



8th Conference on Learning Factories

12-13 April
Patras, Greece

Organized by



CIRP CLF 2018 PROGRAM

Sponsored by



Professor Dimitris MOURTZIS

Professor George CHRYSSOLOURIS
Professor Roberto TETI

| Time | CIRP CLF 2018 – Wednesday 11 April 2018 |
|---------------|-------------------------------------------------------------|
| 16:00 - | Registration |
| 19:30 – 21:30 | Welcome Reception – <i>Achaia Beach Hotel – Hotel LOBBY</i> |

| Time | CIRP CLF 2018 - Day 1 - Thursday 12 April | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09:00 – 12:00 | IALF initiative GA meeting - <i>Achaia Beach Hotel - ARATOS</i> | |
| 12:00 – 13:00 | Lunch Break | |
| 13:00 – 13:30 | CLF 2018 Opening Session - <i>Achaia Beach Hotel – GLAUKOS</i> Chair: Prof. Dimitris MOURTZIS | |
| 13:30 – 14:00 | Introduction of International Association of Learning Factories - Professor J. Metternich | |
| 14:00 – 14:30 | Keynote Paper –The Teaching Factory Paradigm: Developments and Outlook Dimitris Mavrikios, Konstantinos Georgoulas, George Chrysolouris | |
| 14:30 – 15:00 | Coffee Break | |
| 15:00 – 16:30 | Parallel Sessions: Learning Factories - Advanced Skills and Competencies | |
| 15:00 – 16:30 | Session A1 - <i>Achaia Beach Hotel – GLAUKOS</i> Chair Prof. Wilfried SIHN | Session A2 - <i>Achaia Beach Hotel – ARTEMIS</i> Chair: Prof. Kristian MARTINSEN |
| 15:00 – 15:30 | P07: <i>Development of an agile development method based on Kanban for distributed part-time teams and an introduction framework, Constantin Hofmann, Sebastian Lauber, Benjamin Haefner, Gisela Lanza</i> | P16: <i>A Concept towards Automated Data-Driven Reconfiguration of Digital Assistance Systems, Gerhard Reisinger, Titanilla Komenda, Philipp Hold, Wilfried Sihh</i> |
| 15:30 – 16:00 | P06: <i>Integrating digitization technologies into resource efficiency driven industrial learning environments, Johannes Böhner, Michael Scholz, Jörg Franke, Alexander Sauer</i> | P38: <i>Designing a curriculum for the Internet-of-Things-Laboratory to foster creativity and a maker mindset within varying target groups, Karsten Lensing, Joachim Friedhoff</i> |
| 16:00 – 16:30 | P44: <i>Industrie 4.0 – Competencies for a modern production system, Judith Enke, Rupert Glass, Antonio Kreß, Jens Hambach, Michael Tisch, Joachim Metternich</i> | P19: <i>Rethinking Human-Machine Learning in Industry 4.0: How Does the Paradigm Shift Treat the Role of Human Learning?, Fazel Ansari, Selim Erol, Wilfried Sihh</i> |
| 16:30 – 18:30 | LMS Demonstration - LMS | |
| 19:30 – 22:00 | Conference Dinner – <i>Achaia Beach Hotel</i> | |

