

# ETFA 2025

## Porto

Portugal  
9-12 September

30<sup>th</sup> IEEE International Conference on Emerging Technologies and Factory Automation

### Call for Participation - WS05

### Zero Defects Manufacturing in Industry 4.0: Shaping the Future of Smart Production

#### Organizers and Chairs

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#### FOCUS

Zero Defects Manufacturing (ZDM) is a strategic approach that leverages AI, IoT, automation, and Cyber-Physical Systems (CPS) to enhance quality control, reduce waste, and improve efficiency. By leveraging such digital technologies and real-time monitoring, manufacturers can proactively prevent defects, improve process reliability, and achieve sustainable and competitive production. This session brings together experts and innovators to explore the latest breakthroughs and real-world applications of ZDM

#### TOPICS

- ❖ Interoperability & Standards for ZDM, RAMI 4.0 and AAS Implementation for Seamless Quality Management
- ❖ Digital Twins & Cyber-Physical Systems, Real-Time Process Monitoring, Adaptation, Automation, and Defect Prevention
- ❖ Non-Destructive Inspection (NDI) Techniques, Advanced Sensing and Imaging for In-Line Defect Detection
- ❖ AI & Data-Driven Quality Assessment, Machine Learning and Predictive Analytics for Defect Prediction and Prevention
- ❖ Sustainable Manufacturing & Waste Reduction

Join us as we explore the next generation of smart, data-driven manufacturing and how ZDM is driving new standards for precision, efficiency, and sustainability.

- ❖ **AIM** The aim of the conference is to bring together the international community to present the latest research results, share new ideas and engineering breakthroughs, and discuss state-of-the-art challenges and future directions in technology and innovation in the broad domain of Automation with a focus on Industrial and Factory Automation.

- ❖ **WORKSHOP FORMAT**

**Half day Workshop, based on invited presentations.**

This Workshop will include 6 presentations from industry. Each presentation will be allocated a 30-minute timeslot, including time for questions.

For any detail regarding registration to the Workshop, please refer to the ETFA 2025 website.

#### Workshop Presenters

- ❖ Luca Fabbro, APTIV

Zero-Defect Laser Welding for High-Performance EV Battery Modules - A Data-Driven Approach to Real-Time Quality Control

- ❖ Wilhelm van de Kamp, VDL WEWELER,

AI, NDIs, and Digital Twin for the online adaptation of steel parts production

- ❖ Gisela Garcia, Volkswagen Autoeuropa

Exploiting Correlation Models to Enable AI-Based What-If Simulation for Quality Assessment in the Automotive Industry

- ❖ Paulo Reis, SONAE Arauco

Digital Twin for the reduction of defects in Melamine surfaced board manufacturing

- ❖ Joseba Menoyo, VIDRALA

Infrared Imaging in Glass Container Manufacturing: A Gateway to Zero Defects

- ❖ Michael Peschl, Harms & Wende

Robotic solutions for high quality product aesthetics and a safer working environment in manufacturing