



2nd European Symposium on Artificial Intelligence in Manufacturing ESAIM2024



16 October 2024
Athens, Greece

Symposium program

Time (GR local time; EEST)	Title	
09:00 – 09:30	Welcome – Registration	
09:30 – 09:40	Opening Ceremony <i>Panagiotis Aivaliotis, Teaching Factory Competence Center (TF-CC)</i> <i>Dr. Sotiris Makris, Laboratory for Manufacturing Systems and Automation (LMS)</i>	
09:40 – 10:00	EIT Manufacturing: Boosting Innovation and Education capacity for AI in Manufacturing <i>Presenter: Xanthi Bampoula, Business Development and Innovation manager, EIT Manufacturing South East</i>	
	Parallel Sessions	
10:10 – 11:30	<i>Session 1: AI in Equipment level</i> <i>(Chair: Dr. Panagiotis Karagiannis)</i>	<i>Session 2: AI in System level</i> <i>(Chair: John Angelopoulos, MSc)</i>
10:10 – 10:30	CPPM Copilot: Proposing an AI-based assistant for manual assembly tasks in a flexible production <i>Jonathan Nußbaum, Tatjana Legler and Martin Ruskowski</i>	LOS data set: A Large Scale Online Scheduling Benchmark for Flexible Job Shop Problems with Setup and Transportation Times <i>Katharina Hengel, Achim Wagner and Martin Ruskowski</i>
10:30 – 10:50	Generalized Authoring Tool for Computer Vision Machine Learning Application Deployments <i>Peter Stein, Jibinraj Antony, Simon Bergweiler and Christian Schorr</i>	Agent-Based Communication for Fault Diagnosis in Skill-based Production Environments Using Messages based on I4.0 Language and Asset Administration Shells

		<i>Pascal Rübel, William Motsch, Alexis Bernhard, Simon Jungbluth and Martin Ruskowski</i>
10:50 – 11:10	Leveraging Generative AI for Synthetic Data Generation: Improving 6-DOF Pose Estimation in Assembly Systems <i>Christos Konstantinou, Nikos Kampouroglou, Nikos Theodoris, Fotis Basamakias, Christos Gkournelos and Sotiris Makris</i>	Decision Support System (DSS) for manufacturing engineering of cans rolling. <i>Ander Martin, Mariluz Penalva, Fernando Veiga, Cristina Ruiz and Víctor Martínez</i>
11:10 – 11:30	Collaborative learning in Shared Production Environment using Federated Image Classification <i>Vinit Hegiste, Tatjana Legler and Martin Ruskowski</i>	AI based solutions for Manufacturing Mass Customization <i>Luis Usatorre, Paula Morella, Iñigo Sedano, Sergio Clavijo and Asier Aguayo</i>
11:30 – 11:40	Coffee Break	
	Parallel Sessions	
11:40 – 13:00	<i>Session 3: AI in Equipment level (Chair: Christos Gkournelos)</i>	<i>Session 4: Fundamental AI topics (Chair: Dr. Kosmas Alexopoulos)</i>
11:40 – 12:00	An OPIS-based Knowledge Engineering Framework for Collaborative Robotics <i>Elisa Foderaro, Alessandro Umbrico and Andrea Orlandini</i>	Efficient MLOps: Meta-learning meets Frugal AI <i>Eduardo Peixoto, Diogo Torres, Davide Carneiro, Bruno Silva and Paulo Novais</i>
12:00 – 12:20	A Tool for Generating and Labelling Domain Randomised Synthetic Images for Object Recognition in Manufacturing <i>Giovanna Martinez Arellano and Michael G Buck</i>	Addressing the Limitations of LIME for Explainable AI in Manufacturing <i>João Pereira, Filipe Oliveira, Miguel Guimarães, Davide Carneiro, Miguel Ribeiro and Gilberto Loureiro</i>
12:20 – 12:40	Human-Robot Interaction through Egocentric Hand Gesture Recognition <i>Snehal Walunj, Nazanin Mashhaditafreshi, Parsha Pahlevannejad, Achim Wagner, and Martin Ruskowski</i>	Multifaceted Applications of Federated Learning: Beyond Neural Networks <i>Tatjana Legler, Vinit Hegiste and Martin Ruskowski</i>
12:40 – 13:00	Advanced Computer Vision for Industrial Safety: Indoor Human Worker Localization Using Deep Learning <i>Francesco Berardinucci and Marcello Urgo</i>	Ethics, data and privacy management for AI solutions in manufacturing at SMEs (AIRISE) <i>Susan Hommerson, Chiara Gallese, Fanny Garel, Angela Aleksovaska and Harry Bikas</i>
13:00 – 14:00	Lunch break	

