

Day 1 – Wednesday 3 Jul 2024

09:00 – 09:30 Opening session

09:30 – 10:30 Keynote 1

Emerging Skill Requirements and Training Needs within Manufacturing Companies in the Transition to Industry 5.0

***Maria Gustavsson** – Professor at the Department of Behavioural Sciences and Learning, Linköping University, Sweden*

10:30 – 10:45 Coffee break

10:45 – 11:45 Session A1

A – Collaborative Systems

Chairs: Dionísio Noque, Alexandre Costa

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| <ul style="list-style-type: none">● A Human-AI Centric Performance Evaluation System for Collaborative Business Ecosystems
<i>Paula Graça, Luís M. Camarinha-Matos</i> |
| <ul style="list-style-type: none">● A Human-AI Framework to Design Collaborative Cyber Physical Systems
<i>Artem A. Nazarenko, Luis M. Camarinha-Matos</i> |

11:45 – 13:30 Lunch

13:30 – 14:30 Session A2

A – Collaborative Systems

Chairs: Dionísio Noque, Alexandre Costa

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| <ul style="list-style-type: none">● Analyzing Value-Sharing Methods in Energy Communities with Coalitional Game Theory
<i>Saeed Akbari, Luis M. Camarinha-Matos, Joao Martins</i> |
| <ul style="list-style-type: none">● Human-Centric Principles for Computational Systems Supporting Collaborative Creativity
<i>Zahra Ebadpour, Sanaz Nikghadam-Hojjati, Jose Barata</i> |

14:30 – 16:30 Session B

B – Intelligent Computational Systems

Chairs: João Patrício, Eugene Owilla Casmin

<ul style="list-style-type: none">• Transition Invariants in the Analysis of Concurrent Systems Modelled by Petri Nets <i>Maxim Maliński, Marcin Wojnakowski, Remigiusz Wiśniewski, Andrzej Obuchowicz</i>
<ul style="list-style-type: none">• Evaluating Postal Systems' Current State, Roadmap to Automation <i>Uku Tulev, Eduard Shevtshenko, Ilmar Ermus</i>
<ul style="list-style-type: none">• Modular and Configurable Internet of Things Devices for Value Chain Digitalization <i>Miguel Arvana, João Goes, Andre Dionisio Rocha</i>
<ul style="list-style-type: none">• Mapping Forest Height with Multifrequency SAR, InSAR, and Multispectral Datasets <i>João E. Pereira-Pires, André Mora, Raffaella Guida, José M. Fonseca, João M. N. Silva, Pedro Barreira</i>

16:30 – 16:45 Coffee break

16:45 – 17:45 Tutorial

Creativity and Innovation in the Digital Era

Fernando Angelino – IPS, Portugal

17:45 – 18:15 Posters

Chairs: Emanuel Mango, Esmaeil Kondori

- **Context-Aware RF Sensing for Detection and Classification**
Eugene Casmin and Rodolfo Oliveira
- **Channel Estimation Using Deep Learning Techniques for Extremely Large Antenna Arrays**
Inês de Almeida, Rui Dinis and João Guerreiro
- **Enabling Cloud Manufacturing: An End-to-End Framework for Cyber-Physical Systems and Industrial Machine Learning**
Alexandre Manta-Costa, Ricardo Peres and José Barata
- **Music plagiarism detection based on a musicological approach to music analysis**
Barbara Laskowska and Mariusz Kamola
- **Federated Data Spaces in Collaborative Energy Ecosystems**
Hermenegildo da Silva Paim, Luís Camarinha-Matos and Filipa Ferrada

- **Operating Water Supply Systems with Smart Predictive Digital Twins**

Tiago C. Pereira, António Andrade-Campos and Ramon Vilanova Arbos

18:15 – 18:45 Ice Breaking Session 1

Ready to break the ice and spark some fun? Join our Ice Breaking Session for an unforgettable start of DoCEIS'24! Meet new people, share laughs, and build connections through exciting activities designed to make everyone feel welcome and energized. Don't miss out!!

19:00 – 20:00 Welcome reception

Day 2 – Thursday 4 Jul 2024

09:00 – 10:50 Session C

C – Human-Robot Collaboration

Chairs: Qamar Raza, Hermenegildo Paim

Special session organizers: Dario Antonelli (Italy), Chrysostomos D. Stylios (Greece)

- **Continual Learning Supporting Human-Robot Collaboration**

Yuchen Fan, Dario Antonelli, Alessandro Simeone

- **Leveraging Information Flow-Based Fuzzy Cognitive Maps for Interpretable Fault Diagnosis in Industrial Robotics**

Marios Tyrovolas, Chrysostomos Stylios, Khurshid Aliev and Dario Antonelli

- **Convolutional Neural Networks for Autonomous UAV Navigation in GPS-denied Environments**

Ricardo Serras Santos, João P. Matos-Carvalho, Slavisa Tomic, Marko Beko, Carlos T. Calafate

