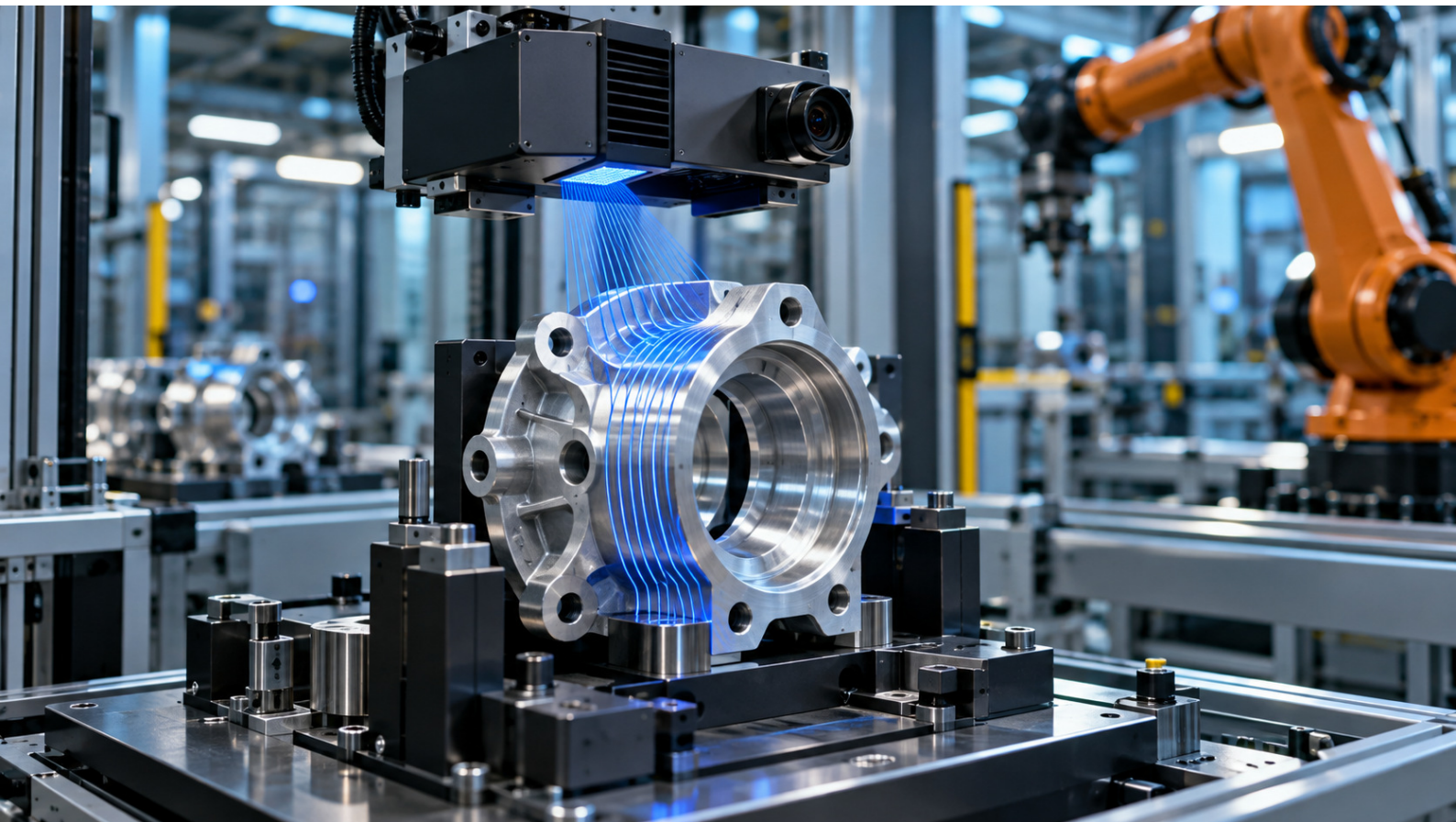


INDUSTRIAL AI

WAIS-Factory

2D and 3D AI quality inspection

**PRECISION COMPONENT INSPECTION**

AI-generated application example

Inspect fine defects and dimensional tolerances from 2D/3D scans, point clouds and meshes. WAIS-Factory combines denoising and coordinate registration with deep learning vision, connecting quality assessment with manufacturing workflows.