Parallel Sessions		
14:00 – 15:20	Session 5: AI in Process level <i>(Chair: Dr. Harry Bikas)</i>	Session 6: Generative AI and Large Language Models (LLM) <i>(Chair: John Angelopoulos, MSc)</i>
14:00 – 14:20	Recurrent Convolutional Neural Network based defect detection in Submerged Arc Welding processes <i><u>Estefania Tapia Suarez</u>, Inés Pérez Couñago, Christian Eike Precker, Juan Manuel Fernández Montenegro and Santiago Muiños-Landín</i>	Building on the principles of LLM models: Vector-Based Anomaly Detection in Pneumatic Cylinder Systems <i>Haizea Rumayor, <u>Itziar Ricondo</u>, Jon Castro and Aitor Fernandez</i>
14:20 – 14:40	On the use of Generative AI to support in-line process monitoring in Zero-Defect Manufacturing <i>Marco Grasso, <u>Matteo Bugatti</u> and Bianca Maria Colosimo</i>	<i>An approach to automated instruction generation with grounding using LLMs and RAG</i> <i>Laura Holvoet, <u>Michael van Bekkum</u> and Aijse de Vries</i>
14:40 – 15:00	Laser Metal Deposition (LMD) process monitoring: from 3D visualization of sensor data towards anomaly detection <i><u>Mikel Ayuso</u>, Ander Muniategui, Aitor Aguirre-Ortuzar and Enaitz Ezpeleta</i>	Enhancing Product Lifecycle Efficiency: Harnessing Natural Language Processing for Materials Insight and Optimization <i><u>Inés Pérez Couñago</u>, Lara Suárez Casabiell, Santiago Muiños-Landín, Christian Eike Precker and Andrea Gregores Coto</i>
15:00 – 15:20	Digital Twins of manufacturing processes under Industry 5.0 <i><u>Alexios Papacharalampopoulos</u>, Kyriakos Sabatakakis, Olga Maria Karagianni and Panagiotis Stavropoulos</i>	Prompting to Gather Object Categories in NeRF Scenes Related to Manufacturing <i><u>Selen Pehlivan</u> and Santeri Hyvärinen</i>
15:20 – 15:30	Coffee Break	
Parallel Sessions		
15:30 – 16:30	Session 7: AI in Process level <i>(Chair: Dr. Harry Bikas)</i>	Session 8: Generative AI and Large Language Models (LLM) <i>(Chair: Dr. Kosmas Alexopoulos)</i>
15:30 – 15:50	Synthetic data for AI-powered ultrafast laser based micro-structuring <i><u>Javier Fernández Troncoso</u>, Beatriz Blanco-Filgueira, Tamara Delgado, Andrea Gregores Coto, Céline Petit, David Bruneel, Pablo Romero and Santiago Muiños-Landín</i>	Industrial Maintenance Optimization based on the Integration of Large Language Models (LLM) and Augmented Reality (AR) <i><u>John Angelopoulos</u>, Christos Manettas and Kosmas Alexopoulos</i>
15:50 – 16:10	Towards Explicable AI in systemic identification of surrogate models of manufacturing processes	On an AI-based system architecture to generate robotic cells in VR environments

Alexios Papacharalampopoulos, Christos Papaioannou, Olga ***Panagiotis Karagiannis***, Panagiotis Angelakis and Sotiris Makris
Maria Karagianni and Panagiotis Stavropoulos

16:10 – 16:30 **An explainable active learning approach for enhanced defect detection in manufacturing**

*Nikolaos Nikolakis, **Paolo Catti** and Kosmas Alexopoulos*

16:30 – 16:50 **Panel Discussion**
Dr. Kosmas Alexopoulos (moderator), Laboratory for Manufacturing Systems and Automation (LMS)

16:50 – 17:00 **Closing Ceremony**

Symposium Location:

Stavros Niarchos Foundation Cultural Center

Syggrou Avenue 364, 17674 Kallithea, Athens, Greece

More information on the conference location here: <https://aim-net.eu/esaim2024/conference-location/>

