



- The International Academy for Production Engineering
 - College International pour la Recherche en Productique
 - Internationale Akademie für Produktionstechnik



DICMAPI
 University of Naples
 Federico II

CIRP ICME '24 – 18th CIRP International Conference on

INTELLIGENT COMPUTATION IN MANUFACTURING ENGINEERING

Innovative and Cognitive Production Technology and Systems

10 - 12 July 2024, Ischia (Gulf of Naples), Italy



Joint Laboratory of
 Excellence on Advanced
 Production Technology
 (Fh-IWU Chemnitz &
 DICMAPI-UniNaples
 Federico II)

Tuesday, July 9 - Conference Registration and Welcome

18.00 - 19.00	Conference Registration at Hotel Continental Ischia, Via M. Mazzella 80, Ischia
19.30	Welcome Reception and Get Together at 19.30, Hotel Continental Ischia

Wednesday, July 10 - Plenary Session: 9.15 - 11.00

CONFERENCE OPENING AND PLENARY SESSION

08.00 - 09.00	Late Registration
09.15 - 11.00	Conference Opening and Greetings <i>Roberto Teti, CIRP ICME '24 Conference Chairman, Italy</i> Plenary Session Presentations <i>Giovanni Totis (Italy)</i> , Innovative Methodologies for Cutting Force Measurement and Filtering in Advanced Machining Operations <i>Davide Santoro (Italy)</i> , Demonstrators System within the R&D&I Project 'NEMESI' <i>Igor Balaz (Serbia)</i> , The EC 'BioMeld' Project: Integrating Modeling, Simulation, AI, and Biointelligent Manufacturing

Coffee Break

Wednesday, July 10 - Morning Sessions: 11.30 - 13.30

DAY 1	SESSION A1 Chair: Mahmoud Hassan	SESSION B1 Chair: Amir Armani	SESSION C1 Chair: Gianfranco Genta
DAY 1	Cutting Technologies I	Additive Manufacturing I	Quality, Metrology & Testing I
11.30 - 11.45	An investigation on the dynamic behavior of the BTA deep hole drilling process – increasing the process stability and sustainability <i>Robert Schmidt, Lucas Brause, Simon Strodick, Frank Walther, Dirk Biermann, Andreas Zabel (Germany)</i>	Manufacturing of self-support thin structures with extrusion and sinter-based technology <i>Alessandro Pellegrini, Marco Zaza, Maria Grazia Guerra, Fulvio Lavecchia, Luigi M. Galantucci (Italy)</i>	AI-based acoustic quality inspection: case study for the assurance of functional sounds in automotive manufacturing <i>Roman Strasser, Robert Refflinghaus, Julian Hasse, Markus Fischer, Tobias Schmidt (Germany)</i>
11.45 - 12.00	In-process tool pullout monitoring during milling based on internal machine tool data <i>Erkut Sarikaya, Roman Morozov, Matthias Weigold (Germany)</i>	Prediction of surface roughness based on fusion model <i>Soraya Zenhari, Jie Ni, Kim Werkle, Hans-Christian Möhring (Germany)</i>	Local and global mechanical characterization of selective laser sintered components by indentation and tensile tests <i>Stefano Guarino, Lorenzo Mazzaferro, Emanuele Mingione, Gennaro Salvatore Ponticelli, Flaviana Tagliaferri, Simone Venettacci (Italy)</i>
12.00 - 12.15	Non-Intrusive Monitoring of Machining Processes for In-Process Product Health Prediction based on Machine Learning <i>Moschos Papananias (UK)</i>	A concept for in-situ parameterisation of a fused granular fabrication process: A material independent approach <i>Maschal Hakimiy, Klaus Dröder (Germany)</i>	Transfer learning for enabling quality predictions in small batch production <i>Nils Klase, Ravish Kumbhare, Dominic Alex Joseph, Chris Schönekehs, Ronja Witt, Robert H. Schmitt (Germany)</i>
12.15 - 12.30	Increased Sustainability in High Performance Tapping of Aluminum Cast Alloys by Modern Lubrication Technology <i>Nils Felinks, Jens Ostrowski, Dirk Biermann (Germany)</i>	Surface roughness prediction of laser-based powder bed fusion manufactured parts using machine learning <i>Shradha Ghansiyal, Marco Hussong, Lars Bachert, Matthias Klar, Jan C. Aurich (Germany)</i>	Definition of a nanoindentation-based methodology to optimize process parameters of coating deposition on silicon wafer <i>Maurizio Galetto, Gianfranco Genta, Giacomo Maculotti, Lorenzo Giorio, Giovanni Marchiandi (Italy)</i>
12.30 - 12.45	Exploring the edge of the edge: Utilization of available CNC machine data for material defect detection <i>Markus Brillinger, Josef Mündler, Jörg Edler, Michael Heiss, Franz Haas (Austria)</i>	Thermography for microstructure control during additive manufacturing of duplex stainless steel <i>Trond Arne Hassel, Vegard Brøtan, Knut Sørby (N)</i>	Automated vision-based inspection technique using single-camera calibration for evaluating ISO dimensional specifications <i>Sif Eddine Sadaoui, Abdelali Taatali, Abdelkader Benaouali, Brahim Mahiddini (Algeria)</i>

12.45 – 13.00	Tool Development For Deep Internal Contouring To Produce Shape-Optimised, Sustainable Components <i>Timo Rinschede, Moritz Fuß, Rainer Brockmann, Dirk Biermann (Germany)</i>	Comparison of the processibility of gas- and plasma-atomized AlSi10Mg powders in laser based powder bed fusion <i>Johanna Steiner-Stark, Jacques Platz, Benjamin Kirsch, Jan C. Aurich (Germany)</i>	How to design the interplay between humans and AI-based surface inspection systems <i>Kathrin Nauth, Erdi Ünala, Christian Mesk, Jens Poepfelbus (Germany)</i>
13.00 – 13.15	Analysis of the chip formation during ejector deep hole drilling for the design of fluid flow optimized ejector drill heads <i>Julian Frederic Gerken, Nuwan Rupasinghe, Dirk Biermann, Peter Eberhard (Germany)</i>	Design, Fabrication, and Control of a New Ceramic 3D Printer <i>Sam Choppala, Armin Allam, Zichen Fang, Amir Armani (USA)</i>	Generalized Statistical Process Control via 1D-ResNet Pretraining <i>Tobias Schulze, Louis Huebser, Sebastian Beckschulte, Robert H. Schmitt (Germany)</i>
13.15 – 13.30	Research on formation principle of cutting edge geometries of carbide turning tools <i>Chengjin Tian, Changni Fu, Shuqiang Li, Ying Li, Liyang Wan, Yan Yang, Kejia Zhuang (China)</i>	Real-time Defect Detection in Ceramic Additive Manufacturing Using Deep Convolutional Neural Networks <i>Dylan Doan, Amir Armani, Marcia Golmohamadi (USA)</i>	Comparing profile monitoring procedures of metal foams <i>Valeria Mayorga-Cervantes, Marcela Meneses-Guzmán, Bruno Chiné (Costa Rica)</i>
13.30 – 15.00	Lunch		

