



1st European Symposium on Artificial Intelligence in Manufacturing ESAIM2023

19 September 2023
Kaiserslautern, Germany



Symposium program

Time (Berlin local time; CEST)	Title
09:00 – 09:30	Welcome – Registration
09:30 – 09:45	Opening Ceremony <i>Dr. Achim Wagner, German Research Center for Artificial Intelligence (DFKI)</i>
09:45 – 10:00	AIM-NET overview <i>Dr. Kosmas Alexopoulos, Laboratory for Manufacturing Systems and Automation (LMS)</i>
10:00 – 10:30	Keynote speech - Artificial Intelligence in Manufacturing <i>Prof. Martin Ruskowski, Department of Machine Tools and Control Systems (WSKL), Technical University of Kaiserslautern</i>
10:30 – 10:40	Coffee break

10:40 – 12:00	Session 1.1: Artificial Intelligence in Manufacturing Equipment Level	Session 2.1: Artificial Intelligence in Manufacturing System Level
10:40 – 11:00	<p>Unsupervised machine learning for blind rivets quality inspection</p> <p><i>Ander Martin, Mariluz Penalva, Fernando Veiga, Alain Gil del Val and Bilal El Moussaoui Abousoliman</i></p>	<p>An integrated active learning framework for the deployment of Machine Learning models for defect detection in manufacturing environments</p> <p><i>Fabián Ganzalez Fragueiro, Daniel Gordo Martin, Alberto Botana Lopez, Adrián Alonso Rial, Jacobo Otero Tranchero, Betty Cortiñas Lorenzo, Juan Manuel Fernandez Montenegro and Santiago Muiños Landin</i></p>
11:00 – 11:20	<p>Enabling seamless Human-Robot Collaboration in Manufacturing using LLMs</p> <p><i>Christos Gkournelos, Christos Konstantinou, Panagiotis Angelakis, George Michalos and Sotirios Makris</i></p>	<p>Complex and big data handling and monitoring through machine learning towards digital-twin in high precision manufacturing</p> <p><i>Marco Grasso, Giuseppe Fogliazza and Bianca Colosimo</i></p>
11:20 – 11:40	<p>Enhancing Object Detection Performance for Small Objects through Synthetic Data Generation and Proportional Class-Balancing Technique: A Comparative Study in Industrial Scenarios</p> <p><i>Jibinraj Antony, Vinit Hegiste, Ali Nazeri, Hooman Tavakoli, Snehal Walunj, Christiane Plociennik and Martin Ruskowski</i></p>	<p>On Bringing Fault Detection to Skill-Based Production</p> <p><i>Pascal Rübel, William Motsch, Hendrik Schäfer and Martin Ruskowski</i></p>
11:40 – 12:00	<p>AI Enhanced Processing of Large Parts: Volume Monitoring and Control of Robotic Gluing Application</p> <p><i>Loukas Prezas, Zoi Arkouli, George Michalos and Sotirios Makris</i></p>	<p>Towards an Advanced Artificial Intelligence Architecture through Asset Administration Shell and Industrial Data Spaces</p> <p><i>Michel Iñigo, Jon Legarissti, Felix Larrinaga, Ekhi Zugasti, Jsvier Cuenca, Blanca Kremer, Mikel Ayuso and Elena Montejo</i></p>
12:00-12:10	Coffee Break	

12:10 – 13:30	<i>Session 1.2: Artificial Intelligence in Manufacturing Equipment Level</i>	<i>Session 2.2: Artificial Intelligence in Manufacturing System Level</i>
12:10 – 12:30	Advancing human-robot interaction using AI – a large language model (LLM) approach <i>Nikos Dimitropoulos, Pantelis Papalexis, George Michalos and Sotiris Makris</i>	A deep reinforcement learning approach for production scheduling with the use of dispatch rules <i>Panagiotis Mavrothalassitis, Emmanouil Bakopoulos, Vasilis Siatras, Nikolaos Nikolakis and Kosmas Alexopoulos</i>
12:30 – 12:50	Cognitive Exoskeletons: Harnessing AI for Enhanced Wearable Robotics in Shipbuilding <i>Alexandros Kanakis, Konstantinos Katsampiris Salgado, Natalia Zacharaki, Nikos Dimitropoulos and Sotiris Makris</i>	Parameter Identification in Manufacturing Systems using Physics-Informed Neural Networks <i>Md Meraj Khalid and René Schenkendorf</i>
12:50 - 13:10	An Approach for Bin Picking in High-Mix Low-Volume Manufacturing <i>M. van Bekkum, Yulia Terzieva, Nikoletta Nikolova and Jesse van Oort</i>	Detection of Rare Fault Cases for Mobile Robot Applications <i>Benjamin Blumhofer, Jonas Weigand, Leonhard Kunz, Pascal Rübél and Achim Wagner</i>
13:10 - 13:30	Risk-aware Task Sequencing for Human-Robot Collaboration <i>Alex Bonini, Amedeo Cesta, Marta Cialdea Mayer, Andrea Orlandini and Alessandro Umbrico</i>	
13:30 – 14:30	Lunch break	
14:30 – 15:50	<i>Session 3.1: Artificial Intelligence in Manufacturing Process Level</i>	
14:30 - 14:50	Use of Artificial Intelligence at the level of manufacturing processes <i>Panagiotis Stavropoulos, Alexios Papacharalampopoulos and Dionysios Christopoulos</i>	
14:50 – 15:10	Metal Forming Process Efficiency Improvement Based on AI Services <i>Fernando Boto, Daniel Cabello, Juan Antonio Ortega, Blanca Puigjaner and Asier Alonso</i>	
15:10 – 15:30	Fabric defect detection and localization <i>Filipe Oliveira, Davide Carneiro, Hugo Ferreira and Miguel Guimarães</i>	

15:30 – 15:50	Vision-Based Ladle Monitoring System for Steel Factories <i>Mohamed Selim, Pablo López de Uralde, Jon Mata, Eider Gorostegui-Colinas, Beatriz Chicote, Alain Pagani and Didier Stricker</i>
15:50 - 16:00	Coffee Break
16:00 – 16:30	Panel Discussion <i>Dr. Kosmas Alexopoulos (moderator), Laboratory for Manufacturing Systems and Automation (LMS)</i>
16:30 -16:40	Closing Ceremony <i>Dr. Achim Wagner, German Research Center for Artificial Intelligence (DFKI)</i>

Location:

German Research Center for Artificial Intelligence
Deutsches Forschungszentrum fuer Kuenstliche Intelligenz GmbH
Trippstadter Str. 122
67663 Kaiserslautern
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in Room Zuse (0.01). Just to the right of the main entrance.

More information on the conference location here: <https://www.aim-net.eu/symposium2023/conference-location/>