

SUCCESS STORY

A New Era for Automatic Defect Recognition: embedded edge AI's revolution

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Aetina's products and support has made it possible to implement cutting-edge AI solutions for the non-destructive testing industry.

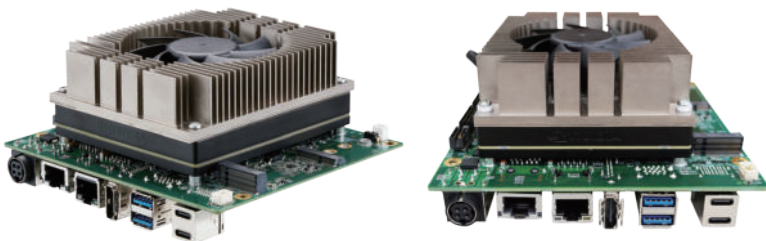
— Oskar Siljama, Senior AI Engineer at Trueflaw

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The Innovative Solution: An Ultrasonic Testing Device Enhanced by Embedded Edge AI

To overcome these challenges, Trueflaw opted for Aetina's Edge AI platform, the AIB-MX13/23, powered by the high-performance and energy-efficient Nvidia Jetson AGX Orin.

The outcome was an ultrasonic testing device featuring Aetina's embedded edge AI unit (AIB-MX13/23). To utilize it, the users can simply move a probe to gather data from a test object. This captured data undergoes real-time processing and defect analysis, with results instantly displayed to the user.



Aetina's Edge AI platform: AIB-MX13/23

For this application, the platform can be positioned differently based on the end requirements:

- A turnkey solution: the product is mounted inside a box with the ultrasonic device.
- A flexible solution: the product can be run separately, allowing connection with different ultrasonic devices.



A Collaborative Breakthrough by Trueflaw & Aetina, Powered by NVIDIA Jetson Orin Series

The Challenge: real-time analysis & portability

After experiencing rapid growth and facing escalating demand from their customers, Trueflaw aimed to achieve real-time automatic defect recognition in ultrasonic testing data. However, this goal was hindered by some obstacles:

- This type of technology necessitates **processing a substantial volume of data swiftly.**
- AI analysis of this nature demands **GPU acceleration.**
- The solution needed to be **portable**, facilitating **real-time analysis** on the go.

The product seamlessly integrates with the ultrasonic device's data stream, processing data for visualization and executing an AI model for automatic defect recognition. The results are streamed to a web application, conveniently accessible on a tablet computer.

"According to our knowledge, such real-time analysis for advanced ultrasonic testing is an industry-first", affirmed Oskar Siljama, Senior AI Engineer at Trueflaw. While the product was recently introduced, Trueflaw's team is already setting its sights on new objectives. The next phase involves enhancing inspection reliability while substantially reducing data analysis time.

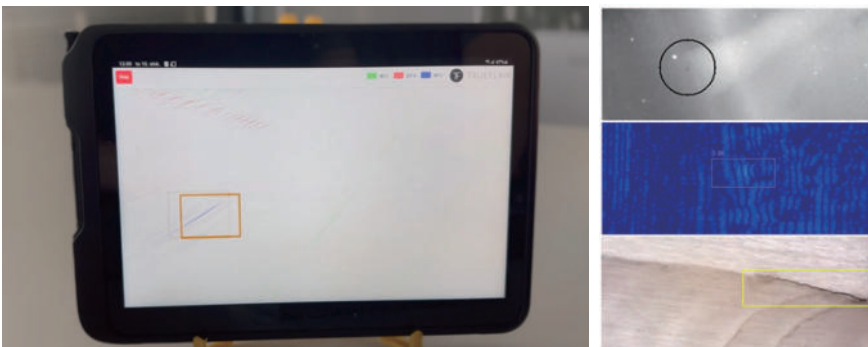


Trueflaw's ultrasonic testing device featuring Aetina's embedded edge AI platform - AIB-MX13/23.

Aetina: pioneering industry-first AI-powered innovations

"We have had a very positive experience with Aetina for the past 3 years, that's why we selected them for this ambitious project" said Oskar. "Specifically," he continued "we are very happy with the high-quality customer support and fast delivery".

Offering a wide range of AI edge solutions, Aetina brings innovative solutions that closely meet the needs of Artificial Intelligence and Edge Computing and usher them from concept to the real world., Aetina helps clients and developers grow their AI business with end-to-end AI management services, a wide range of AI computing systems, and application-oriented customization services. The successful partnership with Trueflaw and NVIDIA Jetson is an example of how Aetina empowers its clients to drive innovation and achieve excellence.



Real-time results streamed on the tablet.

Embedded AI powered by NVIDIA Jetson Orin Series

The Orin platform stands as a state-of-the-art edge GPU with abundant memory and robust performance, essential for achieving real-time processing with extensive data throughput. Oskar added, "Orin supports the latest Jetpack versions and libraries, enabling us to harness Nvidia's latest features." Building on their positive experiences with the previous generation (AGX Xavier), Trueflaw opted to continue with its next-generation successor.

The potential of Nvidia's Jetson Orin was further augmented by tailored customization: Aetina's AIB-MX13/23 and the ultrasonic device communicate via Ethernet ports, which led to the creation of custom enclosures and mounts for each application.

About Trueflaw

Trueflaw Ltd. (trueflaw.com) is a company based in Espoo, Finland, specializing in AI-driven defect detection systems and enhancing the reliability of non-destructive evaluation (NDE). Founded in 2001, Trueflaw started out making cracked samples used to test and develop NDE reliability, and successively expanded to provide statistical reliability evaluation services. Trueflaw now leverages this expertise to provide industry leading AI-based automated defect recognition systems to a wide range of industries, such as radiography, ultrasonic testing, and visual testing.



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