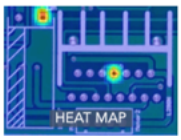
SPECTRO Visual Inspection Solution

AI Powered Inspection - Enabling Superior Results

SPECTRO provides smarter visual inspections using HACARUS' proprietary Sparse Modeling based AI technology.

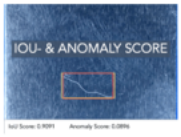
Where traditional AVI / AOI systems are prone to false positives, SPECTRO excels and enables factory automation by vastly reducing the amount of reclassification needed by human inspectors.

What's more, SPECTRO is able to train its AI models faster, with far less data – all the while, achieving more accurate results when compared with competing solutions. Inspection targets supported includes substrates, precision parts, metals, plastics and food.



Heat Map
A Heat map visualization highlights the extend to which parts of an object are contributing to the inspection result – providing a transparent explainability of the results.

Auto-crop
Automatically recognizes the inspection object and separates it from the background – leading to precise prediction results even when the object placement differs.



IoU- and Anomaly Score
Indicates the likeliness of a defect and the precision of the located anomaly, allowing for efficient evaluation and tuning of inspection models.

A Versatile Tool

SPECTRO's modular architecture supports multiple options for deployment and integration – easily adoptable to your use case.

Cloud

Ideal for evaluation and model development – hosted in a secure cloud environment.

On-premise

Available as pre-installed box PC or installer for Linux or Windows, provided as developer license or runtime license. Supports CPU only environments, as well as GPU.

Mobile

Flexible solutions for inspection of drone images, construction sites or insurance use-cases.

FPGA

An integrated SPECTRO module for deployment in edge environments – see COLIGO for more details.

API and SDK

The C# or Python SDK enable seamless integration with your set-up and application.

Proven Superior Performance

When comparing SPECTRO's performance with Classifier (SVM) and Deep Learning (CNN) techniques for detection of defects on Solar Cells, SPECTRO far outperforms the competition. Not only is accuracy higher, but SPECTRO also creates AI models faster – even when using a far smaller dataset.

	SVM	CNN	SPECTRO
TRAINING DATA	800 images	800 images	60 images
TRAINING TIME	30 min	5 hours	19 sec
PREDICTION TIME	8 min	20 sec	10 sec
PRECISION	85%	86%	90%

HACARUS

Hacarus is the leading provider of lightweight and explainable AI solutions enabled for the cloud and edge. Its solutions are used in the medical and manufacturing fields.

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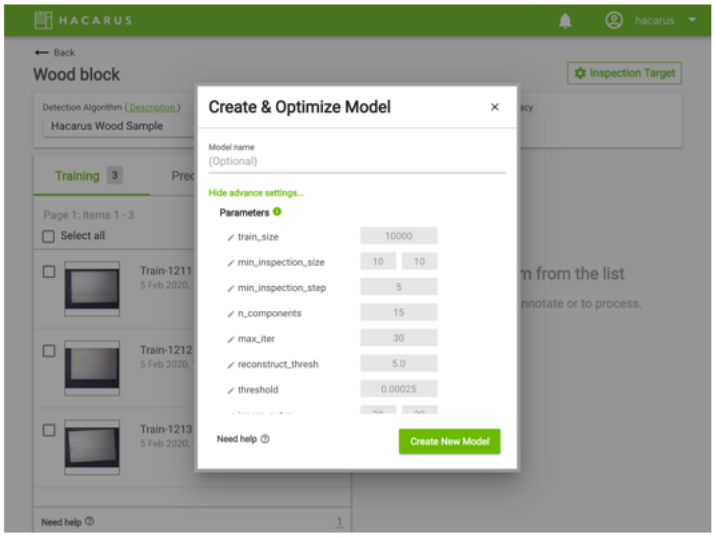
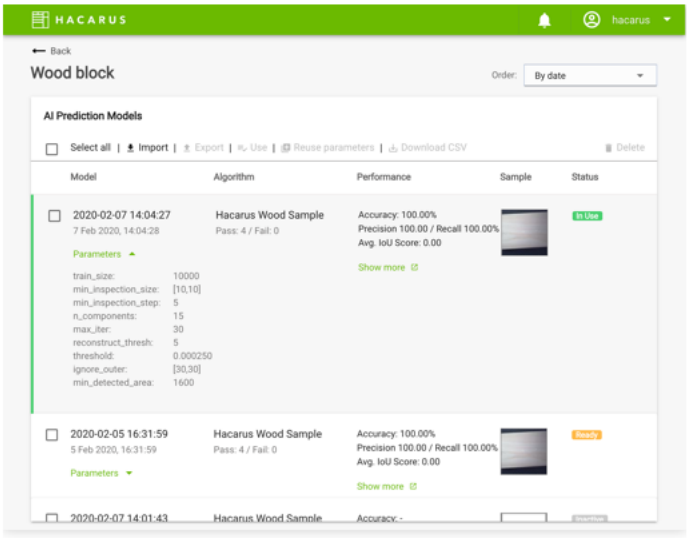
SPECTRO Screens

