



Intelligent Inspection

2D machine vision solution powered by deep learning

SICK APPSPACE SENSORAPPS

SICK
Sensor Intelligence.

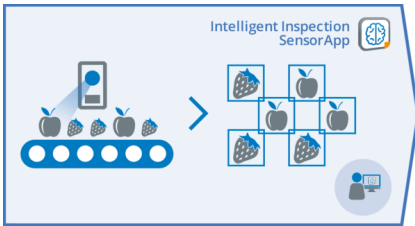
Advantages



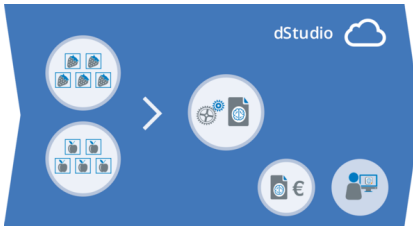
Artificial intelligence for machine vision

Deep learning is a subset of artificial intelligence (AI) that enables computers to mimic human decision-making and problem-solving. Deep-learning-based machine vision is well suited for objects with unpredictable characteristics, such as naturally grown objects, deformed and defect objects, as well as objects with complex or irregular shapes. The deep learning, example-based approach is intuitive and enables simplified solution development.

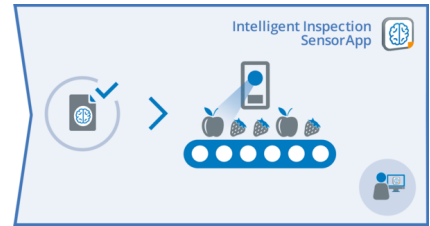
Solving a Deep Learning application with Intelligent Inspection from SICK



Collection of training data
Collect training images using the InspectorP6xx 2D vision sensor with the Intelligent Inspection SensorApp.



Training and assessment
Train and evaluate neural networks with the web-based training service dStudio from SICK.



Run network on sensor
Upload the trained neural network to the sensor using the Intelligent Inspection SensorApp. New images are easily classified directly on the device.



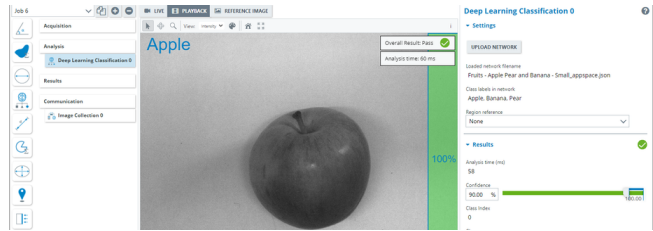
Deep Learning and the example-based approach simplify application development.

Application examples for Deep Learning



Task: Classification of annual rings in wood

Deep learning technology is well-suited for classifying the annual ring structure in the wood industry. Naturally and uniquely grown objects are difficult to classify with traditional rule-based machine vision.



Solution: Intelligent Inspection SensorApp

Using the Intelligent Inspection SensorApp on the InspectorP6xx 2D vision sensors from SICK makes it possible to classify objects in an intuitive and human-like way.



Technical data overview

Task	Classification Quality inspection Presence inspection Measuring, 2D
Technology	2D snapshot Image analysis Deep Learning
Language	English German
Supported products	InspectorP61x InspectorP62x InspectorP63x InspectorP64x InspectorP65x
Minimum screen resolution	1,366 px x 768 px
Supported browsers	Google Chrome (version 49 or higher)

Product description

The Intelligent Inspection SensorApp from SICK ensures easy object classification that is not possible with traditional rule-based machine vision. The SensorApp is powered by deep learning technology and available as a licensed option when ordering InspectorP6xx 2D vision sensors from SICK. The example-based approach and easy-to-use user interface makes it quick to learn and paves the way for simplified solution development. The user can easily collect training data to be used in the neural network training, and deploy the trained network directly on the sensor without the need for any extra equipment. In addition, traditional rule-based machine vision software tools are included.

At a glance

- Classification of objects powered by deep learning technology
- Runs on InspectorP6xx 2D vision sensors
- Easy-to-use user interface in web browser
- Traditional rule-based machine vision software tools included
- Quick customization with SICK Nova Tools

Your benefits

- Simplified solution development in complex machine vision applications not possible with traditional rule-based machine vision
- Example-based approach and easy-to-use user interface that makes it quick to learn without the need for a vision expert
- Low cost of total ownership as deep learning network runs directly on the camera without additional hardware
- Reliable inspection to reduce waste, avoid production downtime, and improve productivity
- The SICK Nova Tools plug-in support with source code access offers customization capabilities to all SICK AppSpace developers

Fields of application

Classification and sorting of objects with slightly different appearances within one class e.g.:

- Naturally grown objects
- Objects with complex or irregular shapes

Ordering information

Other models and accessories → www.sick.com/Intelligent_Inspection

Application	Description	Type	Part no.
Digital Design, Artificial Intelligence, 2D and 3D Machine Vision solutions	<p>The Intelligent Inspection SensorApp from SICK ensures easy object classification that is not possible with traditional rule-based machine vision. The SensorApp is powered by deep learning technology and available as a licensed option when ordering InspectorP6xx 2D vision sensors from SICK. The example-based approach and easy-to-use user interface makes it quick to learn and paves the way for simplified solution development. The user can easily collect training data to be used in the neural network training, and deploy the trained network directly on the camera without the need for any extra equipment. In addition, traditional rule-based machine vision software tools are included.</p>	Intelligent Inspection	On request

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com