DAY 1	Wednesday, July 10 - Afternoon Sessions: 15.00 - 17.00		
	SESSION A2 Chair: Claudiu Bisu	SESSION B2 Chair: Yuebin Guo	SESSION C2 Chair: Paulo Aguiar
	Cutting Technologies II	Additive Manufacturing II	Quality, Metrology & Testing II
15.00 - 15.15	Enhancing machining efficiency: Integrating machine-learning-based cutting tool condition monitoring in industrial application <i>Peter M. Simon, Max Werrel, Maximilian Berndt, Tim Reeber, Jens Henninger, Ralph Traphöner, Matthias Klar, Benjamin Kirsch, Hans-Christian Möhring, Jan C. Aurich (Germany)</i>	Feature-based part decomposition and representation for multi-axis DED processes <i>Léo Pizzol, Sylvain Lavernhe, Christophe Tournier, Nicolas Beraud (France)</i>	Decision support in manufacturing processes using ML-driven knowledge repositories for process parameter initiation <i>Nik Weisbrod, Joachim Metternich (Germany)</i>
15.15 - 15.30	Investigation of Chip Jamming and Drill Breakage in Deep-Hole Drilling using Smoothed Particle Hydrodynamics <i>Andreas Baumann, Peter Eberhard (Germany)</i>	A Load Cell-based Monitoring System for In-line Over Build Detection in wire Laser-based DED process <i>Konstantinos Tzimanis, Michalis S. Koutsokeras, Nikolas Porevopoulos, Panagiotis Stavropoulos (Greece)</i>	Non-Destructive Technique Based on Acoustic Transducers and Digital Signal Processing to Detect Failure in the First Layer in FDMV. <i>Kennerly, P. Aguiar, T. G. Lopes, C. Soares, P. Monson, G. A. David (Brazil)</i>
15.30 – 15.45	Modeling of mechanical loads on the cutting wedge with varying rake angle <i>Berend Denkena, Benjamin Bergmann, Malte Kraeft (Germany)</i>	Synthetic Data Generation for Process-Specific Nominal Geometry in Fused Deposition Modeling <i>Jonas Großbeheide, Kilian Geiger, Mateus Bortoli Harano, Dominik Wolfschläger, Robert H. Schmitt (Germany)</i>	An Edge Is All You Need: Cracking the Code for Generating Synthetic Datasets for Robust Crack Detection Models <i>Dirk Holst, Ole Schmedemann, Thorsten Schüppstuhl (Germany)</i>
15.45 - 16.00	Investigation of Chip Evacuation in Ejector Deep Hole Drilling using Mesh-Free Simulation Methods <i>Nuwan Rupasinghe, Julian Frederic Gerkenb, Andreas Baumann, Peter Eberhard, Dirk Biermann (Germany)</i>	Discrete physics as a medium for surrogate models: the LPBF case <i>Alexios Papacharalampopoulos, Dionysios Christopoulos, Panagiotis Stavropoulos (Greece)</i>	Measurement uncertainty propagation in classification machine learning techniques following a Bayesian framework <i>Manuel Lopez Cabrera, Wabz Zouhri, Sandra Zimmer-Chevret, Jean-Yves Dantan (France)</i>
16.00 - 16.15	Investigating the Applicability of Particle Damping in Milling Heads through Numerical Simulation <i>Andreas Schönle, Florian Vogel, Dirk Biermann, Peter Eberhard (Germany)</i>	An Adaptive Strategy in Printing PETG with Fused Filament Fabrication <i>Jie Zhang, Eleonora Ferraris (Belgium)</i>	Structured Product Engineering: Ontology-based Advanced Product Quality Planning <i>Uppili Srinivasan, Dominik Mittel, Daniel Lemberger, Alexander Perzylo (Germany)</i>
16.15 - 16.30	In-process measurement of vibrations in ultrasonic vibration superimposed turning using mechanical feedback signals <i>Jonas M. Werner, Hendrik Liborius, Welf-Guntram Drossel, Andreas Schubert (Germany)</i>	Simulation of heat distribution and crystallization of PEEK in 3D printing <i>Mauriz Walz, Martin Kipfmüller, Lars Pfozner (Germany)</i>	Simulation and functional characterization of Cu coating on aluminum components for improvement of thermal and electrical properties <i>Daniele Almonti, Gabriele Baiocco, Massimiliano Della Millia, Emanuele Mingione, Gianluca Rubino, Daniel Salvi, Nadia Ucciardello (Italy)</i>
16.30 - 16.45	Security-enhanced cutting tool wear segmentation with federated learning <i>Gustavo Laydner de Melo Rosa, Alexander Gwose, Philipp Ganser, Thomas Bergs (Germany)</i>	Feature engineering of CAM geometry for the Control of the L-PBF process <i>Yann Bosson, Christophe Tournier, Yann Quinsat, Jérémie Mossé (France)</i>	Defects on Proton Exchange Membrane Fuel Cell Components created by Particulate Contaminations and Mechanical Pressure <i>Timo Schießl, Katrin Dinter, Christoph Tammer, Rüdiger Daub (Germany)</i>
16.45 – 17.00	Machine Learning Based Cutting Force Prediction in Thin-Wall Turning Operation <i>Pronamika Borthakur, Ashrut Sharma, Shrikani Shankarra Pawar, Tufan Chandra Bera, Kuldip Singh Sangwan (India)</i>	Physics-Informed Machine Learning for Smart Additive Manufacturing <i>Rahul Sharma, Maziar Raissi, Y.B. Guo (USA)</i>	Shop floor environment digital twin scan for extended reality applications <i>Serkan Solmaz, Willem Mahy, Vasilios Zogopoulos (Belgium)</i>
20.00	Gala Dinner at 20.00, Hotel Continental Ischia		

