



Mediterranean Conference on Embedded Computing (MECO)
International Conference on Cyber-Physical Systems and Internet-of-Things (CPS&IoT)
Summer School on Cyber Physical Systems and Internet of Things (SSCPS&IoT)
MECO'2025/CPSIoT'2025/SS-CPSIoT'2025
 Budva, Montenegro, 10-14 June 2025, Hotel Budva, Montenegro

www.mecoconference.me

PROGRAM

MECO&CPSIoT 2025									
TUES: June 10 2025									
Legend:	IN-VENUE	ONLINE	FREE SESSION						
ROOM 1 (find ZOOM link for ROOM1 at the end of Program)									
9:00	KEYNOTE 1	Prof. Dr. Wolfgang Ecker , Infineon Technologies AG and Technical University of Munich, Germany							
10:00	OPENING	MECO Chairs, MECO Fellows, MECO Guests, and MECO Friends							
10:30	BREAK								
11:00	SESSION 1 ORAL Chairs: Naim Dahnoun, Roberto Giorgi	Zhihua Jiang and Naim Dahnoun , Development of a Mechanical Chest Motion Simulator for Validating Non-Contact Vital Sign Monitoring, 24	Seyed Hani Hozhabr and Roberto Giorgi Real-time Object Detection on FPGA-based Heterogenous MPSoCs: A Preliminary Analysis of the Execution Bottlenecks, 46	Dongchen Li, Daniel Onwuchekwa and Roman Obermaisser, Event and Slack Time Prediction With Deep Learning for Proactive Runtime Scheduling in Time-Triggered Systems, 8	Natalie Simson, Paritosh Kumar Sinha and Wolfgang Ecker , Moving from RTL- to Handshake-based IP-Design: A RISC-V Case Study, 17	Dimitar Ninevski, Paul O'Leary, Anika Terbuch and Matthew Harker , Optimal Node Placement for Constrained Polynomial Interpolation, 14	Rashed Al Amin, Md Golam Rassel Lincoln and Roman Obermaisser , Towards LLM-Assisted HDL Generation and Verification, 38		
13:00	LUNCH								

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15:00	SESSION 2 ONLINE Chairs: <i>Marin Zhilevski, Omar Hekal</i>	<i>Leming Cheng, Hsin-Yu Ting, Sing-Yao Wu and Eli Bozorgzadeh , Exploiting and Extracting Workload Patterns for Efficient IoT Processing, 99</i>	<i>Aditi Ghosh, Maurizio Giacobbe, Muhammad Tahir Rafiq, Antonio Puliafito and Roberto Giorgi Enhancing Traffic Prediction with Spatio-Temporal Deep Learning: A GCN-LSTM Hybrid Model, 72</i>	<i>Omar Hekal, Daniel Onwuchekwa and Roman Obermaisser Incremental Multi-Schedule Graph for Memory Optimization in Adaptive Time-Triggered Systems, 15</i>	<i>Marin Zhilevski, Mikho Mikhov and Krasimir Kanev Research on Rotary Processing Modes in a Type of Computer Numerical Control Machine Tools, 31</i>	<i>Marin Zhilevski, Mikho Mikhov and Georgi Pashkuloski Driving System Control of a Device for Passive Rehabilitation of Knee and Hip Joints, 49</i>	<i>Marten Struijk, Jeroen Pijpker and Fadi Mohsen Demonstrating Practical Attacks on Maritime Cyber-Physical Systems via Exposed NMEA Gateways, 83</i>	<i>Kai Lehniger and Peter Langendoerfer Investigating Compact Shadow Stacks for the Xtensa LX Architecture, 18</i>	
17:00	BREAK								
17:30	SESSION 3 ONLINE Chairs: <i>Gehad Alkady, Asep Andi Suryandi</i>	<i>Sara Abou Zeid, Beatrice Shokry, Ramez Daoud, Hassanein Amer, Gehad Alkady and Dina Mahmoud Single Event Upset Immune FPGA-Based Self-Purging Architecture, 12</i>	<i>Prathibha P G and Tamizharasan P S , A Survey of the State-of-the-Art Compilers and Benchmarks for Embedded Systems, 13</i>	<i>Asep Andi Suryandi , Paul Tuohy and Sinisa Durovic, End-Winding Leakage Flux Monitoring for Stator Fault Detection in Induction Machines using Fiber Bragg Grating (FBG)-Terfenol-D Composite Sensors, 20</i>	<i>Omar Abdelaziz, Mahmoud Soliman, Mahmoud Alaa and Mohamed S. Shehata Learnable Laplacian Embedding Decomposition for One-Stream Visual Object Trackers, 33</i>	<i>Gaëtan Barret, Joel Penhoat, Roland Picard and Daniel Chillet Empirical Analysis and Estimation of the Energy Cost of Data Transfers in CPU Caches in Multi-Core Systems, 37</i>	<i>A.F. Elsousy, A. Osama, H.E. Omar, H.M. Hassan, G.I. Alkady, R.M. Daoud, H.H. Amer , C.R. Salama and D.G. Mahmoud Low Overhead FPGA-based RISC-V Resilient To Upsets In User Bits, 41</i>	<i>Ali Alturaifi , Gesture-Context Adaptive Kalman Filtering using ANN for Enhanced Motion Tracking with IMUs, 53</i>	



ROOM 2 (find ZOOM link for ROOM1 at the end of Program)

