

# ICIE'2024 - FINAL PROGRAM

ICIE Conference will take place at:

**NONAGON and EXPOLAB (Lagoa, São Miguel, Azores, Portugal)**

<https://nonagon.pt/en/home-2/>

<https://expolab.centrosciencia.azores.gov.pt/>

|       | June 26th   | June 27th   | June 28th |
|-------|---|---|-----------|
|       | Day 1   | Day 2   | Day 3     |
| 08:00 | Registration  | Registration  | 08:00     |
| 09:00 |   |   |           |
| 09:00 | Opening Session<br>Nonagon Main Room                      | Keynote 3<br>Prof. Erika Ottaviano<br>Nonagon Main Room   | 09:00     |
| 10:00 |   |   |           |
| 10:00 | Keynote 1<br>Prof. M. Anthony Xavier<br>Nonagon Main Room | Nonagon Main Room<br>PP7  | 10:00     |
| 11:00 | Coffee-Break  | Coffee-Break  |           |
| 11:00 | Nonagon Main Room<br>PP1                                  | Nonagon Main Room<br>PP9  | 11:00     |
| 12:00 | ExpoLab Main Room<br>PP2                                  | ExpoLab Main Room<br>PP10   |           |
| 12:00 | Lunch<br>Nonagon  | Lunch<br>Nonagon  | 12:00     |
| 13:00 |   |   |           |
| 13:00 | Lunch<br>Nonagon  | Lunch<br>Nonagon  | 13:00     |
| 14:00 |   |   |           |
| 14:00 | Keynote 2<br>Prof. Doina Pisla<br>Nonagon Main Room       | Keynote 4<br>Prof. Mário Fortuna<br>Nonagon Main Room   | 14:00     |
| 15:00 |   |   |           |
| 15:00 | Nonagon Main Room<br>PP3                                  | Poster Session 2<br>Nonagon Main Room<br>Regional Director for S&R&D<br>Prof. Flávio Tiago<br>Nonagon Main Room | 15:00     |
| 16:00 | ExpoLab Main Room<br>PP4                                  | Closing Session<br>Nonagon Main Room  |           |
| 16:00 | Coffee-Break  | Farewell-Coffee   | 16:00     |
| 17:00 |   |   |           |
| 17:00 | Poster Session 1<br>Nonagon Main Room                     |   | 17:00     |
| 18:00 |   |   |           |
| 18:00 | Nonagon Main Room<br>PP5                                  |   | 18:00     |
| 19:00 | ExpoLab Main Room<br>PP6                                  |   |           |
| 19:00 |   |   | 19:00     |
| 20:00 |   |   |           |
| 20:00 | Welcome Reception<br>Restaurant Paladares da Quinta       | Gala Dinner<br>Grand Hotel Açores Atlântico   | 20:00     |
| 21:00 |   |   |           |
| 21:00 |   |   | 21:00     |
| 22:00 |   |   |           |
| 22:00 |   |   | 22:00     |
| 23:00 |   |   |           |

# ICIE'2024

## KEYNOTE SPEECHES

|                        |  |   |
|------------------------|--|---|
| <b>Session:</b><br>KS1 | <i>Nonagon Main Room</i><br><b>June 26th, 10:00 a.m. - 10:45 a.m.</b>                      | <b>Chair:</b><br><b>José Machado</b> , University of Minho, PT                            |
| <b>Presenter</b>       | <b>Title</b>   | <b>Institution</b>  |
| M. Anthony Xavier      | Composites for aerospace applications with special focus on Metal Matrix Composites (MMCs) | School of Mechanical Engineering at Vellore Institute of Technology (VIT), Vellore, India |

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| <b>Session:</b><br>KS2 | <i>Nonagon Main Room</i><br><b>June 26th, 02:15 p.m. - 03:00 p.m.</b> | <b>Chair:</b><br><b>Justyna Trojanowska</b> , Poznan University of Technology, PL |
| <b>Presenter</b>       | <b>Title</b>  | <b>Institution</b>  |
| Doina Pisla            | Latest Trends in Medical Robotics for Rehabilitation                  | Technical University of Cluj-Napoca, Romania                                      |

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| <b>Session:</b><br>KS3 | <i>Nonagon Main Room</i><br><b>June 27th, 09:00 a.m. - 09:45 a.m.</b> | <b>Chair:</b><br><b>Anna Burduk</b> , Wrocław University of Science and Technology, PL |
| <b>Presenter</b>       | <b>Title</b>  | <b>Institution</b>   |
| Erika Ottaviano        | Digital Twins for Robotics Inspection                                 | University of Cassino and Southern Lazio, Italy  |