DAY 2				
Thursday, July 11 - Morning Sessions: 9.00 - 13.30				
	SESSION A3 Chair: Ioan Alexandru Popan	SESSION B3 Chair: Islam Shyha	SESSION C3 Chair: Maurizio Galetto	Session D3 Chair: Igor Balaz
	Cutting Technologies III	Additive Manufacturing III	Quality, Metrology & Testing III	Special Session on 'BioMeld' & Biological Transformation in Manufacturing
09.00 - 09.15	A data-driven approach to determine tangential cutting force in turning operations using CNC control data <i>Michal Demko, Jozef Brindza, István Sztankovics, Marek Vrabel, Ján Kušnir (Slovakia)</i>	In-Situ Monitoring Approach for Real-Time Prediction of Humping Defect in Direct Energy Deposition Process <i>Mahmoud Hassan, Mohamed Abubakr Hassan, Ahmad Sadek, Chi-Guhn Lee, Helmi Attia (Canada)</i>	A comparison of Vision Transformers and CNNs for the detection of aesthetic defects <i>Nikolaos Nikolakis, Paolo Catti, Luca Fabbro, Stefano Grossi, Nicola Longo, Kosmas Alexopoulos (Greece)</i>	Smart Manufacturing and AI: Lessons from BioMeld project <i>Igor Balaz (Serbia)</i>
09.15 - 09.30	Experimental and numerical analysis of the adapted high-pressure cutting fluid supply for turning AISI 1045 steel <i>Hui Liu, Junjie Zha, Markus Meurer, Thomas Bergs (Germany)</i>	Evaluation of automatic geometry acquisition and point cloud registration methods for the repair of metallic components using Wire-Arc Additive Manufacturing <i>Željko Šarić, Dimitrii Ertelthalner-Nikolaev, Gernot Mauthner, Friedrich Bleicher (Austria)</i>	Concept for a machine vision framework for production environments based on task-specific synthetic data generation <i>Alexander Moriz, Dominik Wolfschläger, Robert H. Schmitt (Germany)</i>	Cyborgs in the Factory: How Blending Biology and Technology is Shaping the Future of Work <i>Till Saßmannshausen, Benjamin Heinbach (Germany)</i>
09.30 - 09.45	Automatic generation of pareto-optimal clamping solutions for post-processing additively manufactured parts <i>Constantin Chaumet, Jan Liß, Jakob Rehof, Petra Wiederkehr (Germany)</i>	Approach for weld bead geometry prediction to optimize process planning in wire arc additive manufacturing applications <i>M. Hoffmann, S. Maier, C. Mayr, G. Mauthner, T. Trautner, F. Bleicher (Austria)</i>	Automatic detection and segmentation of indentations and tribological marks by traceable machine vision system <i>Gianfranco Genta, Giacomo Maculotti, Matteo Perrone, Maurizio Galetto (Italy)</i>	Bio-Hybrid Steerable Catheter Fabrication and Assembly within the EC BioMeld Project - Part 1: Manufacturing Process Steps <i>Roberto Teti, Alessandra Caggiano (Italy)</i>
09.45 - 10.00	Advancing Sustainable Milling: A Novel Framework for Tool Wear Prediction <i>Stefania Ferrisi, Rosita Guido, Danilo Lofaro, Giuseppina Ambrogio (Italy)</i>	Design guidelines for additively manufactured stiffening structures to reduce vibrations in milling <i>Jens Niedermeyer, Fabian Schlenker, Julia Huuk, Tobias Ehlers, Berend Denken, Roland Lachmayer (Germany)</i>	Enabling metadata enrichment of 3D measurement data by database-centered storage and exchange through the QIF data format <i>Kilian Geiger, Jonas Großeheide, Dominik Wolfschläger, Robert H. Schmitt (Germany)</i>	Bio-Hybrid Steerable Catheter Fabrication and Assembly within the EC BioMeld Project - Part 2: Production Planning Development <i>Alessandra Caggiano, Roberto Teti (Italy)</i>
10.00 - 10.15	Prediction of machining outputs with Taguchi and ANN in ECM of 13-8 PH Mo steel <i>Mehmet Albaşkara (Turkey)</i>	Innovative high-damping tooling elements obtained by L-PBF technique for enhancing milling stability <i>F. Scalzo, A.Ì.S. Antonialli, G. Totis, E. Vaglio, M. Sortino (Italy)</i>	A low power, microcontroller-based multi-sensor system using ultrasonic range sensors and radar range sensors to detect object distance, angle and speed by sensors data fusion <i>Kevin Blümel, Flaviana Tagliaferri, Michael Kuhla (Germany)</i>	Enhancing Bioprinting Precision through Real-Time Monitoring of Stand-Off Distance: a preliminary study <i>Alessandro Margarita, Simone Gugliandolo, Bianca Maria Colosimo (Italy)</i>
10.15 - 10.30	A novel framework for incorporating machine limitations into component design for 5-axis milling <i>Lionel Damteu, Niklas Michel-Angeli, Nicklas Gerhard, Philipp Ganser, Thomas Bergs (Germany)</i>	Characterization of AlSi10Mg interlocking structures additively manufactured via Laser Powder Bed Fusion <i>Federica Valenza, Alberta Aversa, Eleonora Atzeni, Sara Biamino, Gabriele Piscopo, Alessandro Salmi (Italy)</i>	Improve Quality Control with Predictive Analytics: Using Machine Learning and IO-Link Sensors for Early Detection of Defects in Modern Production <i>Peter Burggräf, Fabian Steinberg, Carl René Sauer, Philipp Nettesheim, Norman Müller, Lukas Baeck (Germany)</i>	In-line Process Monitoring of Extrusion-Based Bioprinting Using In-Situ Thermal Imaging <i>Egon Prioglio, Giovanni Zanderigo, Bianca Maria Colosimo (Italy)</i>
10.30 - 10.45	Function-oriented machining of turbulence-generating surface structures on cooling channel surfaces of injection moulds <i>Berend Denkena, Benjamin Bergmann, Christian Wege, Hans-Josef Endres, Felix Mehrens (Germany)</i>	Ti6Al4V Parts Fabricated by Laser Powder Bed Fusion: Tensile Behavior and Porosity Assessment by X-ray Computed Tomography <i>Stefania Cacace, Alessandro Capelli, Quirico Semeraro (Italy)</i>	Cognition enhanced quality control for hard finishing processes in automotive gear manufacturing <i>Bastian Friedrich, Marcos Padrón Hinrichs, Felix Sohnius, Stefan Gerdhenrichs, Robert H. Schmitt (Germany)</i>	
10.45 - 11.00	Clustering approach for improving model-based analyses of milling operations <i>Felix Finkeldey, Raphael Schönecker, Dirk Biermann, Petra Wiederkehr (Germany)</i>		Measuring Systems Engineering Transformation: A systematic literature review <i>Iris Graessler, Benedikt Grewe (Germany)</i>	
11.00 - 11.30	Coffee Break			