01**Prepare**

Denoise scan data and register coordinates for analysis.

02**Inspect**

Assess fine defects and dimensional tolerances with AI vision.

03**Integrate**

Link inspection results to equipment and operator review.

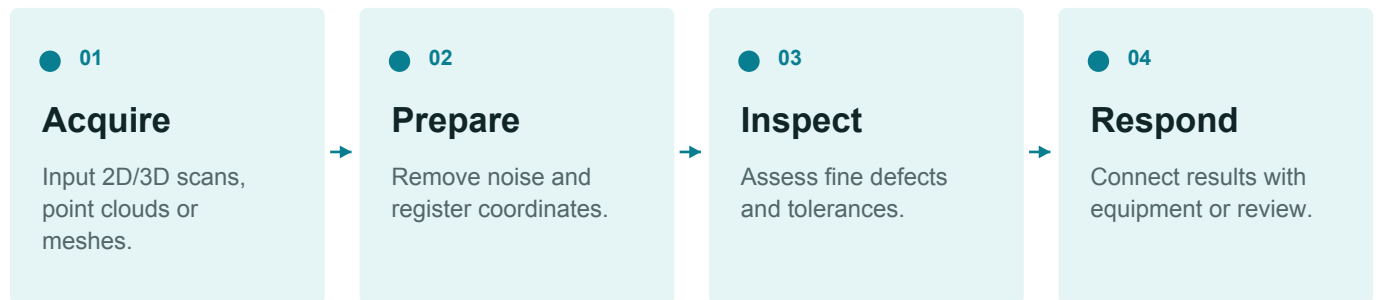
FROM MEASUREMENT TO ACTION

2D/3D data preparation and AI inspection, connected with equipment control and remote monitoring.

WAIS-FACTORY

Inspection and integration

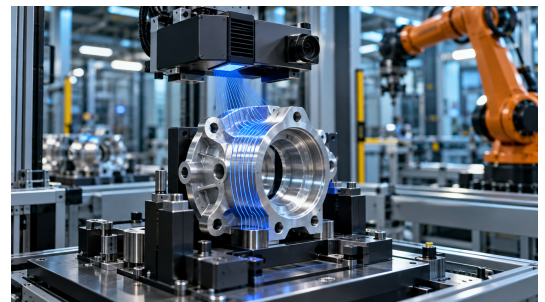
Connect 2D and 3D measurement data with AI interpretation and the response required by the production line.



TECHNICAL HIGHLIGHTS

Scan data prepared for analysis

Denoising and coordinate registration prepare 2D/3D scans, point clouds and mesh data for analysis. The project defines the reference frame, acquisition setup and supported data formats.



AI-generated application example

Fine defect and tolerance assessment

Deep learning vision algorithms interpret fine defects and dimensional tolerances. Reference samples, allowable deviations and imaging or scan resolution are agreed for the target part.

Equipment and operator integration

WAIS supports PLC and robot control integration, together with PC and mobile monitoring. Inspection decisions are connected to the agreed machine response and operator review workflow.