- **Multimodal Creativity State detection from Speech and Voice**

Sepideh Kalateh, Luis A. Estrada-Jimenez, Sanaz Nikghadam Hojjati and José Barata

10:50 – 11:05 Coffee break

11:05 – 12:30 Session D

D – Electronic Systems

Chairs: Pedro Viegas, João Araújo

- **A Physically Unclonable Function for Biomedical Devices Authentication**

João Cabacinho, João Casaleiro, Luís B. Oliveira

- **Determining Thin Film Characteristics by Prism Coupling Technique**

Paulo Lourenço, Yuri Vygranenko, João Costa, Miguel Fernandes, Alessandro Fantoni, Manuela Vieira, G. Lavareda

- **A Novel Analogue Computing System in HiL for Electric Traction**

Bruno Luis, Stanimir Valtchev

12:30 – 14:15 Lunch

14:15 – 15:15 Keynote 2

Cognitive Control in Collaborative Systems

Fabio Fruggiero, Università degli Studi della Basilicata, Italy

15:15 – 16:45 Session E

E – Human-Centric Biomedical Systems

Chairs: Inês Almeida, Rafael Barros

Special session organizers: Luis Oliveira, Bruno Guerreiro, Filipe Silva, Hugo Gamboa (Portugal)

- **synple: A Platform for Privacy Preserving Synthetic Patient Data Generation**

Inês Silveira, Luís Silva, Francisco Veladas, Rodrigo Braga, Hugo Gamboa

- **Patient-Centered Healthcare: A Framework for Analyzing Patient Feedback through Sentiment Analysis and Topic Modeling**

Luis Osório and Nuno Fachada

- **Nonlinear Model Predictive Control for Optimal Dose Administration in Radiotherapy**

João C. G. Araújo, Bruno J. Guerreiro, Luis B. Oliveira, and Filipe Ferreira da Silva

16:45 – 17:00 Coffee break

17:00 – 18:45 Panel Session

AI is shaping our lives ...

Moderator: Pedro Pereira

Carla Pereira, Adjunct Professor at School of Health - Polytechnic University of Setúbal

Manuel Pio Silva, Head of Digital Energy - EDP NEW R&D

Luís Lança, Palo Alto Networks - Country Manager PT

Ana Sabino, Data Driven Decisions Product Owner - Siemens

Nelson Freitas, PhD Student at Department of Electrical and Computer Engineering - NOVA FCT

18:45 – 19:15 Ice Breaking Session 2

Did you enjoy part 1? Don't miss part 2!! We are waiting for you.

19:30 – 23:00 Conference Dinner

Day 3 – Friday 5 Jul 2024

09:00 – 10:50 DoCEIS Session F, Opening YEF-ECE and YEF-ECE Session Y1

F – Cybersecurity and Safety

Chairs: Miguel Arvana, Elham Kermanianmiandoab

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| <ul style="list-style-type: none">• Achieving Adaptive Safety via Trust Building in Autonomous Ecosystems
<i>David Halasz and Barbora Buhnova</i> |
| <ul style="list-style-type: none">• Behavioral and Human-Centric Access Control Model in XACML Reference Architecture: Design and Implementation of EHR Case Study
<i>Nastaran Farhadighalati, Jose Barata, Sanaz Nikghadam-Hojjati, and Eda Marchetti</i> |
| <ul style="list-style-type: none">• Quantized Digital Amplification Physical Layer Security Schemes
<i>Pedro Viegas, Paulo Montezuma, Rui Dinis, João Guerreiro and João Oliveira</i> |
| <ul style="list-style-type: none">• Evolving Cybersecurity Challenges in the Age of AI-Powered Chatbots: A Comprehensive Review
<i>André F. Costa, Nuno Mateus Coelho</i> |

Opening YEF-ECE 2024

Y1 – Applications of Remote Sensing and Image Processing

Chairs: Ana Inês Oliveira, João Pedro Oliveira

- **Data Science for Geographic Information Systems**

Afonso Oliveira, Nuno Fachada and João P. Matos-Carvalho

- **Forest Height Estimation Using Machine Learning Regressors with SAR Data**

Pedro Barreira, André Mora, João E. Pereira-Pires, José M. Fonseca and Juan Guerra-Hernández

- **Horses Identification Through Deep Learning Algorithms**

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- **Adaptive Simulation of Separate Factors in the Alexandridis Wildfire Model**

Isabella Papageorgiou, João Pedro Matos-Carvalho, Nuno Fachada and Markos Avlonitis

10:50 – 11:05 Coffee break

11:05 – 12:30 YEF-ECE Session Y2 & YEF-ECE Session Y3

Y2 – Advances in Electric Vehicle Integration and Smart Grid Technologies

Chairs: Filipa Ferrada, Luís Oliveira

- **Impact of Vehicle-to-Grid Technologies on the Electricity System**

Marcelo Luís, Gonçalo Glória, Ricardo Pastor and Nuno Amaro

- **Step-by-Step Design of a LLC Resonant Converter for EV Fast Charging Applications**