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| <b>Session:</b><br>KS4 | <i>Nonagon Main Room</i><br><b>June 27th, 02:15 p.m. - 03:00 p.m.</b>   | <b>Chair:</b><br><b>Luís Mendes Gomes</b> , University of Azores, PT |
| <b>Presenter</b>       | <b>Title</b>  | <b>Institution</b>   |
| Mário Fortuna          | Technological Challenges of the Production Sectors in S. Miguel, Azores | University of Azores, Portugal                                       |

## ICIE'2024 - DAY 1 - June 26th, 2024

### NORMAL PAPER PRESENTATIONS

| Session:<br>PP1 | Mechanical and Materials Engineering   | <u>Chairs:</u><br>Teresa Morgado, New University of Lisbon, PT<br>Bogdan Gramescu, Politehnica University of Bucharest, RO |
|-----------------|--|--|
| 8 papers        | June 26th, 11:00 a.m. - 01:00 p.m.   |  |
| #Paper          | Authors  | Title  |
| 12              | Miroslava Jirsová and Jan Hošek  | Repeatability of Multi-jet fusion prints of Polyamide 12   |
| 34              | Balaji V, Anthony Xavier Michael, Jose Machado, Joel J, Jeyapandiarajan P, Andre D.L. Batako and Anna Burduk                             | Development of light-weight high entropy alloys for aero-space applications: Perspective of artificial intelligence        |
| 31              | Ionela Baciú, Alexandra-Gabriela Vasilescu, Mihai Avram, Bogdan Gramescu, Victor Constantin and Edgar Moraru                             | A review of Additive Technologies applied to Gear Transmission   |
| 104             | Jose Azevedo, Violeta Carvalho, Tiago Bartolomeu, Ana Arieira, Senhorinha Teixeira and Jose Teixeira                                     | Hydrostatic Stability of Marine Tagging Devices  |
| 152             | Teresa Morgado, Catarina Brites, Alexandre Velhinho, Rui Silva and António Mourão  | Intrinsic Rheocasting Defect Study of an EN AB-42000 Mechanical Component  |
| 97              | Ionut Geonea, Ilie Dumitru, Sorin Dumitru, Alexandru Margine, Cristian Copilusi and Leonard Ciurezu-Gherghe                              | Dynamic and Experimental Analysis of a Stand for Fatigue Testing of the Rear Axle of a Passenger Car                       |
| 146             | Munish Kumar Gupta, Jolanta Beata Krolczyk, Mehmet Erdi Korkmaz, Piotr Niesłony, Govind Vashishtha, Grzegorz M. Krolczyk and Zhixiong Li | Comparison of tool wear in dry and cryogenic machining of nickel based alloys  |
| 147             | Jolanta Krolczyk, Munish Kumar Gupta, Piotr Niesłony, Grzegorz M. Krolczyk, Zhixiong Li, Mehmet Erdi Korkmaz and Nimel Sworna Ross       | Surface roughness measurements in dry and cryogenic machining of titanium alloys   |

| Session:<br>PP2 | New solutions for Cyber-Physical Systems and predictive maintenance   | <u>Chairs:</u><br>Katarzyna Antosz, Rzeszow University of Technology, PL<br>Pierluigi Rea, University of Cagliari, IT |
|-----------------|---|---|
| 8 papers        | June 26th, 11:00 a.m. - 01:00 p.m.  |   |
| #Paper          | Authors   | Title   |
| 32              | Łukasz Paško and Galina Setlak  | Image as a way of processing multidimensional production data for product quality prediction using deep learning      |
| 82              | Luis Freitas, Adeniyi Sobowale, Ana Lima, Pedro Marujo and José Machado   | OPC-UA in Digital Twins – a performance comparative analysis  |
| 74              | Angel Gaspar Gonzalez Rodriguez, Erika Ottaviano, Pierluigi Rea and Andrea Martin-Parra                                     | Experimental Evaluation of Cable Tensions in Cable-Driven Parallel Manipulators                                       |
| 115             | Grzegorz Iskierka, Bartosz Poskart, Kamil Krot, Bolesław Telesiński and M. Anthony Xavier                                   | Application of graph theory in designing the communication system of a robotic production cell                        |
| 57              | Erika Ottaviano, Agnese Testa, Lorenzo Miele, Virginia Miele, Assunta Pelliccio and Pierluigi Rea                           | Underwater Inspection: Design Issues and Experimental Activity with a Rover   |
| 20              | Paweł Litwin and Anna Szymusik  | System dynamics in manufacturing processes modelling and analysis   |
| 58              | Pierluigi Rea, Maurizio Ruggiu, Enrico Serra, Erika Ottaviano and Ángel Gaspar González Rodríguez                           | Design Improvements for an Inspection Rover   |
| 70              | Andrea Martín Parra, Sergio Juárez Pérez, Andrés García Vanegas, Francisco Moya Fernández and Fernando José Castillo García | Novel Spatial Cable Driven Parallel Robot with Non-limited Workspace  |