PILOT ESSENTIALS

Input data

2D/3D scans and reference samples

Metrology

Reference frame and tolerance rules

Decision rules

Accept, reject or operator review

Acceptance

Detection, measurement and cycle time

Discuss an inspection pilot

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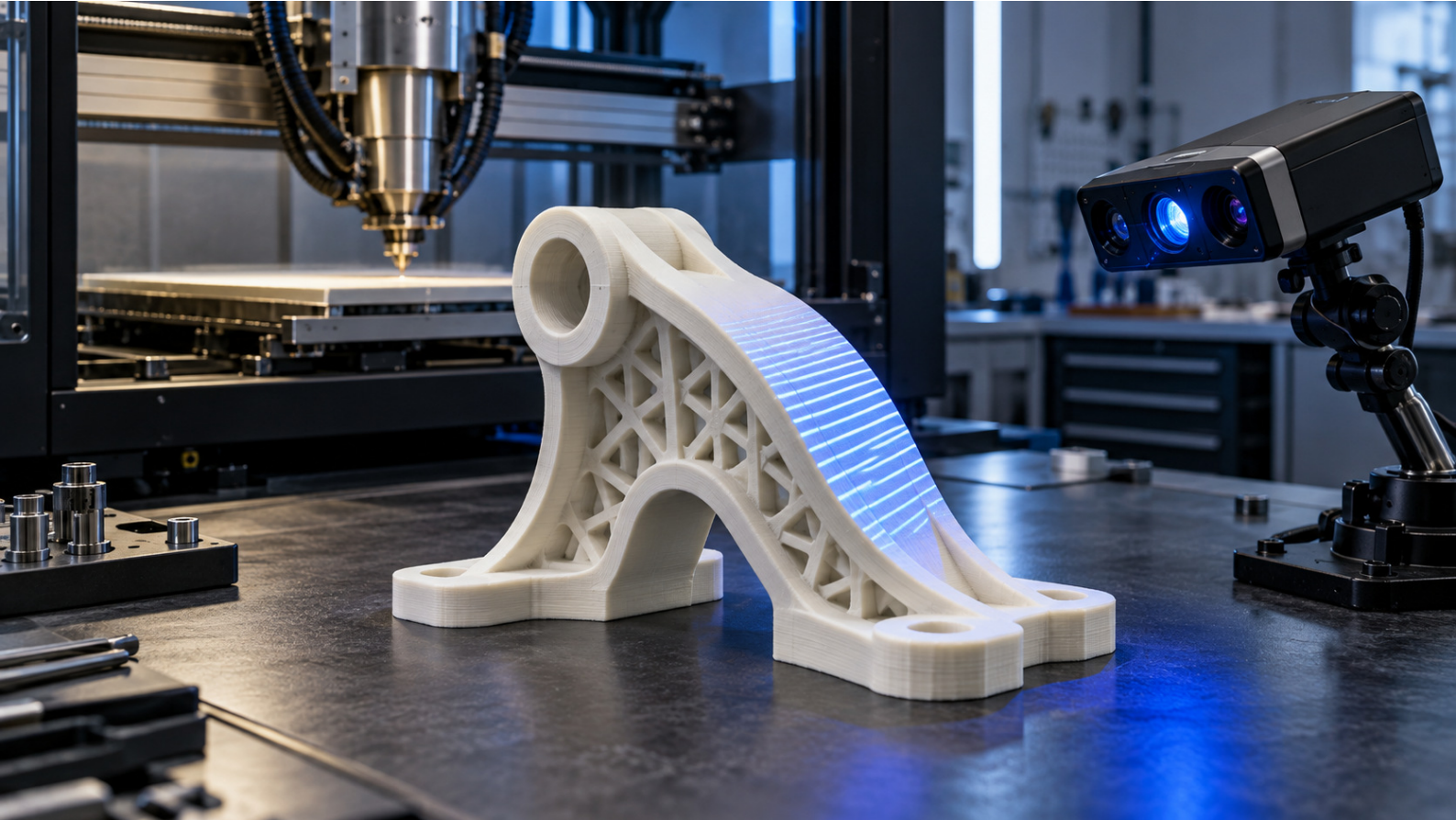
Website. www.whoborn.net | www.wais.kr

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ADDITIVE MANUFACTURING AI

WAIS-3DP

Precision inspection for 3D printing



PRINTED STRUCTURE AND SURFACE INSPECTION

AI-generated application example

Inspect geometry before and after 3D printing. WAIS-3DP analyzes 2D/3D scans, point clouds and meshes to assess volume, height deviation, non-manifold geometry and wall thickness, alongside AI process observation and control.

01

Align

Denoise scans and register point cloud or mesh coordinates.

02

Inspect

Check volume, height deviation, mesh integrity and thickness.

03

Connect

Link structural inspection with process monitoring and control.