DAY 2	SESSION A4 Chair: Chair:	SESSION B4 Chair: Yasuhiro Kakinuma	SESSION C4 Chair: Giovanni Totis	SESSION D4 Chair: Luigi Nele
	Cutting Technologies IV	Battery Production	Robotics & Human-Robot Collaboration	Special Session on 'TOP' & 'NEMESI' Projects
11.30 - 11.45	Modeling the compliance behavior of milling tools modified with asymmetric dynamic properties <i>Melina Wenzel, Rafael Garcia Carballo, Dirk Biermann, Petra Wiederkehr (Germany)</i>	Artificial Intelligence methods for monitoring and control of laser welding process for battery pack production <i>Olga Ogorodnyk, Torbjørn Leirimo (Norway)</i>	Semantic world models for object identification and localization in mobile robotics <i>Patrick Rückert, Naemi Wassermann, Kirsten Tracht (Germany)</i>	Advanced clustering technique for automatic labelling of welding signals <i>Mario Vozza, Tommaso Forni, Fabio Le Piane, Alessandro Petrella, Giulio Mattered, Emily Yap, Luigi Nele, Francesco Mercuri (Italy)</i>
11.45 - 12.00	Shape error prediction in 5-axis machining using graph neural networks <i>Huuk J., Denkena B., Dhingra A., Ntousi E. (Germany)</i>	Deep Learning Pipeline for Defect Detection <i>Alexander Kreppein, Maximilian Motz, Dennis Grunert, Robert H. Schmitt (Germany)</i>	An approach for precise CAD reconstruction based on TEASER++, iterative ICP methods for robotics applications <i>Xiaomei Xu, Attique Bashir, Rainer Müller (Germany)</i>	Wire Arc Additive Manufacturing of INVAR36: Anomaly detection based on acoustic emission sensor signals <i>Giulio Mattered, Alessandra Caggiano, Luigi Nele, Antonio D'Alterio, Joseph Polden, Stephen Van Duin, Zengxi Pan (Italy)</i>
12.00 - 12.15	Towards the evaluation of wear and time-variant process stability during milling supported by k-means cluster analyses of Raman scattering data <i>Simon Jaquet, Alexander Meijer, Jonas Baumann, Nils Denkmann, Finn Ontrupc, Nelson Filipe Lopes Dias, Wolfgang Tillmann, Dirk Biermann, Jörg Debus (Germany)</i>	Data-driven insights into lithium-ion battery manufacturing using the linear model to analyze the manufacturing process and predict cell quality <i>Jonas Lindlmeier, Keven Kirner, Christian Seidel (Germany)</i>	A new Software Driven External Sensor System for Industrial Robots <i>Bernd Bertschinger, Kathrin Hoffmann, Jan Baumgaertner, Gajanan Kanagalingam, Juergen Fleischer, Oliver Sawodny, Stephan Reichelt (Germany)</i>	Analysis of typical surface defects of aluminum aircraft fuselage using a non-destructive inspection and measurement system based on structured light <i>Antonio Caccavale, Giovanni Romano, Antonio Gloria, Luigi Nele, Davide Santoro, Vincenzo Pellegrino, Danilo Cannoletta, Massimo Martorelli (Italy)</i>
12.15 - 12.30	Analysis of Shape Deviation in Milling Processes for Non-rigid 316L Aircraft Brackets <i>Schlenker, F., Niedermeyer, J., Friebe, S., Denkena, B., Lachmayer, R. (Germany)</i>	Enhancing Electric Vehicle Battery Pack Assembly with YOLOv8-Based Real-time Detection and Bayesian Optimization <i>Milind Shah, Milad Ashourpour, Kerstin Johansen (Sweden)</i>	Manufacturing of hairpin stators using collaborative robots <i>Eckart Uhlmann, Josephine Marquardt, Onur Senyüz, Marie-Noëlle Fielers (Germany)</i>	Automatic control of threaded stud welding in cabinet assembly for electrical car charging stations <i>Giuseppe Santoro, Ernesto Erra, Michael Nicoletta (Italy)</i>
12.30 - 12.45	Analysis of the deflection characteristics of straight-fluted milling tools with direction-dependent compliance behavior <i>Rafael Garcia Carballo, Melina Wenzel, Jonas Baumann, Dirk Biermann, Petra Wiederkehr (Germany)</i>	Simulation-based Economic Evaluation of Flexible and Automated Logistics Concepts in Electrode Production <i>Anja Munzke, Meltem Akkaya, Markus Georg, Andrea Hohmann (Germany)</i>	Development of an innovative, posture-independent dynamometer for robotic milling applications <i>G. Totis, A. Bordon, F. Scalzo, E. Vaglio, M. Sortino (Italy)</i>	Picking, kitting and asset tracking in an industry 5.0 warehouse: a discussion and a preliminary solution <i>Anatoly De Felice, Raffaele De Felice, Raffaella Prisco, Mario Fiorentino, Giancarlo Capone, Salvatore Rampone (Italy)</i>
12.45 - 13.00	Liquid-vapor phase transitions in wet cutting simulations <i>Eckart Uhlmann, Christian Grimm, Enrico Barth, Kaissar Nabbout, Martin Sommerfeld, Benjamin Bock-Marbach, Jörg Kuhnert (Germany)</i>	Data model for KPI-based sustainability assessment of battery production and remanufacturing scenarios <i>Hanna Brings, Juliane Elsner, Felix Sohnius, Robert H. Schmitt (Germany)</i>	Rule-based one-shot object tracking for NC-robots under consideration of energy consumption <i>Rico Löser, Leutrim Gjakova, Marco Schumann, Philipp Klimant, Martin Dix, Yunqi Gu, Ruth Maria Otto (Germany)</i>	Development of a vision system enhanced by deep learning to support robotic laser cleaning <i>A. D'Alterio, G. Mattered, A. Caggiano, L. Nele, M. Martorelli, D. Santoro (Italy)</i>
13.00 - 13.15	Improved cutting of tungsten carbide after flaking of diamond coating <i>Markus Diegel, Markus Meurer, Thomas Bergs (Germany)</i>	Optimization of Production Processes for Solid-State Batteries: A Methodology for Scaling from Laboratory to Mass Production <i>Jan Felix Plumeyer, Sebastian Wolf, Benjamin Dorn, Heiner Heimes, Achim Kampker (Germany)</i>	A ROS2-based Framework to enable CAM-based milling with robots <i>Maximilian Bryg, Claudius Birk, Martin Kipfmüller, Jan Kotschenreuther (Germany)</i>	
13.15 - 13.30	Analysis of Surface-Modified Clamping Elements for Improved Clamping of Deformation-Sensitive Workpieces with a Sensor-Integrated Fixture <i>Timo Platt, Simon Jaquet, Jonas Baumann, Christoph Jäckel, Felix Niggemeyer, Maximilian Steinhorst, Teja Roch, Dirk Biermann (Germany)</i>	High-Speed Laser Drying of Lithium-Ion Battery Electrodes – Experimental Analysis of Binder Migration Effects <i>Sebastian Wolf, Daniel Neb, Benedict Ingendoh, Felix Böhme, Benjamin Dorn, Heiner Heimes, Achim Kampker (Germany)</i>	A Model-Based Approach to Analyze Change Propagation and Impact in Product-Production-CoDesign <i>Alex Martin, Louis Schäfer, Jürgen Fründ, Stefan Eric Schwarz, Gisela Lanza, Albert Albers (Germany)</i>	
13.30 - 15.00	Lunch			