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|    | <b>Session:</b><br>PP3                                   | <b>Industrial Innovative Processes and Product Technologies<br/>Energy and Environment</b>                                       | <b>Chairs:</b><br>Rui Chibante, Polytechnic Institute of Porto, PT<br>Khrystyna Berladir, Sumy State University, UA                                       |
|    | <b>8 papers</b>  | <b>June 26th, 03:00 p.m. - 05:00 p.m.</b>  |   |
|    | <b>#Paper</b>  | <b>Authors</b>   | <b>Title</b>  |
|    | 18   | Jiri Kafka, Sven Meissner, Paul Falkenhain and Sebastian Scholz  | Numerical method for highly accurate prediction of the vacuum assisted resin infusion process based on reusable vacuum bags with integrated flow channels |
|    | 164  | José Carlos de Sá, Ana Oliveira, Peter Hines, Susana Nicola, Filipa Mourão, Henrique Noites and Francisco Silva                  | Study of the impact of the Shingo Model and the EFQM Model on Occupational Safety in Portuguese Organizations   |
|    | 45   | Francisco Silva, Arnaldo G. Pinto, Isabel M. Pinto, Maria Teresa Pereira, José Carlos Sá, Luís Pinto Ferreira and Mário Oliveira | Standardizing guidelines and procedures for reassembly of complex second-hand heavy-duty equipment  |
|    | 73   | José Luis Pulloquina, Davide Corrata, Vicente Mata, Ángel Valera and Marina Vallés   | Experimental Analysis of Pose Estimation Based on ArUco Markers   |
|    | 98   | Victoria Hlushchenko, Tetiana Oleshko, Khrystyna Berladir, Oleksandr Oleshko, Justyna Rybarczyk and Volodymyr Boiko              | Study of the Features of In Vitro Degradation of PCL, PLA, and Polymer 3D Scaffolds in Static and Dynamic Conditions                                      |
|    | 37   | Rui Chibante, Rui Marques and Abel Ferreira  | Digital control of a bidirectional converter for an energy storage system with a second life battery  |
|    | 24   | Miguel Ângelo Lellis Moreira, Maria Teresa Pereira, Marisa Oliveira, Carlos Francisco Simões Gomes and Marcos Santos             | Towards Global Sustainability: Exploratory analysis through unsupervised machine learning techniques  |
| 75 | Petru Urs, Mihai Hulea, Mihail Abrudean and Vlad Muresan | Network Security Architecture for the 18O Oxygen Isotope Separation Process  |   |

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|  | <b>Session:</b><br>PP4 | <b>Innovations in Control, Automation and Robotics</b>   | <b>Chairs:</b><br>Frantisek Gazdoš, Tomas Bata University in Zlín, CZ<br>Jiří Vojtěšek, Tomas Bata University in Zlín, CZ |
|  | <b>7 papers</b>        | <b>June 26th, 03:00 p.m. - 05:00 p.m.</b>  |   |
|  | <b>#Paper</b>          | <b>Authors</b>   | <b>Title</b>  |
|  | 76                     | Sofia Medeiros, Olga Pereira, José Pinto and Wellington Alves  | Integration of Environment, Social and Governance practices into project management through Automation                    |
|  | 105                    | Jiri Vojtesek, Lubos Spacek, Frantisek Gazdos, Zdenek Malanik and Jan Mach                                 | Collaborative Robot Laboratory Setup for Repeatable Force and Speed Experiments   |
|  | 101                    | Karel Perůtka  | Decentralized Semi Adaptive Control with Switching and Repeating Offline Identification                                   |
|  | 41                     | Marek Kubalcik and Barot Tomas   | Simulation Control of Three-Tank-System Using 2DOF Controller   |
|  | 11                     | António Ferreira da Silva, Adriano A. Santos, Filipe Pereira, Carlos Felgueiras and André Pimentel Moreira | Application of Artificial Intelligence to Improve Skills in Electropneumatic Control Systems to Engineering Students      |
|  | 64                     | Libor Pekař, Mengjie Song and Qingbin Gao  | On the Relation Between the Smith Predictor and Algebraic Control Approach for Time Delay Systems: A Case Study           |
|  | 21                     | Daniel Honc and Aleš Novotný   | Real-world comparison of predictive controllers based on internal and external description of the controlled system       |