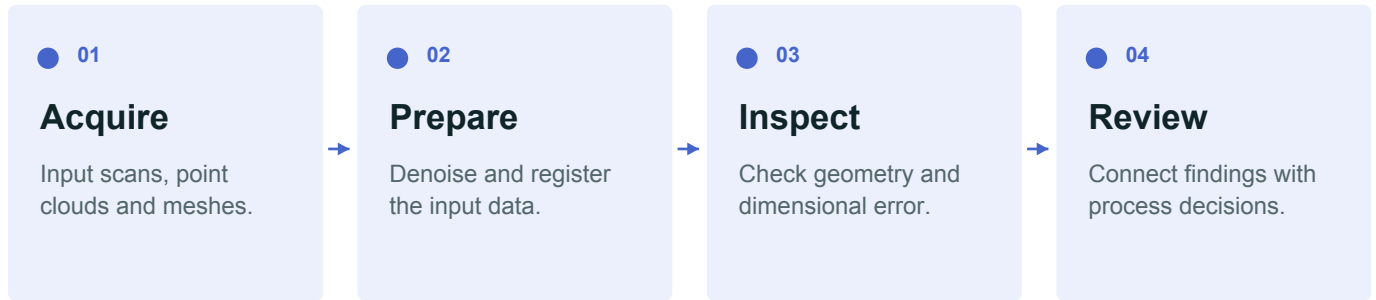
REGISTERED SOFTWARE

WAIS-3DP process control software
Korea Copyright Commission | Registration C-2024-005198 | 2024

WAIS-3DP

Geometry and process intelligence

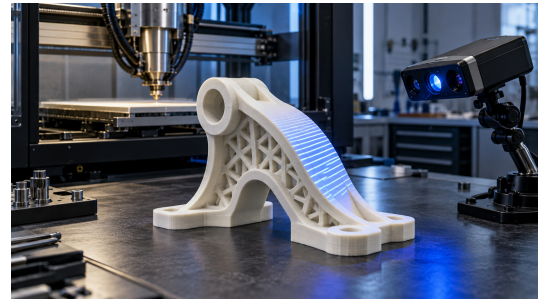
Evaluate the digital structure and printed result with inspection criteria defined for the printer, material and part.



TECHNICAL HIGHLIGHTS

Inspection before and after printing

Assess volume and height deviation, identify non-manifold geometry and examine wall thickness. The workflow covers relevant digital model checks and inspection of the printed structure.



AI-generated application example

AI vision and process response

Deep learning vision supports fine defect and tolerance assessment. Camera-based process observation and printer control extend the workflow from geometry review to agreed in-process responses.

Printing development track record

Whoborn carried out the 2022-2023 ICT R&D Innovation Voucher project for an AI pellet 3D printing system for resource recycling. WAIS-3DP process control software was registered in 2024.

PILOT ESSENTIALS

Part data

Reference meshes and printed-part scans

Inspection

Volume, height, topology and thickness

Process scope

Printer, material and control interface

Acceptance

Error limits and inspection reliability

Explore an AI printing pilot

Tel. +82-70-4327-6224

Email. contact@whoborn.net

Website. www.whoborn.net | www.wais.kr

Add. #101, 24 Omok-ro, Yangcheon-gu, Seoul, South Korea

AGRICULTURAL AI

WAIS-Crop

AI vision for crop quality and growth

**CROP VISION AND AUTOMATED SORTING**

AI-generated application example

Assess agricultural products with 2D/3D AI object recognition and hyperspectral or RGB vision. WAIS-Crop analyzes appearance, size and defects to support quality grading and growth status assessment, with links to sorting workflows.

01

Recognize

Apply 2D/3D object recognition to crop images and scans.

02

Assess

Analyze appearance, size and defects using configured vision inputs.

03

Grade

Support grade decisions, growth assessment and sorting.

