Allied Vision

// AI SOFTWARE FOR MACHINE VISION CAMERAS

Edge AI Solution for Industrial Quality Control

Neuralyze

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The Bavaria-based senswork GmbH, a specialist in turnkey solutions for industrial image processing, automatic inspection, and deep learning with AI tools, has implemented its Neuralyze® Edge vision AI platform on Allied Vision's Alecs open smart camera. The result is an edge AI solution for industrial quality control that combines the advantages of an open smart camera with a proven vision AI platform.

The Challenge: Orchestrating System Hardware and Software components

Many of the tasks in existing industrial production environments involve inspecting the quality of manufactured components and goods. Flexible and reliable high-performance sensor solutions enable a higher degree of automation, more efficient processes, and thus compensate for declining employee numbers.

"The technology for such systems is available on the market," says Markus Schatzl, Director of Research, Development, and Innovation at senswork. "However, finding the optimal combination of the necessary components is no trivial matter, especially when compact image processing systems are required that execute AI algorithms directly at the point of use without an external PC infrastructure, and full control over one's own data must be ensured."

"To implement compact embedded vision systems, we were looking for a suitable embedded camera platform that would allow Neuralyze® to fully demonstrate its advantages," recalls Markus Schatzl. "We had already conducted various tests on Jetson-based embedded hardware, but we weren't 100 percent satisfied with the results."

The Solution: Open platform as a basis

The introduction of Allied Vision's Alecs open smart camera in fall 2025 completely changed this situation. It combines the proven Alvium camera platform with the NVIDIA® Jetson Orin™ NX 16 GB System on Module (SoM), creating a powerful, customizable hardware foundation that enables developers and system integrators to implement AI-based image processing and computer vision applications directly on the camera.

Unlike conventional smart cameras, which have fixed and non-customizable functionality, Alecs was designed as an open platform. Thanks to the Linux-based Board Support Package (BSP) and integrated recovery mode, Senswork can easily implement and run its own software without restrictions.

"With Alecs, Allied Vision has created a platform that meets our vision of industrial AI: open, powerful, and thoughtfully designed," says Markus Schatzl.

The main challenge for senswork was to optimize Neuralyze® for operation on an embedded platform without compromising the software's functionality or user-friendliness: „Integration on the Jetson Orin NX required careful adaptation to the Linux environment and Allied Vision's board support package. At the same time, we had to ensure optimal collaboration between image acquisition and AI processing – while fully utilizing the available computing power."

Alecs - Available with Jetson Orin NX 16GB or Jetson Orin Nano 8GB

The Benefits: Advantages cleverly combined

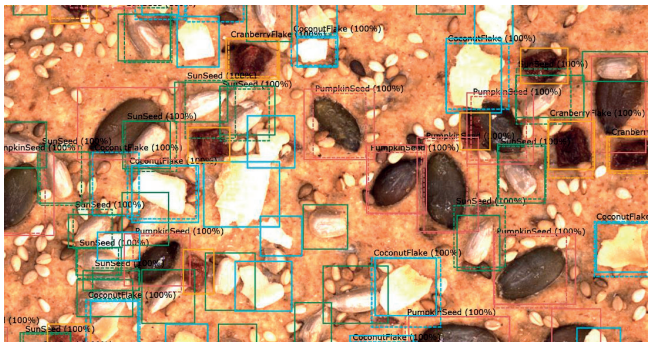
The effort paid off. The result is a powerful solution consisting of an open embedded hardware platform and ready-to-use, industrial-grade software, making it a tailor-made solution for object recognition, tracking, classification, or other demanding machine learning tasks.

The combination of Alecs and Neuralyze® Edge results in a complete vision AI solution with numerous advantages: Even users without any programming knowledge can train and customize AI models, as no code is required to create ready-to-use solutions. This combination also ensures the protection of sensitive data: The entire system is not cloud-based but runs on-premises, i.e., locally at the facility, without image data leaving the premises.

“Solutions based on Allied Vision’s hardware and our software combine the advantages of an open smart camera with a proven vision AI platform, enabling powerful, flexible next-generation edge AI solutions for industrial quality control”, Markus Schatzl summarizes.

He is very happy with his decision to use the Alecs hardware platform for several reasons: „The manufacturing quality of the hardware impressed us right from the start - the housing is carefully designed, complies with protection class IP67, and thus ensures reliable operation even in demanding environments. In addition, the combination of the Alvium camera platform and Jetson Orin NX provides sufficient computing power for deep learning algorithms, and the open, Linux-based architecture enables flexible software integration.”

In addition to the purely technical aspects, Allied Vision has also proven itself to be a reliable partner, Markus Schatzl emphasizes: “The company has been an established supplier of machine vision cameras for over 35 years and was able to provide us with competent, fast, and professional support, particularly with regard to platform integration and board support package issues. This quality of cooperation cannot be taken for granted and has significantly accelerated our development work.”



Deep Learning Software Example

Wide range of applications

The edge AI solution is suitable for numerous tasks, including surface inspection of reflective, transparent, or curved materials, completeness checks and assembly inspections, OCR reading of fonts, defect detection even for previously unknown defect types through anomaly detection, inspection of products with high feature variance, and many other applications. Such tasks can be found in the automotive industry, electronics manufacturing, mechanical engineering, medical technology, the pharmaceutical industry, food production, and many other areas that Markus Schatzl names as target industries for the developed solution.

Neuralyze

The software toolkit from senswork provides all the necessary functions for implementing AI applications on image data and impresses with its high level of user ergonomics.

About Neuralyze®

senswork is the developer of the Neuralyze® software toolkit, a software platform that provides all the necessary functions for implementing AI applications on image data. In addition to its diverse image processing tools, Neuralyze®’s strengths include its high level of user ergonomics, which offers ease of use for both experienced and new image processing users. This feature reduces dependence on specialized AI experts when implementing solutions in the field of optical inspection and measurement technology.

“The combination of Alecs open smart cameras with Neuralyze® Edge software enables powerful, flexible, next-generation edge AI solutions for industrial quality control.”

Markus Schatzl, Director of Research, Development, and Innovation at senswork GmbH

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