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|  | <b>Session:</b> | <b>Medical and Rehabilitation Devices / New Technologies</b> | <b>Chairs:</b> |
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| <b>PP5</b>      |  | <b>Arunita Jaekel, University of Windsor, CA</b>  |
|-----------------|--|---|
| <b>7 papers</b> | <b>June 26th, 06:00 p.m. - 07:45 p.m.</b>  | <b>M. Filomena Teodoro, Portuguese Navy, PT</b>   |
| <b>#Paper</b>   | <b>Authors</b>   | <b>Title</b>  |
| 156             | Silvia Daniela Pohrib, David Mihai Lupu and Adrian Pislă   | Transformative Roles of Robotics in Rehabilitation and Education  |
| 158             | Grigore Pop, Alexandru Pusca, Paul Tucan, Alexandru Moldovan, Daniela Jucan and Bogdan Gherman                   | WELDING PROCESS AUTOMATION USING A ROBOTIC CELL. CASE STUDY   |
| 161             | Florin Covaciu, Bogdan Gherman, Adrian Pislă, Calin Vaida, Paul Tucan, Gabriela Rus, Iuliu Nadas and Doina Pislă | The Use of Virtual Reality in Lower-Limb Robotic Rehabilitation   |
| 166             | João Teixeira Borges, Rafael Basto, M. Filomena Teodoro, Alice Rodrigues and Bruno Cadete                        | Optimizing an Engine Operation Using a Statistical Approach   |
| 167             | Süleyman Torasan, Gabriella Iermano, Frank-Andreas Schittenhelm and Adrian Pislă                                 | MULTIPLE ASPECTS INCLUSION OF SMART AND ADAPTIVE ROBOTS IN THE EVENT OF DISASTERS                             |
| 120             | Pooja Chandrasekharan and Arunita Jaekel   | Transmission Power based Congestion Control using Q-Learning algorithm in Vehicular Ad Hoc Networks (VANET)   |
| 5               | Cristian Rincon, Jaime Cantillo and William Sarache  | Advancing Resilience in Manufacturing Strategy: A Systematic Literature Review and Future Research Directions |

| <b>Session: PP6</b> |  | <b>Statistical and critical thinking impact on decision making under uncertainty and Decision Making and Optimization</b> | <b>Chairs:</b>   |
|---------------------|--|---|--|
| <b>7 papers</b>     | <b>June 26th, 06:00 p.m. - 07:45 p.m.</b>  |   | <b>A. Manuela Gonçalves, University of Minho, PT</b><br><b>Marisa Oliveira, Polytechnic Institute of Porto, PT</b> |
| <b>#Paper</b>       | <b>Authors</b>   |   | <b>Title</b>   |
| 157                 | Eliana Costa E Silva, Sofia Almeida, Aldina Correia and Fátima De Almeida  |   | A Mathematical Model for Scheduling Aluminium Profiles Production  |
| 87                  | M. Filomena Teodoro, José V. Alves and Marina A.P. Andrade   |   | Modeling Meteorological Data by Kalman Filter Approach   |
| 95                  | Celina P. Leão, Mariana Carneiro, Paulo Silva, Isabel Loureiro and Nelson Costa                                    |   | Decoding the Effect of Descriptive Statistics on Informed Decision-Making  |
| 25                  | Maria Teresa Pereira, Raquel Lyra, Miguel Moreira, Marisa Oliveira, Fernanda A. Ferreira and Francisco J. G. Silva |   | Design and Implementation of a Supplier Kanban System in the Automotive Sector                                     |
| 29                  | Luís Roque, Alzira Mota, Fernanda Leite and Paulo Ávila  |   | Electric Vehicle Fast-Charging Station Sizing  |
| 109                 | A. Manuela Gonçalves   |   | Analyzing vacuum losses from SMDPM using nonparametric statistical methods   |
| 108                 | M. Teresa Malheiro   |   | Optimizing the measure of end-effector accelerations and velocities in a SMM planar motion                         |

