# AI-MATTERS USER STORY INTERVIEW

## Can you tell us a bit about your organization and its mission?

EXTENDE is a French SME specialized in software solutions for Non-Destructive Testing (NDT). The company distributes and provides technical support for the CIVA simulation platform, developed by the CEA, which is widely used to design and optimize advanced inspection techniques.

EXTENDE also develops TRAINDE UT, a digital training platform dedicated to the education and skills maintenance of NDT inspectors. TRAINDE reproduces realistic manual ultrasonic inspections using a virtual probe manipulated on a touchscreen, allowing users to observe how probe position and inspection parameters influence the ultrasonic signals.

Within the AI-MATTERS project, EXTENDE is exploring how AI-related approaches such as data compression, surrogate modelling and data augmentation can help manage the large datasets generated by advanced ultrasonic techniques (PAUT, TFM). These methods aim to make it easier to integrate realistic inspection cases into TRAINDE while keeping the platform efficient and scalable.

## What challenges or opportunities led you to collaborate with AI-MATTERS?

Advanced ultrasonic inspection techniques such as PAUT and TFM generate very large volumes of data and involve many inspection parameters. For training applications like TRAINDE, this makes it difficult to store and manage all possible inspection scenarios.

AI-MATTERS provided an opportunity to explore AI-based approaches such as data compression and surrogate modelling to better manage these datasets and enable more scalable training solutions.

## How has AI-MATTERS supported you in addressing these challenges or seizing these opportunities?

Through AI-MATTERS, EXTENDE collaborated with CEA-List to evaluate innovative methods for handling Phased Array ultrasonic inspection data. This included advanced signal compression techniques and surrogate modelling approaches applied to experimental and simulated ultrasonic datasets.

The collaboration provided access to specialized expertise and experimentation capabilities to assess the feasibility of these approaches.

## Can you share any measurable results or milestones achieved thanks to AI-MATTERS?

The project demonstrated that advanced signal compression techniques can significantly reduce the size of ultrasonic datasets while preserving key inspection information.

In addition, surrogate modelling approaches showed promising results for generating representative ultrasonic signals from a reduced set of parameters, opening new possibilities for data-efficient training scenarios.

## What has changed for your organization, and what does the future look like for AI in your field?

The collaboration confirmed that AI can effectively complement physics-based simulation tools by helping reduce data volumes and generate representative inspection data.

For EXTENDE, this opens new perspectives for integrating AI-driven techniques into digital training platforms and supporting the adoption of advanced inspection technologies.

## What would you say to other organizations considering collaborating with AI-MATTERS?

AI-MATTERS offers companies the opportunity to explore AI technologies with the support of experienced research partners.

For organizations interested in testing innovative approaches in a practical industrial context, the program provides valuable expertise and a structured framework for evaluating R&D solutions.

# How would you rate your experience with AI-MATTERS?

**Not good Extremely good**

★ ★ ★ ★ ★

**Thank you for sharing your experience with us!** Stories like yours demonstrate the potential of AI and robotics to transform manufacturing in Europe, while also inspiring other organizations to embark on their own AI journeys.

**At AI-MATTERS, our mission is to create a world-class reference network for testing and experimentation facilities across Europe.** Your collaboration plays a key role in strengthening Europe's leadership in advanced AI systems and innovative manufacturing solutions.