| Time | CIRP CLF 2018 - Day 2 – Friday 13 April 2018 | | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Parallel Sessions: Learning Factory, Digitalization, and Industry 4.0 | | |
| 09:00 – 13:00 | Session B1 - Achaia Beach Hotel – ARTEMIS Chair Prof. Dimitris KYRITSIS | Session C1- Achaia Beach Hotel – GLAUKOS Chair: Dr. Dimitris MAVRIKIOS | Session D1 - Achaia Beach Hotel – ARATOS Chair Prof. Vera HUMMEL |
| 09:00 – 09:30 | P01: <i>Integration of an Android Application into the Learning Factory for Optimized Machining</i> , <u>Robin Kleinwort</u> , Thomas Semm, Peter M. Falger, Michael F. Zaeh | P03: <i>Lean meets Industrie 4.0 – a practical approach to interlink the method world and cyber-physical world</i> , <u>Christopher Prinz</u> , Niklas Kreggenfeld, Bernd Kuhlenkötter | P04: <i>Learning Factory for Industry 4.0 to provide future skills beyond technical training</i> , Burkhard Schallock, <u>Christoffer Rybski</u> , Roland Jochem, Holger Kohl |
| 09:30 – 10:00 | P15: <i>A Virtual Commissioning Learning Platform</i> , <u>Steffen Tram Mortensen</u> and Ole Madsen | P10: <i>Performance analysis of the RFID system for optimal design of the intelligent assembly line in the learning factory</i> , <u>Nikola Gjeldum</u> , Marko Mladineo, Marina Crnjac, Ivica Veza, Amanda Aljinovic | P34: <i>Augmented Reality supported Product Design towards Industry 4.0: a Teaching Factory paradigm</i> , Dimitris Mourtzis, <u>Vasilios Zogopoulos</u> , Ekaterini Vlachou, |
| 10:00 – 10:30 | P28: <i>Training concept for and with digitalization in learning factories: An energy efficiency training case</i> , Lennart Büth, Stefan Blume, <u>Gerrit Posselt</u> , Christoph Herrmann | P17: <i>Human–robot collaboration in the MTA SZTAKI learning factory facility at Győr</i> , <u>Zsolt Kemény</u> , Richárd Beregi, János Nacsá, Csaba Kardos, Dániel Horváth | P13: <i>Digitalization as a catalyst for lean production: A learning factory approach for digital shop floor management</i> , Alyssa Meibner, <u>Marvin Mueller</u> , A.Hermann,J. Metternich |
| 10:30 – 11:00 | Coffee Break | | |
| | Session B2 - Achaia Beach Hotel – ARTEMIS Chair Dr. Judith ENKE | Session C2- Achaia Beach Hotel – GLAUKOS Chair Prof. Joachim METTERNICH | Session D2 - Achaia Beach Hotel – ARATOS Chair Dr. George MICHALOS |
| 11:00 – 11:30 | P21: <i>Cyber-Physical Systems and Education 4.0 –The Teaching Factory 4.0 Concept</i> , <u>Dimitris Mourtzis</u> , Ekaterini Vlachou, George Dimitrakopoulos, Vasilios Zogopoulos | P23: <i>Evolution of SMEs towards Industrie 4.0 through a scenario based learning factory training</i> , <u>Wienbruch Thom</u> , Leineweber Stefan, Kreimeier Dieter, Kuhlenkötter Bernd | P24: <i>Integration of Industrie 4.0 in Lean Manufacturing Learning Factories</i> , <u>Harald Bauer</u> , Felix Brandl, Christopher Lock, Gunther Reinhart |
| 11:30 – 12:00 | P27: <i>Development of a learning factory concept to train participants regarding digital and human centered decision support</i> , <u>Henning Oberc</u> , Melissa Reuter, Manfred Wannöffel, Bernd Kuhlenkötter | P31: <i>A concept and local implementation for industry-academy collaboration and life-long learning</i> , <u>Minna Lanz</u> , Andrei Lobov, Kati Katajisto, Petteri Mäkelä | P33: <i>Requirements for designing a cyber-physical system for competence development</i> , Thomas Bauernhansl, <u>Maria Tzempetonidou</u> , Thomas Rossmeissl, Erwin Groß, Jörg Siegart |
| 12:00 – 12:30 | P35: <i>A Method for Improving Production Management Training by Integrating an Industry 4.0 Innovation Center in China</i> , <u>Shun Yang</u> , Karin Hamann, Benjamin Haefner, Chuan Wu, Gisela Lanza | P42: <i>Design and Implementation of a Low Cost RFID Track and Trace System in a Learning Factory</i> , <u>Louis Louw</u> , Mark Walker | P41: <i>SEPT Learning Factory for Industry 4.0 Education and Applied Research</i> , Mo Elbestawi, <u>Dan Centea</u> , Ishwar Singh, Tom Wanyama, |
| 12:30 – 13:00 | P43: <i>Integration of digital learning in industry 4.0</i> , Nina Tvenge, <u>Kristian Martinsen</u> | P11: <i>Effectiveness of using Learning Factories to impart Lean principles in mining employees</i> , <u>Sarah Makumbe</u> , Teresa Hattingh, Neville Plint, Dewald Esterhuizen | P26: <i>Introducing first year non-experienced mechanical engineering students to an action-oriented approach of a ‘machining license’</i> , Karsten Lensing, <u>Kristina Dietrich</u> , Silke Frye, Joachim Friedhoff, Alexandra Vivien Dorschu, Tobias Haertel |
| 13:00 – 14:00 | Lunch Break | | |