## ICIE'2024 - DAY 2 - June 27th, 2024

### NORMAL PAPER PRESENTATIONS

| Session:<br>PP7 | Adoption and implementation of technologies for a green and digital transformation | Chairs:<br>Ana Simões, INESC TEC, PT<br>Celina P. Leão, University of Minho, PT   |
|-----------------|--|---|
| 5 papers        | June 27th, 09:45 a.m. - 10:45 a.m.   |   |
| #Paper          | Authors  | Title   |
| 27              | Mihai Hulea, Radu Miron and Andrei Rusu  | Integrated Services for Passenger Transportation in Smart Cities Based on Blockchain  |
| 81              | Ana C. Ferreira and Celina P. Leão   | Inquiring Minds: The Transformative Influence of Qualitative Methods in Engineering Education   |
| 85              | Mariza Gabriela Lemos Mesquita, Ana Simões, Vasco Teles and Gustavo Dalmarco       | Business model revolution: unleashing innovation through digitalisation, servitisation and collaborative research in industrial companies |
| 111             | Rui Ribeiro, Celina P. Leao, Susana P. Costa and Vinicius Silva                    | Developing a Customizable Soft Robotic Hand Exoskeleton: Initial Outcomes and Challenges  |
| 23              | Radu Miron and Mihai Hulea   | Digital Product Passport Implementation Based on Hyperledger Fabric Technology  |

| Session:<br>PP8 | Product Design and Education  | Chairs:<br>Maria João Félix, Polytechnic Institute of Cávado and Ave, PT<br>Camelia Avram, Technical University of Cluj-Napoca, RO |
|-----------------|---|--|
| 5 papers        | June 27th, 09:45 a.m. - 10:45 a.m.                                    |  |
| #Paper          | Authors   | Title  |
| 42              | Andreea C. Ionica and Monica Leba                                     | A Product Enhancement Methodology for Advancing Interactive Animatronic Teddy Bear   |
| 117             | Maria João Félix  | Transdisciplinary Innovation in Design: Pathways to a Sustainable and Inclusive Future   |
| 153             | Camelia Avram, Catalin Balut, Dan Radu and Adina Astilean             | E-voting platform based on blockchain  |
| 43              | Monica Leba and Andreea-Cristina Ionica                               | A Fuzzy Logic-Based Risk Assessment Tool for IT Startups   |
| 68              | Petr Valasek, Andrea Hlubuckova, Monika Dobiasova and Miroslav Muller | Psychological and pedagogical evaluation of the learning outcomes of engineering students in times of pandemic transformations     |

| Session:<br>PP9 | Industry 4.0 – The Industry Digitalization  | Chairs:<br>Pedro Torres, Polytechnic Institute of Castelo Branco, PT<br>Teresa Dieguez, Polytechnic Institute of Cávado and Ave, PT                                  |
|-----------------|---|--|
| 8 papers        | June 27th, 11:00 a.m. - 01:00 p.m.  |  |
| #Paper          | Authors   | Title  |
| 63              | Marco Costa, Vítor Hugo Pinto and Gil Goncalves                                       | Wireless localization system applied to a kitting pick-to-light system   |
| 159             | Teresa Dieguez  | Understanding Gen Z to innovate in industry 4.0  |
| 9               | Pedro Torres and Geoffrey Spenser   | Industrial IoT platforms enabling Industry 4.0 digitization towards Industry 5.0   |
| 22              | Nuno Fernandes, Luis Ferreira and Sílvio Carmo Silva                                  | Inventory Buffers in DDMRP: A Simulation Study of the Review Policy  |
| 59              | Sílvio Carmo-Silva and Nuno Fernandes   | Aligning Order Execution Priority with Customer Demand in DDMRP - An Assessment by Simulation  |
| 151             | João Alves, Teresa Morgado, Suzana Lampreia, Helena Navas, Ana Dias and António Abreu | The transformation of Maintenance with the arise of Industry 4.0   |
| 35              | Pedro Torres, Francisco Vilela, Geoffrey Spencer and Luís Neto                        | Efficient Integration of Industry 4.0 Technologies in Mobile Industrial and Forestry Machines Fleet Management: Challenges, Opportunities, and Environmental Impacts |
| 52              | Leonardo Souza, Yaney Correa and Reinaldo Silva                                       | Model-Based Agile Design Approach: Toward Innovation in Product-Service Systems  |