DAY 2	<i>Thursday, July 11 - Afternoon Sessions: 15.00 – 17.15</i>			
	SESSION A5 Chair: Antonio Giovannetti	SESSION B5 Chair: Adelaide Marzano	SESSION C5 Chair: Alessandra Caggiano	SESSION D5 Chair: Nariaki Nishino
	Production Systems & Networks I	Assembly	Production Systems & Networks II	'IWES' Symposium
15.00 - 15.15	Automated Hybrid Machine Learning System for Production <i>Hendrik Mende, Henrik Heymann, Laura Battistella Fiorini, Gustavo Schewinski, Dennis Grunert, Albina Karimova, Hamidreza Paria, Christian Strobl, Robert H. Schmitt, Thomas Bergs (Germany)</i>	Planning and Implementation of a Prototype for Validating the Need for an AR Application in the Context of Product-Production-CoDesign <i>Stefan Eric Schwarz, Manuel Wei Spekker, Kristian Vljacic, Alexander Neb, Maximilian Fischer, Alex Martin, Albert Albers (Germany)</i>	Semi-automated data annotation for parcel detection in warehouses with Zero-Shot image segmentation methods: an evaluation <i>Benjamin Staar, Nicolas Jathe, Michael Lütjen, Michael Freitag (Germany)</i>	Introduction to Emergent Synthesis <i>Nariaki Nishino (Japan)</i>
15.15 - 15.30	Evaluation of Quantum Annealing-based algorithms for flexible job shop scheduling <i>Philipp Schworm, Xiangqian Wu, Matthias Klar, Jan C. Aurich (Germany)</i>	Pathfinding for Assembly: A-star Algorithm with Finite Size and Rotational Adaptations <i>Martin Roelfs, Alexander De Cock, Jan Stroobants, Bieke Decraemer (Belgium)</i>	Potentials of flexible production scheme in single wagonload traffic <i>Matthias Reichmann, Simon Grubee, Žiga Letonja, Nikolaus Furian, Clemens Gutschi, Siegfried Vössner (Austria)</i>	Tenant allocation in shopping malls based on deferred acceptance algorithm <i>Haruka Sawazaki, Xiaoyu Shang, Sangjic Lee, Ayato Kitadai, Nariaki Nishino (Japan)</i>
15.30 - 15.45	Aiming for the Digital Twin – Process Modelling in Production <i>Tobias Christopher Elbert, Jan Molter, Max Eichenwald, Rainer Mueller (Germany)</i>	Automated extraction of competencies for assembly operators from process and product information using a large language model <i>Serkan Solmaz, Valeriya Skripnik, Steven Hoedt, Bart Van Doninck (Belgium)</i>	Mobile, multimodal, vision-based data acquisition system for passive monitoring in production and intralogistics <i>Keno Moenck, Philipp Prunte, Jonathan Determann, Eidan Erlich, Dhananjay Patki, Frank Bitte, Martin Gomse, Thorsten Schüppstuhl (Germany)</i>	Competition between Pay TV and Ad-supported broadcasts <i>Haruka Ideno, Ryuichiro Ishikawa (Japan)</i>
15.45 – 16.00	Integrated 3D Simulation and Digital Twin Framework for Collaborative Production Process Design and Planning in SMEs: a Use Case Analysis <i>Flavio Tonelli, Massimo Paolucci, Antonio Giovannetti, Marco Mosca, Livia Torterolo (Italy)</i>	Assembly System Modeling with SysML and AutomationML for Configuration and Reconfiguration <i>Jan-Erik Rath, Johann Gierecker, Thorsten Schüppstuhl (Germany)</i>	Vision-Based Pallet Detection and Load Height Estimation for Autonomous Material Handling Systems <i>Nicolas Jathe, Benjamin Staar, Michael Lütjen, Michael Freitag (Germany)</i>	Incentive Mechanism for Continuous Consumption under Habit Formation and Satiation Utility Model <i>Sangjic Lee, Yitao Xu, Hiroki Takahashi, Nariaki Nishino (Japan)</i>
16.00 - 16.15	Redesigning supply chains – An industrial case study <i>Judit Monostori (Hungary)</i>	A Multi-Objective Genetic Algorithm for Integrated Assembly Line Design <i>Marcel Öfele, Arne Mayer, Stefan Braunreuther (Germany)</i>	Leveraging passive monitoring applications in production and intralogistics <i>Philipp Prunte, Jonathan Determann, Keno Moenck, Eidan Erlich, Dhananjay Patki, Frank Bitte, Martin Gomse, Thorsten Schüppstuhl (Germany)</i>	Meta-heuristic scheduling auction applying multi-objective genetic algorithm <i>Shota Suginochi, Hajime Mizuyama (Japan)</i>
16.15 - 16.30	Simulative evaluation of control methods in change management for large maritime structures <i>Konrad Jagusch, David Jericho, Jan Sender, Wilko Flügge, Konstantin von Haugwitz (Germany)</i>	MIP formulation for scheduling of a reconfigurable assembly line based on state machines and state transitions <i>Nataliya Babych, Alexander De Cock, Barry Swevels, Mehmet Uzunosmanoglu, Sofie Burggraeve (Belgium)</i>	Workforce and Logistics Centered Lineside Stock Optimization: A Case Study in automotive Industry <i>Benedikt Honeder, Clemens Gutschi, Simon Gruber, Nikolaus Furian, Siegfried Vössner (Austria)</i>	A Study on Methods of Improving Visitor Migration in Urban Areas Using Combinatorial Auction <i>Asahi Michishita, Nobutada Fujii, Shunsuke Watanabe, Ruriko Watanabe, Shinichi Tanaka (Japan)</i>
16.30 - 16.45	Innovative Approaches to High-Level End-to-End Supply Chain Planning: Large Bucket Lot Sizing Strategies for Multifaceted Integration and Optimization <i>Flavio Tonelli, Massimo Paolucci, Antonio Giovannetti (Italy)</i>	From novelty to necessity: A case study of domestication <i>Christopher Kvarme, Tore Christian Bjørsvik Storholmen, Pål Furu Kamsvåg, Trond Sanne Haga (Norway)</i>	Data-Driven Warehouse Planning - Stakeholder Requirements for Planning Automation <i>Andreas Glanzer, Alexander Krooß, Sebastian Schlund (Austria)</i>	
16.45 - 17.00	Framework for Developing Trustworthy Industrial AI Applications <i>Liz Annika Leutner, Lars Leyendecker, Maximilian Motz, Tobias Claus Brandstätter, Henrik Heymann, Robert H. Schmitt (Germany)</i>	Enhancing Process Planning in the Automotive Industry: Extracting Procedural Knowledge from Assembly Operation Descriptions using Large Language Models <i>Thomas Mayr, Simon Knollmeyer, Isidora Jeknic, Leon Fink, Ralph Henseld, Marco F. Huber, Daniel Großmann (Germany)</i>	An integrated re-planning ILP approach on the production capacity and sequence in the automotive industry <i>Simon Gruber, Patricia Freyler, Clemens Gutschi, Nikolaus Furian, Ziga Letonja, Siegfried Vössner (Austria)</i>	
17.00 – 17.15		Potentials of natural fibre-reinforced composites for dynamic applications <i>Matthias Klärner, Lothar Kroll, Rostislav Svidler, Roman Rinberg, Kristin Pätzold-Byhain, Niels Modler, Welf Guntram Drossel, Steffen Ihlenfeldt (Germany)</i>	Derivation of key success factors for the use of digital twins in production networks as enabler to increase supply chain quality <i>Maurice Meyer, Roland Jochem (Germany)</i>	
20.00	Garden Dinner at 20.00, Hotel Continental Ischia			