| Parallel Sessions: Learning Factories: Training and Education | | | |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 – 17:30 | Session B3 - Achaia Beach Hotel – ARTEMIS Chair Prof. Dan CENTEA | Session C3 - Achaia Beach Hotel – GLAUKOS Chair Prof. Dieter KREIMER | Session D3 - Achaia Beach Hotel – ARATOS Chair Prof. Mo ELBESTAWI |
| 14:00 – 14:30 | P02: Learn how to cope with volatility in operations at Graz University of Technology's LEAD Factory, <u>Hugo Karre</u> , Markus Hammer, Christian Ramsauer | P05: Development of evaluation tools for learning factories in manufacturing education, <u>Nina Tvenge</u> , Olga Ogorodnyk | P08: Systematic learning factory improvement based on maturity level assessment, <u>Judith Enke</u> , Joachim Metternich, Daniel Bentz, Paul-Jonas Klaes |
| 14:30 – 15:00 | P30: Enabling Small Medium Enterprises (SMEs) to improve their potential through the Teaching Factory paradigm, D. Mourtzis, <u>N. Boli</u> , G. Dimitrakopoulos, S. Zygomalas, A. Koutoupes | P14: Engineering Technology Education Based on the Reconfigurable Manufacturing Paradigm: A Case Study, <u>Bashir Salah</u> , Saber Darmoul | P32: Different competence areas of workers in combination with technical assistance as an enabler for mass personalization products, <u>Erwin Groß</u> , Jörg Siegert Thomas Bauernhansl |
| 15:00 – 15:30 | P18: Expanding production perspectives by collaborating learning factories—perceived needs and possibilities, <u>Zsolt Kemény</u> , Richárd Beregi, János Nacsa, Robert Glawar, Wilfried Sihn | P22: The FMS Training Center - a versatile learning environment for engineering education, Ville Toivonen, <u>Minna Lanz</u> , Hasse Nylund, Harri Nieminen | P25: Mixed Reality in Learning Factories, <u>Max Juraschek</u> , Lennart Büth, Gerrit Posselt, Christoph Herrmann |
| 15:30 – 16:00 | Coffee Break | | |
| | Session B4 - Achaia Beach Hotel – ARTEMIS Chair Dr. Konstantinos GEORGOULIAS | Session C4 - Achaia Beach Hotel – GLAUKOS Chair Prof. Minna LANZ | Session D4 - Achaia Beach Hotel – ARATOS Chair Dr. Panos STAVROPOULOS |
| 16:00 – 16:30 | P12: Learning process planning for special machinery assembly, <u>Jan P. Menn</u> , Felix Sieckmann, Holger Kohl, Günther Seliger | P29: Matrix Fusion Factory, Jörg Siegert, <u>Thilo Schlegel</u> , Thomas Bauernhansl | P36: The Training Data Evaluation Tool: Towards a unified ontology-based solution for industrial training evaluation, <u>Damiano Arena</u> , Stefano Perini, Marco Taisch, Dimitris Kiritsis |
| 16:30 – 17:00 | P40: Flexible and Adaptable Learning Factories for the Rail Car Manufacturing industry, <u>Matilda Nkateko Maheso</u> , Khumbulani Mpofu, Vennan Sibanda | P20: Collaborative Machine Tool design: The Teaching Factory paradigm, Panagiotis Stavropoulos, <u>Harry Bikas</u> , Dimitris Mourtzis | P37: Development of a descriptive model for intralogistics as a foundation for an autonomous control method for intralogistics systems, <u>Jan Schuhmacher</u> , Vera Hummel |
| 17:00 – 17:30 | P39: Alberta Learning Factory for training reconfigurable assembly process value stream mapping, <u>Rafiq Ahmad</u> , Cole Masse, Saraswati Jituri, John Doucette, Pierre Mertiny | | P09: Holistic approach for teaching IT skills in a production environment, <u>Christian Block</u> , Dieter Kreimeier, Bernd Kuhlenkötter |
| 17:30 – 18:00 | Achaia Beach Hotel – GLAUKOS Closing Session – CIRP CLF 2019 presentation Chair Prof. Dimitris MOURTZIS | | |