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|--------------------------------|---|--|
| <b>Session:</b><br><b>PP10</b> | <b>Engineering Applications for Medical and Healthcare Devices</b>                  | <b>Chairs:</b><br><b>Vítor Carvalho</b> , Polytechnic Institute of Cávado and Ave, PT<br><b>Yuliia Denysenko</b> , Sumy State University, UA |
| <b>8 papers</b>                | <b>June 27th, 11:00 a.m. - 01:00 p.m.</b>   |  |
| <b>#Paper</b>                  | <b>Authors</b>  | <b>Title</b>   |
| 66                             | Darius Ionica, Dan Gota and Ovidiu Stan   | Posture correction device based on IMU sensors and CNN   |
| 60                             | Filip Górski, Remigiusz Łabudzki, Răzvan Păcurar and Ancuta Păcurar                 | Learning To Build Extended Reality Applications For Customized Devices: A Survey Study   |
| 10                             | Cristian Copilusi, Sorin Dumitru, Ionut Geonea, Alexandru Margine and Dorin Popescu | Virtual Prototyping Validation of a Leg Exoskeleton Mechanism from Dynamic Considerations  |
| 46                             | Diana Antunes, Rita Arantes, Eurico Seabra, Luís Silva and Rui Viana                | Materials, Functionalities and Processing of a Medical Device to Pelvic Floor Rehabilitation   |
| 86                             | Filip Górski, Yuliia Denysenko, Wiesław Kuczko and Magdalena Żukowska               | Automated Design and Virtual Fitting of 3D Printed Bicycle Prostheses for Children   |
| 53                             | Nicolae Dumitru, Sorin Dumitru, Cristian Copilusi, Ionut Geonea and Diana Catalu    | Structural Kinematic Analysis of a Wheelchair Mechanism Designed for Disabled Persons  |
| 33                             | Ricardo Teixeira, Eva Oliveira, Tiago Martins and Vítor Carvalho                    | Elderly People Motivations to Keep Playing Exergames: A Systematic Review  |
| 47                             | Rita Arantes, Diana Antunes, Eurico Seabra, Rui Viana and Luís F. Silva             | Design of a New Intravaginal Device to Measure and Monitor the Pelvic Floor Muscle Strength  |