DAY 3	Friday, July 12 - Morning Sessions: 9.00 – 13.30		
	SESSION A6 Chair: Alessandro Simeone	SESSION B6 Chair: Gregory Vogl	SESSION C6 Chair: Pedro Oliveira
	Human-Centred Manufacturing & Human Factors	Machine Tools & Special Machinery	Forming, Casting & Welding
09.00 - 09.15	Data assessment for effective regional factory location selection <i>Michael Riesener, Esben Schukat, Siyuan Wang, Carsten Engeln (Germany)</i>	Automatic signal segmentation using unsupervised learning techniques for process fingerprint identification in smart manufacturing systems <i>Amaia Arregi Egibar, Iñigo Llanos (Spain)</i>	Thermography-based methods for monitoring of hardness and workpiece placement in press hardening <i>Martin Boesler, Ali Moghiseh, Henrike Stephani, Marco Schumann (Germany)</i>
09.15 - 09.30	Creating Real-Time Transparency in Human-Machine Work Centres with Multilevel Work Cycle Visualisation <i>Christoph Kilian Merz, Morgane Favier, Roman Ungern-Sternberg (Germany)</i>	Bond Graph and AI as a hybrid model for fault diagnosis at the scale of a complete machine-tool <i>Laurent Paquot, Emmanuelle Abisset-Chavanne, Pierre-André Rey, Mathias Durant (France)</i>	Reinforcement learning supported quality control loop for solid forming processes <i>Ronja Witt, Chris R. Schönekehs, Nils Klasen, Robert H. Schmitt (Germany)</i>
09.30 – 09.45	Stress-oriented Job Rotation: A Collection and Analysis of Planning Parameters <i>Stefanie Findeisen, Katharina Hölzle, Peter Ohlhausen (Germany)</i>	Spindle performance monitoring via accelerometer measurements in data-driven models <i>Gregory W. Vogl, Md Wahidur Rahman, Yongzhi Qu (USA)</i>	Analytical models' driven machine learning modeling for the setting and control of the radial-axial ring rolling process <i>Mattia Perin, Guido A. Berti, Irene Mirandola, Luca Quagliato (Italy)</i>
09.45 - 10.00	Human-centric, sustainable and resilient optimization of secondary processes in production <i>Michael Riesener, Esben Schukat, Florian Bröhl, Rana Koc, Siyuan Wang, Felix Paßlick, Christopher Junge (Germany)</i>	Control of axial tool displacement in a motorized milling spindle by means of a thermoelectric temperature control system <i>Eckart Uhlmann, Mitchel Polte, Florian Triebel, Thomas Pache, Roland Binniger (Germany)</i>	Development of a tool for rapid manufacturability evaluation of sheet metal forming components <i>Michail Aggelos Terzakis, Christos Gerontas, Thanassis Souflas, Christos Papaioannou, Panagiotis Stavropoulos (Greece)</i>
10.00 - 10.15	Towards a Digital Twin Framework for Human-Centric Laser Cleaning Design <i>Adelaide Marzano, Alessandra Caggiano, Giulio Mattera, Luigi Nele (UK)</i>	Framework selection for simulation-driven, web-based digital twins: Methodology and practical implementation on a machine tool <i>Anh Minh Agustino Doan, Erkut Sarikaya, Matthias Weigold (Germany)</i>	Addressing Discrepancies between Synthetic and Real-World Data of Deep-Drawing Manufacturing Systems in AI Applications <i>S. Baum, P. Heinzelmann, M. Liewald, M. Weyrich (Germany)</i>
10.15 - 10.30	Using VR and AR technology in Industry 5.0 context: Cases of technology usage in Norwegians industrial companies <i>Martina Ortova, Geir Kristian Lund, Anne Grethe Syversen (Norway)</i>	Simulation and optimization of a gripper based on a multistable tensegrity-structure <i>Henriette Kunze, Lena Oberfichtner (Germany)</i>	Advanced Injector Geometry for Dual Alloy Casting: Design, Testing and Evaluation <i>David Rottenegger, Oliver Sczesny, Stefan Braunreuther (Germany)</i>
10.30 - 10.45	A methodical approach to evaluate the potential of Quantum Computing for Manufacturing Simulations <i>S. Schröder, J. Felipe, S. Danz, P. Kienast, A. Ciani, P. Ganser, T. Bergs (Germany)</i>	In-situ Spindle Diagnostic with Automated Fault Defects Integration <i>Claudiu Bisu, Miron Zapciu (Romania)</i>	Expulsion prediction in resistance spot welding – Process optimization with explainability methods <i>Samiha Durnagöz, Sebastian Morales Portnoy, Mathias Mayer, Marco F. Huber (Germany)</i>
10.45 - 11.00	AI-based learning and assistance systems and their role in learning factories <i>Martin Kröll, Kristina Burova-Keßler, Luisa Fischer (Germany)</i>	Proposal of entangled chip cleanin using image-processing-based chip detection and robotic grasping chip removal Motion <i>Ryuki Takahashi, Leonardo Rause, Yoko Hirono, Yasuhiro Kakinuma (Japan)</i>	WAS (Welding Analytics System): Addressing Automotive Welding Challenges through Machine Learning <i>Gamze Keçibaş, Mehmet Alper Şahin, Kerem Can Arayıcı, Uğur Üresin (Turkey)</i>
11.00 - 11.30	Coffee Break		