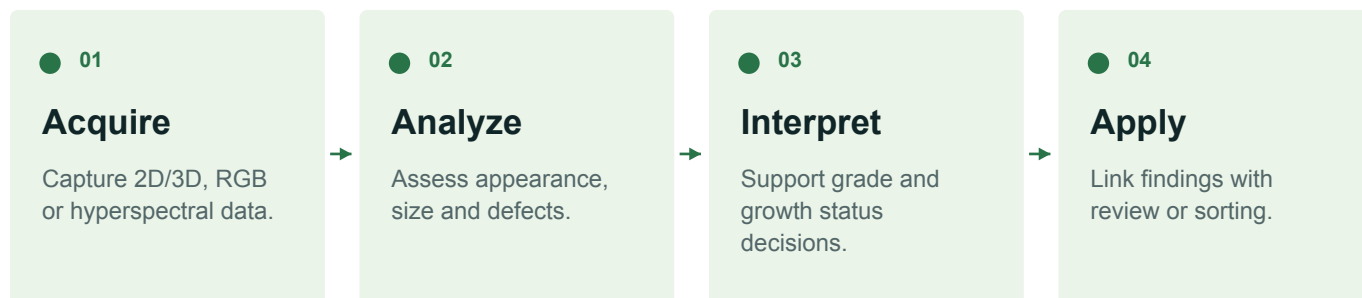
AGRICULTURAL AI PROJECT

2021 NIPA AI Voucher project
AI vision-based automatic agricultural product sorting solution.

WAIS-CROP

Crop grading and growth assessment

Match the imaging configuration and AI model to the crop, grading standard and growth assessment task.



TECHNICAL HIGHLIGHTS

Multiple vision inputs

WAIS-Crop applies 2D/3D AI object recognition with hyperspectral and RGB vision. Sensor configuration and calibration are chosen for the target crop and inspection task.



AI-generated application example

Quality and growth interpretation

Appearance, size and defect analysis support grade assignment and growth status assessment. Reference samples and relevant growth stages define how the outputs are interpreted.

From sample evaluation to sorting

Evaluate labeled samples across crop varieties, growth stages and harvest lots. For sorting applications, connect the agreed quality categories to equipment control and line timing.

PILOT ESSENTIALS

Crop scope

Variety, growth stage and harvest lot

Vision setup

RGB, hyperspectral and 2D/3D inputs

Reference

Grade samples and growth labels

Acceptance

Grading and growth assessment quality

Plan a crop quality pilot

Tel. +82-70-4327-6224

Email. contact@whoborn.net

Website. www.whoborn.net | www.wais.kr

Add. #101, 24 Omok-ro, Yangcheon-gu, Seoul, South Korea

BIOSENSING AND IMMERSIVE AI

WAIS-Therapy

Biosignal AI for psychological therapy systems

MRH IN USE



MRH

Whoborn spatial
audio headset



Official product image

MRH SPATIAL AUDIO PRODUCT AND WEARING EXAMPLE

Official images / mrh.kr

Quantify biological and acoustic signals at the edge. WAIS-Therapy applies time-series deep learning to PPG, HRV, EEG, multichannel audio and pressure signals, providing pattern classification for psychological therapy system development.

01

Multimodal input

Analyze biological, acoustic and pressure signals.

02

Four patterns

Classify normal, failure, overpressure and inefficiency patterns.

03

Edge inference

Run on-device inference with Tract and ONNX at 150 ms or less.

TIME SERIES DEEP LEARNING

1D-CNN and TCN models | On-device inference at 150 ms or less
Latency is evaluated for the target device, input window and timing scope.

WAIS-THERAPY

Signal analysis at the edge

Implemented signal analysis provides a foundation for developing and evaluating supervised therapy applications.



TECHNICAL HIGHLIGHTS

Multimodal time series analysis

PPG, HRV and EEG are analyzed alongside multichannel audio and pressure signals. The model quantifies biological and acoustic inputs using 1D-CNN and temporal convolutional network models.

Four signal pattern classes

The output classes are normal, failure, overpressure and inefficiency. Their operational definitions and interpretation are mapped to the intended application with the partner; these labels are not clinical diagnoses.

Low latency on-device inference

Tract and ONNX support on-device deployment with an inference specification of 150 ms or less. Validate the target hardware, input window and timing boundary during integration.

MRH

Spatial audio interface



Official MRH product image / mrh.kr

PILOT ESSENTIALS

Application

Intended use and pattern definitions

Signal setup

Sensors, channels and input windows

Device test

Latency scope and target hardware

Therapy study

Consent, supervision and outcomes

Explore a therapy system partnership

Tel. +82-70-4327-6224

Email. contact@whoborn.net

Website. www.whoborn.net | www.wais.kr

Add. #101, 24 Omok-ro, Yangcheon-gu, Seoul, South Korea