## ICIE'2024 - DAY 1 - June 26th, 2024

### NORMAL POSTER PRESENTATIONS

|           | Session:  | Poster session 1  |  | Chairs:  |
|-----------|-----------|---|--|--|
|           | PT1       | June 26th, 05:15 p.m. - 06:00 p.m.  |  | Marina Järvis, Tallinn University of Technology, EE      |
|           | 20 papers |   |  | Eliana Costa e Silva, Polytechnic Institute of Porto, PT |
|           | #Paper    | Authors   | Title  |  |
| SLOT 1    | 114       | Bartosz Poskart, Grzegorz Iskierka, Kamil Krot, Bolesław Telesiński and Jozef Husár   | Forecasting the feasibility of autonomous mobile robots performing tasks using AutoML  |  |
|           | 118       | Robert Orłowski, Anna Burduk and Paweł Zyblewski  | Machine learning model for predicting production process capability in packaging process   |  |
|           | 154       | Ana Carvalho, Eliana Costa E Silva and Rui Silva  | Product Mix Optimization of a Footwear Company using Activity-Based Costing Information  |  |
|           | 113       | Olha Prokopenko, Taliat Bielialov, Marina Järvis, Vitaliy Omelyanenko and Teresa Malheiro   | THE FUTURE OF ENTREPRENEURSHIP: BRIDGING THE INNOVATION SKILLS GAP THROUGH DIGITAL LEARNING  |  |
|           | 36        | Michał Wieczorowski, Krzysztof Puzio, Alejandro Pereira and Bartosz Gapinski  | A concept of a walking robot with potential use in length and angle metrology  |  |
| QUESTIONS |           |   |  |  |
| SLOT 2    | 103       | Adeniyi Sobowale, Luis Freitas, Ana Lima, Pedro Marujo, Filipe Pereira and Helena Lopes   | Leveraging the ISO 23247 Framework for the Development of Digital Twins of Stacker Cranes  |  |
|           | 112       | Katarzyna Antosz, Edward Kozłowski, Jarosław Sępa and Sławomir Prucnal  | Neural Network Predictive Model in Cutting Tool Condition Detection  |  |
|           | 119       | Kamil Musiał, Joanna Kochanska, Artem Balashov, Anna Burduk and Suthep Butdee   | Machine Learning algorithms for quality control problem  |  |
|           | 155       | Katarzyna Antosz, Justyna Trojanowska, Vitalii Ivanov and Andre Batako  | Directions of Change in Maintenance Strategy in the Industry 4.0 Era – pilot study results   |  |
|           | 162       | Magdalena Zawada-Michałowska, Paweł Pieško, Paweł Bałon and Edward Rejman   | Stress-strain modelling in a milling process for a thin-walled element   |  |
| QUESTIONS |           |   |  |  |
| SLOT 3    | 163       | Paweł Pieško, Magdalena Zawada-Michałowska and Ewelina Kosicka  | Optimization of Cutting Parameters Using Modal Analysis  |  |
|           | 26        | Andrii Ivakhnenko, Dmytro Gorovyi, Vitalii Ivanov, Yevheniia Basova, Ivan Pavlenko and Justyna Trojanowska  | Management of Innovations Investment at the Industrial Enterprises   |  |
|           | 38        | Michał Wieczorowski, Bartosz Gapinski, Michał Jakubowicz, Dawid Kucharski, Karol Grochalski, Natalia Swojak, Lidia Marciniak-Podsadna, Aleksandra Krawczyk, Rehan Khan, Alejandro Dominguez Pereira and Maciej Zakrzewicz | Measurements of geometric quantities in an automatic line for the verification of large-size rings and rims  |  |
|           | 39        | João Matos, André Santos and Leonilde Varela  | Industry 4.0 Integrated with Different Management Paradigms: A Bibliometric Analysis   |  |
|           | 40        | Daniel Dias, André Santos and Leonilde Varela   | Machine Learning Algorithms in Scheduling Problems: An Overview and Future Paths   |  |
| QUESTIONS |           |   |  |  |
| SLOT 4    | 55        | Magdalena Diering, Agnieszka Kujawińska, Wojciech Rudzki, Mukund Harugade and Ivan Pavlenko   | Assessment the level of controllers agreement supported by product photography   |  |
|           | 96        | Suthep Butdee and Puntiva Phuangsalee   | Flexible production cell using deep learning for automated storage and retrieval system  |  |
|           | 56        | Olena Hrybiuk and Shashi Gupta  | CleverCOMSRL: Implementation of the COMSRL Intelligent Computer-aided Design System in the Context of using the Cognitive Science Paradigm of Artificial Intelligence in the Research Training Process |  |
|           | 17        | Marek Kočíško, Martin Pollák, Simona Konečná, Jakub Kaščák and Jozef Svetlík  | Integration of Augmented Reality and IoT Elements in the Maintenance 4.0   |  |
|           | 84        | Aldina Correia and David Mendes   | International Logistics Performance Feature Extraction Insights and Portugal's Global Positioning  |  |
| QUESTIONS |           |   |  |  |