Training of a new AI model



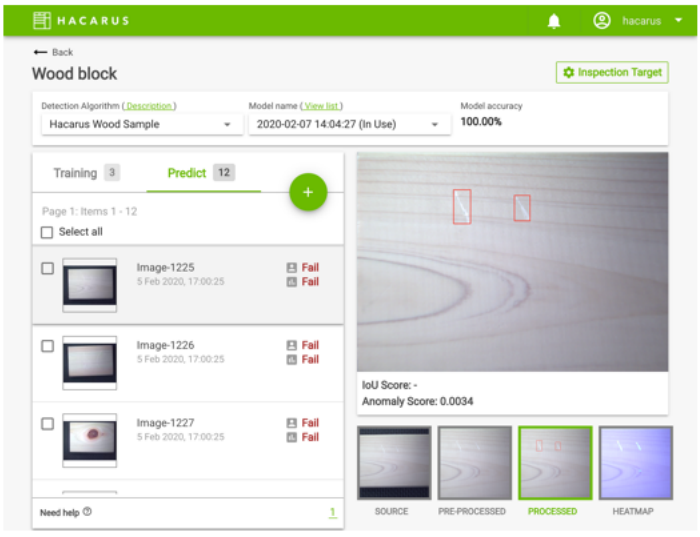
Works with a small amount of sample data, supports supervised and unsupervised learning, depending on the available data

Model list



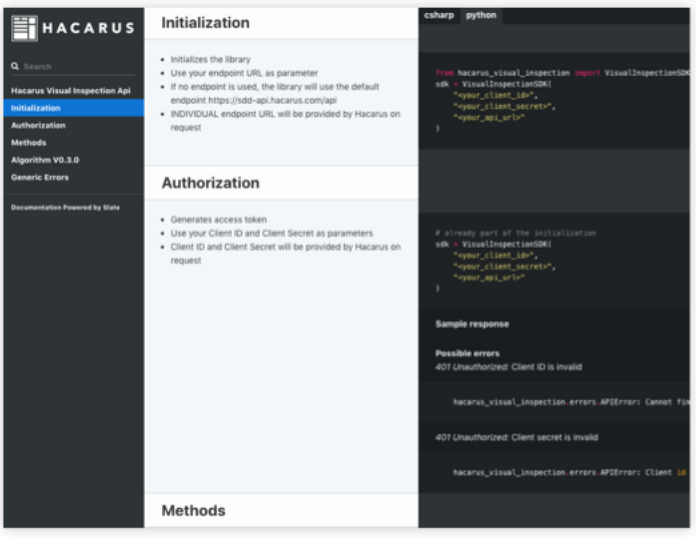
Ability to benchmark algorithms and testing parameters to identify the best performing model

Inspection results



Detailed inspection results highlighting anomalies

SDK documentation



Seamless integration with existing production line through the SDK