Joao Rocha, Saghir Amin, Goncalo Rego, Joao Afonso and Vitor Monteiro

- **Economic Feasibility of Production Units for Self-Consumption with Storage Batteries to Charge Electric Vehicles: Case Study in the Residential Portuguese Sector**

Rodrigo Pinheiro, Anabela Pronto and João Pina

- **Development of a Power Electronics Interface between an Energy Storage System and the Power Grid**

José A. Faria, Marcos Novo, João Dias, L. A. M. Barros and J. G. Pinto

- **A Methodology for Creating Power System Models from Open-Source Data**

Riccardo Chianese and Nuno Amaro

Y3 – AI-powered Optimizing Infrastructure & Control

Chairs: Anikó Costa, André Mora

- **Specification of Complex Events and Their Integration in the IOPT-Tools Development Environment**

Diogo Natario and Luís Gomes

- **Extending IOPT-Nets with High-Level Features: A Digital Twin of a Power Wheelchair**

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- **AI Generated Route Data Pre - Processing for Faster Decision Making**

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- **Multi Agent Reinforcement Learning System for Vehicular and Pedestrian Traffic Control with Visible Light Communication**

- *Gonçalo Galvão, Manuela Vieira, Paula Louro, Manuel Vieira, Mário Véstias and Pedro Vieira*
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- **Evolving Cybersecurity Challenges in the Age of AI-Powered Chatbots: A Comprehensive Review**

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Opening YEF-ECE 2024

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Y2 – Advances in Electric Vehicle Integration and Smart Grid Technologies

Chairs: Filipa Ferrada, Luís Oliveira

- **Impact of Vehicle-to-Grid Technologies on the Electricity System**
Marcelo Luís, Gonçalo Glória, Ricardo Pastor and Nuno Amaro
- **Step-by-Step Design of a LLC Resonant Converter for EV Fast Charging Applications**
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**Consumption with Storage
Batteries to Charge Electric
Vehicles: Case Study in the
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- **Implementation Of an Intelligent Virtual Assistant Based on LLM Models for Irrigation Optimization**

Henrique Chia and Ana Inês Oliveira

12:30 – 14:15 Lunch

14:15 – 15:15 Keynote 3

Key Challenges in Cyber Security and Cyber Resilience

José Alegria, Former Chief Security Officer and CISO at Altice Portugal

15:15 – 16:15 Horizontal Session

What to value in your career? An HR market-based perspective.

Pedro Fonseca, Principal Director at NTT DATA Portugal

Patrícia Dias, Talent Acquisition Professional at Siemens Portugal

16:15 – 16:30 Coffee break

16:30 – 18:00 DoCEIS Session G & YEF-ECE Session Y4

G – Energy Management and Sustainability

Chairs: Saeed Akbari, Eurico Clemente

- **Rule-Based Control Algorithm to Explore Energy Flexibility from Residential Pool Filtration Pumps**

João Tabanêz Patrício, Rui Amaral Lopes, Nuno Amaro, João Martins

- **Three-Level Zero-Voltage Transition Interleaved Buck Converter with DC Transformer-based Isolation for EV Fast Charging Stations**

Saghir Amin, Joao Rocha, Vitor Monteiro, Nuno Costa

- **Promoting Decarbonization of Islands: A Case Study on the Replacement of Gas Water Heaters in Terceira Island, Azores, Portugal**

Rafael Menezes-Barros, Rui Amaral Lopes and João Martins

Y4 – Emerging Technologies for Power and Electronics

Chairs: Anabela Pronto, João Pedro Carvalho

- **Shunt Active Power Filter
Applied to Four-Wire Electrical
Network**

*Darcy Apresentação, Paulo Gambôa
and Ricardo Luís*

- **Implementation of NMOS-
based LDO Using Recycling
Folded-Cascode in 16 nm
FinFET**

*Miguel Máximo, Mauro Santos, João
Oliveira, Pedro Toledo, Ricardo
Machado and Luis Oliveira*

- **Design of a 300mV-Supply
Schmitt-Trigger-Based DIGOTA
for GBW and DC Gain
Enhancement in 16nm FinFET**

*Ricardo Machado, Pedro Toledo, Luis
Oliveira, Miguel Máximo, Mauro Santos
and João Oliveira*

- **An Active Self-Interference
Cancellation Front-end for
Stepped-Frequency
Continuous-Wave Radar**

*Diogo Monteiro, João Casaleiro, Vítor
Costa, Guilherme Marques and Diogo
Silva*

- **Imaging with Capacitive
Sensors Arrays for Powder Bed
Fusion Quality Control**

*Victor Macedo, André Oliveira, Vasco
Luz and Luis Rosado*

18:00 – 18:30 Closing Session & Awards

4:15 – 15:15 Keynote 3

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G – Energy Management and Sustainability

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