## ICIE'2024 - DAY 2 - June 27th, 2024

### NORMAL POSTER PRESENTATIONS

|               | Session:  | Poster session 2   | Chairs:   |
|---------------|-----------|--|---|
|               | PT2       | <b>June 27th, 03:00 p.m. - 03:45 p.m.</b>  | <b>Petr Valášek</b> , Czech University of Life Sciences Prague, CZ<br><b>Alejandro Pereira</b> , University of Vigo Spain, ES   |
|               | 21 papers |  |   |
|               | #Paper    | Authors  | Title   |
| <b>SLOT 1</b> | 3         | Mohammed Amine Chelabi, Yevheniia Basova, Sergey Dobrotvorskiy, Olena Avdieieva and Helena Lopes                                       | The Inlet Average Absolute Flow Angle Effect on Mixed Inflow Turbine Rotor Performances   |
|               | 7         | Oleg Krol, Vladimir Sokolov and Oleksandr Logunov  | Development of Machining Center Rotary Table with a Modified Worm Drive   |
|               | 14        | Vinothraj U T, Joel J, Sai Srish S, Jose Machado and Anthony Xavier Michael  | FINITE ELEMENT ANALYSIS AND EXPERIMENTAL STUDY OF SS316L MANUFACTURED BY POWDER BED FUSION                                      |
|               | 19        | Szymon Wojciechowski, Justyna Trojanowska, Dariusz Bartkowski, Grzegorz Królczyk, Jolanta Królczyk, Radosław Maruda and Vitalii Ivanov | Analysis of surface roughness and vibrations during micro ball end milling with various ramping directions                      |
|               | 44        | Mykhaylo Stepanov, Petro Litovchenko, Tetyana Tretyak, Larysa Ivanova, Maryna S. Ivanova and A. Manuela Gonçalves                      | Determination of the Grinding Headstock Surface Temperature, which Varies Depending on the Process Fluids Thermal State         |
| QUESTIONS     |           |  |   |
| <b>SLOT 2</b> | 13        | Anna Nikolaienko, Oleksandr Lohunov, Oleksiy Romanchenko and Tetiana Shumakova   | How Geometry Influences the Use of an Abrasive Tool in Relation to the Performance of Vibration Processing                      |
|               | 49        | Patrik Fejko, Jozef Dobránsky, Peter Michalik, Miroslav Gombár and Lenka Čepová  | Monitoring of technological factors to change the length of the crack created by cataphoretic coating                           |
|               | 50        | Damián Peti, Jozef Dobránsky, Michal Hatala, Svetlana Radchenko, Miroslav Gombár and Róbert Čep  | The effect of the concentration of degreasing agent on the thickness of the layer created by cataphoretic painting              |
|               | 15        | Pavol Belany, Zuzana Florkova, Peter Hrabovsky and Jana Pastorkova   | Energy Efficiency Analysis of Oxide Layer Production by Plasma Electrolytic Oxidation   |
|               | 16        | Pavol Belany, Zuzana Florkova, Peter Hrabovsky and Jana Pastorkova   | Impact of Pellet Production on Power Quality: A Measurement Study   |
| QUESTIONS     |           |  |   |
| <b>SLOT 3</b> | 69        | Dagmar Cagaňová and Natália Horňáková  | Soft Skills Development in the Context of Digitalization: Insights from International Projects                                  |
|               | 62        | Ana Monteiro, Andreia Gomes, Bruna Fernandes, César Barroso, Diogo Alves and Ângela Silva  | Layout Design and Noise Study in a Weaving Section  |
|               | 83        | Jakub Kaščák, Ján Ivan, Marek Kočíško, Martin Pollák, Rebeka Tauberová and Jozef Husár   | Precision enhancement in filament extrusion through an alternative cooling solution for industrial engineering                  |
|               | 54        | Ana Monteiro, Andreia Gomes, Bruna Fernandes, César Barroso, Diogo Alves and Ângela Silva  | Development of layout proposals for the future textile processing section of a textile company                                  |
|               | 80        | Rita N. Dias, João J. F. Gomes, Filipe R. Ramos, Susana C. Almeida and Margarida P. Dias   | Mobile Switching Propensity Model: a Machine Learning Approach  |
| QUESTIONS     |           |  |   |
| <b>SLOT 4</b> | 106       | Joel Monteiro, Tiago Martins and Vítor Carvalho  | Development of a Tool for Assessing the Quality of Health Services in Municipalities: First Insights                            |
|               | 107       | Alexandre Correia, Tiago Martins and Vítor Carvalho  | Development of a Serious Game to Support Alzheimer's Patients: First Insights   |
|               | 65        | Justyna Rybarczyk, Piotr Dorna, Filip Górski and Magdalena Żukowska  | Personalized mechatronic lower limb orthosis  |
|               | 110       | Adriano A. Santos, Bruno Campos, António Ferreira da Silva, Carlos Felgueiras and Filipe Pereira                                       | The contribution of Photovoltaic Systems to Sustainable Agriculture - an Analysis of Agrivoltaic Systems                        |
|               | 51        | Diogo Branco, Luís Ferreira, Nuno Fernandes and Francisco J. G. Silva  | Analysis and Improvement of Setup Times at a Metalworking Company   |
|               | 48        | Marcelin Benchea, Carmen Bujoreanu, Bogdan Şerbănoiu, Elena-Adelina Chiriac and Gelu Ianuş   | The Impact of Complex Periodic Structures on the Acoustic Performance of Architectural Materials: An Interdisciplinary Approach |
| QUESTIONS     |           |  |   |