DAY 3	SESSION A7 Chair: Islam Shyha	SESSION B7 Chair: Emrah Arica	SESSION C7 Chair: Eamonn Ahearne
	Production Systems & Networks III	Sustainability in Manufacturing I	Grinding & Abrasive Manufacturing
11.30 - 11.45	Performance Comparison of Single-Agent and Multi-Agent Reinforcement Learning for Factory Layout Planning <i>Matthias Klar, Arsalan Jawaid, Peter M. Simon, Marcel Wagner, Jörg Seewig, Bahram Ravani, Jan C. Aurich (Germany)</i>	Implementation requirements for dynamic sustainability assessments based on primary data in discrete manufacturing <i>Juliane Elsner, Noah Unterhansberg, Hanna Brings, Felix Sohnius, Robert H. Schmitt (Germany)</i>	AI-Driven Concept for Monitoring Grinding Wheel Conditions <i>Marcus Hlavac, Hendrik von Linde, Oliver Riedel (Germany)</i>
11.45 - 12.00	EMOTION Vectors: Enabling Self-Organizing Production Through Efficient Information Processing in Distributed Cognitive Systems <i>Andreas Herzog, Melanie Rentzsch, Gesa Götte, Sebastian Häberer (Germany)</i>	Digital Twin and Deman Response – Sustainable Tools for Quality and Energy Consumption Optimization in Manufacturing <i>Olga Ogorodnyk, Endre Sølvsberg, Ragnhild Eleftheriadis (Norway)</i>	Efficient parameter estimation for grinding force models using a Bayesian approach <i>Lena Geißel, Adina Grimmert, Petra Wiederkehr (Germany)</i>

12.00 - 12.15	A machine learning based approach for value stream map digitization <i>Florian Mitschke, Sven Spieckermann, Joachim Metternich (Germany)</i>	Developing a maturity model for circular economy in SME <i>Jonas Barth, Enno Lang, Lena Brüch, Joachim Metternich (Germany)</i>	The effect of atmospheric gases on the fundamental mechanisms in grinding <i>Eamonn Ahearne, Michael Donohue (Ireland)</i>
12.15 - 12.30	Data Modelling Challenges in Material Flow Optimization: A Machine Learning Perspective <i>Patrick Ruediger-Flore, Matthias Klar, Kevin Sellers (Germany)</i>	Conceptualization of a holistic circular economy maturity model for manufacturing companies based on a fuzzy logic approach <i>Dennis Kreuzter, Esther Borowski, Ingrid Isenhardt (Germany)</i>	Material Removal Rate Definition Based on Equivalence Principle in Profile Grinding <i>Natalia Lishchenko, Vasily Larshin, Garret O'Donnell (Ireland)</i>
12.30 - 12.45	Implementation of Inter-Factory Connectivity for Demand-Oriented Data Analysis and Visualization <i>Leonie Meldt, Julian Herrmann, Fabian Hock, Willi Wünschel, Tim Giese, Joachim Metternich, Matthias Weigold, Benjamin Schleich, Reiner Anderl (Germany)</i>	Evaluating environmental sustainability, economic impact and mechanical properties of 3D-printed topologically optimized components <i>Daniel Salvi, Daniele Almonti, Gabriele Baiocco, Massimiliano Della Millia, Emanuele Mingione, Gianluca Rubino, Nadia Ucciardello (Italy)</i>	Dry grinding - Effects of process parameters and atmosphere on surface and subsurface properties <i>Berend Denkena, Benjamin Bergmann, Michael Keitel, Michael Zenger, Vannila Prasanthan (Germany)</i>
12.45 - 13.00	Process Model for Holistic Factory and Quality Planning in the Context of a Reorganization <i>Tanya Jahangirkhani, Ninja vom Stein, Peter Nyhuis, Manuel Löwer (Germany)</i>	Fuzzy Logic Process Control Approach for Intelligent Parts Drying Processes <i>Ghada Elserafi, Jonathan Magin, Raoul Fürst, Jonathan Kleemann, Matthias Weigold (Germany)</i>	Prediction of the edge rounding of additively manufactured workpieces made of Ti6Al4V during centrifugal disc finishing <i>Eckart Uhlmann, Marco Kopp (Germany)</i>
13.00 - 13.15	Production ramp-up in discrete manufacturing systems: a systematic literature review of modelling methods <i>Marcos Padrón Hinrichs, Julian Haller, Robert H. Schmitt (Germany)</i>	The impact of wear, contamination and substrate conditions on the pull off force of adhesive microstructures in relation to sustainable manufacturing <i>Thore Bochert, Kirsten Tracht (Germany)</i>	Software assisted implementation of infrasonic oscillation superposition in honing <i>Eckart Uhlmann, André Rozek, Jakob Röders (Germany)</i>
13.15 - 13.30	Framework for Natural Language Processing to Automate Material Flow Simulation in Production System Planning <i>Merlin Korth, Marco Wurster, Marvin Carl May, Gisela Lanza (Germany)</i>	Verification of CO2 emissions for the generative design of lightweight mobility systems using digital product passport <i>Iris Gräßler, Philipp Hesse, Ulrich Jahnke, Matthias Habdank (Germany)</i>	Material removal model considering time-varying contact state for robotic disk grinding of free-form surfaces <i>Bingzhou Xu, Zeyuan Yang, Wenqi Cai, Xiaojian Zhang, Sijie Yan, Han Ding (China)</i>
13.30 - 15.00	Lunch		

