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10th May 2022
9:00 - 17:30 CEST

AI FOR FUTURE MANUFACTURING

Theme Development Workshop

Identify common goals between academia and the manufacturing sector as well as other relevant stakeholders, and define promising approaches for European research and innovation in Trustworthy AI.

Organising Committee

ABB • ArcelorMittal • ČVUT ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE • DFKI

eit Manufacturing
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Workshop programme

Due to Covid 19, the workshop will be held online via Zoom with a mixed programme of presentations and in-depth discussions about specific sub-topics in smaller groups (Breakout sessions). This gives the participants the opportunity to discuss with selected experts and contribute to the strategic research and innovation agenda for AI in Europe.

09:00 – 09:15 Welcome & Objectives

09:15 – 09:35 Industrial AI for the Next Decade of Industry 4.0
Prof. Dr. Wolfgang Wahlster
DFKI GmbH

09:35 – 09:50 Benefits of Trustworthy AI in Manufacturing
Dr. Georg Schneider
AI Tech Center / ZF Group

09:50 – 10:00 Coffee Break & Socialising

10:00 – 11:30 Parallel Breakout sessions

11:30 – 12:30 Plenary presentation of key findings from the Breakout sessions

12:30 – 13:30 Lunch break & Socialising

13:30 – 13:45 AI Ecosystem Supporting Industry 4.0
Prof. Vladimír Mařík
Czech Institute of Informatics, Robotics and Cybernetics (CIIRC CTU)

13:45 – 14:00 Importance of Explainable AI for Industry
Sanjit Shewale
ABB Process Industries

14:00 – 15:30 Parallel Breakout sessions

15:30 – 15:45 Coffee Break & Socialising

15:45 – 16:45 Plenary presentation of key findings from the Breakout sessions

16:45 – 17:30 Closing & Socialising

Please register here.

We invite the community to suggest further topics of interest for the breakout sessions. Please use the online application form for your suggestions.

Breakout sessions

Breakout session 1:
Trustworthy AI in Future Manufacturing
With this session, we would like to initially define the strategic challenges and derive relevant major topics and industrial applications where it is critical that the AI is trustworthy.

Breakout session 2:
Federated Learning for Future Manufacturing
This session addresses the challenge of training AI models without giving up data sovereignty. What are approaches to share models instead of data?

Breakout session 3:
Human-Robot and Human-Machine Interaction in Manufacturing Processes
This session aims to identify ways to realise partly automated processes or to stabilise highly automated processes through smart dialogue systems that incorporate and combine a plethora of different interaction methods in Human-Robot or Humane-Machine interaction.

Breakout session 4:
Optimizing assembly components
Operators often struggle in finding the best combination of groups of parts before the assembly based on their experience. This session is about simulation approaches to find the best combination of groups of parts before the assembly.

Breakout session 5:
Retrofitting of AI
We bring a lot of AI into the production processes as well as machines. But how will AI react in the future react when new sensors will be included, new machinery being brought in or if software upgrades are getting installed? Will there arise a need to retrofit or updated everything?

Breakout session 6:
AI in product development
This breakout session deals with the use of Data for development and construction of products by adjusting materials, measurements according to the need and best results from the manufacturing processes, e.g., to enhance the design of products.

Breakout session 7:
Smart Manufacturing for Space Applications
This breakout session focuses on the challenges and opportunities for AI that arise in manufacturing in the context of Space exploration and Earth observation.

Breakout session 8:
AI in Digital Factories
AI-intensive systems share a lot of data, whilst their algorithms consume data, build models and use these models to produce new data. AI thrives the need for trusted, interoperable data spaces as it enables new forms of business and research opportunities.

Breakout session 9:
Industrial applications of Explainable AI
The importance of Explainable AI is of great value to discuss how and when the requirement of interpretability should and could be intrinsic or post-hoc in different industrial applications and examples.

Breakout session 10:
Optimization and Machine Learning for Better Manufacturing Processes
This breakout session will discuss what the obstacles and challenges for the implementation of advanced methods combining Optimisation and Machine Learning in manufacturing companies are.

Breakout session 11:
Zero Defect Manufacturing
This breakout session deals with AI technology methods like data-based modelling to detect out-of-control (OOC) states in classical Statistical Process Control (SPC) from in-process data enabling continuous monitoring and earlier detection of problems with a simultaneous reduction or near elimination of expensive post-process quality inspection.

Breakout session 12:
Psychological approach for data labelling
This breakout session will discuss sustainable approaches in combining psychology with elements of labelling technologies to ensure high data quality (standardization) which is needed to apply AI in manufacturing.

Breakout session 13:
Reality independent AI
This breakout session will address the question of how the potential of digital twins with synthetic data can be uncovered in image data (e.g. for AI quality inspection or object recognition) for manufacturing.

Breakout session 14:
Democratising AI
The aim of this breakout session is to uncover who is already able to use AI in manufacturing and whether only large companies or also smaller companies benefit from the use of AI and if both parties also benefit from each other and exchange knowledge?

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