DAY 3	Friday, July 12 - Afternoon Sessions: 15.00 – 16.45		
	SESSION A8 Chair: Adelaide Marzano	SESSION B8 Chair: Alessandro Simeone	SESSION C8 Chair: Pedro Oliveira
	Digital & Smart Factory	Sustainability in Manufacturing II	Advanced Materials & Nontraditional Manufacture
15.00 - 15.15	Methodology for the Combined Orchestration of Real-Time Containers and Time-Sensitive Network <i>Moritz Walker, Nils Imhoff, Rebekka Neumann, Michael Neubauer, Armin Lechler, Alexander Verl (Germany)</i>	Energy efficiency in digital infrastructures: a framework towards a sustainable cloud manufacturing <i>Alessandro Simeone, Alessandra Caggiano, Maria Melone, Simone Muraro, Paolo C. Priarone, Luca Setineri (Italy)</i>	A simulation-based approach for the estimation of inclination-dependent material removal and subsurface influence in wet abrasive jet machining <i>Jim A. Bergmann, Jan Peters, Cem Polat, Monika Kipp, Dirk Biermann, Petra Wiederkehr (Germany)</i>
15.15 - 15.30	Towards a conceptual guideline for an economical assessment of manufacturing process data <i>Johannes Mayer, Tobias Kaufmann, Philipp Niemietz, Thomas Bergs (Germany)</i>	A framework for designing a decision support system for energy aware production planning & scheduling <i>Emrah Arica, Olga Ogorodnyk, Matteo Ranaboldo, Marc Juanpera, Pau Fisco-Compte, Bruno Domenech, Eduard Bullrich-Massagué (Norway)</i>	Innovative chip breaker machining in carbide turning inserts via abrasive water jet milling <i>Ioan Alexandru Popan, Dan Rusu, Adrian Trif, Alina Ioana Popan, Nicolae Bâlc (Romania)</i>
15.30 - 15.45	Towards Uniform and Consistent Data Modelling of Resources in Distributed Industrial Control Systems <i>Rebekka Neumann, Moritz Walker, Michael Neubauer, Alexander Verl (Germany)</i>	Aiming at sustainable production - how the implementation of priority-based dispatching in flexible job shops can support sustainability <i>Kristin Müller, Jens Heger (Germany)</i>	In-process unified prediction for process incidence and tool wear based on a deep learning approach <i>Jiduo Zhang, Robert Heinemann, Otto Jan Bakker (UK)</i>
15.45 - 16.00	CADLabel: Development of an annotation tool for deep learning tasks on 3D CAD models <i>Marco Hussong, Marcel Nunziatino, Matthias Klar, Jan C. Aurich (Germany)</i>	Optimization of Energy Consumption using Adaptive Feedrate Control Systems in Milling <i>T. Trautner, P. Weissenböck, G. Mauthner, F. Bleicher, S. Sofer (Austria)</i>	Real-time Quality Monitoring of Wire EDM Process Using Machine Learning <i>Akshay Paranjape, Ugur Küpper, Daniel Schulze Brock, Robert H. Schmitt, Markus Ohlenforst, Martin Peterek (Germany)</i>
16.00 - 16.15	Change point-based segmentation of machining cycles in electrical load curves of machine tools for data pre-processing <i>Andreas Wächter, Ivan Uzunov, Matthias Weigold (Germany)</i>	Sustainability criteria for future foresight in manufacturing companies <i>Iris Gräßler, Alena Tušek (Germany)</i>	Computer Vision-Based Deep Learning Approach for Automated Delamination Detection & Classification in Carbon Fiber-Reinforced Polymer Composites <i>Paulo Monteiro Carvalho Monson, Pedro Oliveira Conceição Jr., Alessandro Roger Rodrigues, Fabio Romano Lofrano Dotto (Brazil)</i>
16.30 – 16.45	CONFERENCE CLOSURE AND FAREWELL R. Teti, CIRP ICME '24 Conference Chairman		

SESSION OF VIDEO PRESENTATION PAPERS

Empowering Manual Assembly: Dialog System for Enhanced Customization and Efficiency of Cognitive Assistance Systems
Klaus Fink, Milos Solaja, Rüdiger Daub (Germany)

Latest trends in chemical machining: a systematic review in Open Access
Carnicero, D., Marín, M.M., Rubio, E.M., Agustina, B. (Spain)

IoT-Driven Cloud-based Energy and Environment Monitoring System for Manufacturing Industry
Nitol Saha, Md Masruk Aulia, Md Mostafizur Rahman, Abu Zahid, Mohammed Shafiul Alam Khan (USA)

Protected QR Code-based Anti-counterfeit System for Pharmaceutical Manufacturing
Md Masruk Aulia, Nitol Saha, Md Mostafizur Rahman (USA)

Enhancing data consistency in information flow of manual and variant-rich assembly processes
Valesko Dausch, Sebastian Beckschulte, Robert H. Schmitt, Matthias Kreimeyer (Germany)

Cyborgs in the Factory: How Blending Biology and Technology is Shaping the Future of Work
Till Saßmannshausen, Benjamin Heinbach (Germany)

Digital twin: Automatic generation of Asset Administration Shells (AAS)
Max Eichenwald, Jan Molter, Rainer Müller (Germany)

Text-based analysis of production system documentation for cataloging historical projects using natural language processing
Max Eichenwald, Rainer Müller (Germany)

Characterization and Modeling of a Novel Ultrasonic Transducer with Integrated Temperature and Amplitude Sensors for Manufacturing Applications
Bsher Karbouj, Joerg Krueger (Germany)

Finite Element Analysis of Bending Strength in Novel Architected Porous Fe-Mn Fracture Fixation Implants during the Bone Healing Period
Mustafiz Shaikh, Neil Shearer, Fadi Kahwash, Ashfaq Mohammad, Islam Shyha (UK)

Design for Manufacturing & Realisation of Architected Porosity through TPMS Gyroids for Load Bearing Selective Laser Melted 316L Stainless Steel
Mustafiz Shaikh, Neil Shearer, Fadi Kahwash, Ashfaq Mohammad, Islam Shyha (UK)

Real-time direct pose control of industrial robots with proprietary robot controller based on a redundant camera tracking system
Eckart Uhlmann, Mitchel Polte, Julian Blumberg, Oliver Sobiak (Germany)

AI-based learning and assistance systems and their role in learning factories
Martin Kröll, Kristina Burova-Keßler, Luisa Fischer (Germany)

Potential of the system retrofit to increase the level of automation and the use of robots in shipbuilding
Jacques Biltgen, Konstantin von Haugwitz, Jan Sender (Germany)

Connection Feature Extraction in 3D CAD Assemblies using a Knowledge Graph
Tobias Köhler, Nico Schmidt, Jan Martin Keil, Diana Peters (Germany)