11:00	SESSION 4 ORAL Chairs: Gerhard Rath, Emil Zaev	Gerhard Rath, Emil Zaev, Darko Babunski and Radmila Koleva Isolating Interface for Water Quality Sensors Based on Flying Capacitor Principle, 56	Aleksandar S. Dimovski, Goran Velinov and Shpetim Rexhepi, Feature Model for Imperative Program Synthesis, 34	Radmila Koleva, Damjan Stefanovski, Emil Zaev and Darko Babunski An Overview of Machine Learning Techniques Used in Real-Time Water Quality Index Measurement, 30	Erjon Shala, Xhevahir Bajrami, Emil Zaev and Darko Babunski Efficient Kinematic Modeling, Simulation and Control of a 6-DOF Robotic Arm, 28	Olympia Roeva, Tsonyo Slavov, Jordan Krlev and Asparuh Markovski Crow Search Algorithm-Based Optimization of Feedforward/Feedback Controller for Fed-Batch Cultivation Process Control, 44	Andi Gashi, Drin Krasniqi, Erjon Shala, Xhevahir Bajrami and Ramë Likaj Automated Robotic Arm for Object Detection and Classification, 29	Thomas Kammerhofer, Johannes Handler and Thomas Thurner, Industrial Tactile Sensor Solution with Embedded Processing, 87	
13:00	LUNCH								
15:00	SESSION 5 ON LINE Chairs: Paris Kitsos, Natalija Parlov	Stanislav Krivenko, Liudmyla Kryvenko and Sergii Kryvenko Machine Learning Model for the Imbalanced Dataset, 19	Milica Vušanović and Veselin N. Ivanović Hybrid System for Time-Frequency Signal Analysis, 88	Krassimira Stoyanova and Vladislava Grigorova RDEA-Driven Optimization of Coin Selection in UTXO-Based Cryptocurrencies, 54	Papadopoulos Marios, Konstantinos Lampropoulos and Paris Kitsos An Efficient FPGA Architecture of Extensible Authentication Protocol EAP- AKA' for 5G Networks, 103	Hamad Almansour Al-Based Anomaly Detection for IoT Networks: A Comparative Analysis of Existing Techniques, 39	André Fernandes, Pedro Cruz, Guilherme Gonçalves, Tsonyo Slavov and Petia Georgieva Blemish Detection Algorithms for Image Sensor Improvement and Qualification During Camera Production, 76	Natalija Parlov, Blanka Mateša and Anamarija Mladinić Structuring AI Risk Management Framework: EU AI Act FRIA, GDPR DPIA and ISO 42001/23894, 102	
17:00	BREAK								
17:30	SESSION 6 ONLINE Chairs: Zhibert Tafa, Agon Memeti	Shqipe Salii, Visar Shehu and Nuhi Besimi Geospatial XR for Disaster Response: Implementation and Compatibility Issues, 51	Zhibert Tafa and Bilgin Demir Contribution to the Development of Intelligent Systems for Multi-Lead ECG Signal Classification Using Convolutional Neural Networks, 61	Edlira Qefalija, Halil Snopce and Betim Cico, AI-Driven Comparative Analysis of Decomposition Techniques for CSP solving, 68	Nelum Andalib and Mennan Selimi Effective Quantization Technique for Enhancing Model Performance on Resource-Constrained Devices, 82	Gani Zogaj, Florie Ismaili, Artan Luma and Luan Gashi Virtualization's Impact on Cybersecurity and the Development of an Accurate Model for Assessing and Detecting Vulnerabilities: A Systematic Literature Review, 9	Agon Memeti, RARS: An Open-Source Framework for Democratizing Research Access and Facilitating Collaboration, 5	Agon Memeti, Betim Cico and Ibrahim Neziri, AI-Driven LMS Personalization: A Blazor-Based Framework, 4	
21:00	SOCIAL LIFE								



WED: June 11 2025

ROOM 1 (find ZOOM link for ROOM1 at the end of Program)

9:00	KEYNOTE 2	<i>Reiner John</i> , AVL List GmbH, Graz, Austria							
10:00	SESSION POSTER Chairs: <i>Radu Etz, Mounir Abdkrimi</i>	<i>Radu Etz, George Dan Mois, Teodora Sanislav and Silviu Folea</i> , An Open Microcontroller Implementation of Control Pilot Communication, 1	<i>Mounir Abdkrimi, Olivier Rossetto, Olivier Bourrion, Christophe Vescovi and Christophe Hoarau</i> Optimized FPGA Implementation of the CORDIC Algorithm for a Frequency Multiplexed Readout, 27	<i>Milos Milovanovic, Bojan Perovic and Jordan Radosavljevic</i> Development of a LabVIEW-Based Experimental System for Measuring Electrical and Thermal Characteristics of ACSR Conductors, 69	Companies and project exhibition				
10:30	BREAK								
11:00	SESSION 7 ORAL Chairs: <i>Milica Orlandic</i>	<i>Samuel Boyle, Piotr Mikulowski and Milica Orlandic</i> , Onboard Accelerator of Hyperspectral Classification For HYPSON, 60	<i>Pinchas Tandaitnik, Orel Cohen, Joseph Sternberg, Noa Edri Freiman, Budimir Lutovac and Drazen Jurisic</i> Spice, Matlab, and Cadence Simulation of CPE Behavioral Modeling, 113	<i>Antoine Le Borgne, Xavier Marjou, Gaetan Barret and Tayeb Lemlouma</i> ,Comparative Analysis of Local and Cloud Vision-LLM Processing in Drone Applications, 23	<i>Isidora Stankovic, Miloš Brajović, Miloš Daković and Ljubiša Stanković</i> , Remez Algorithm for Approximating Graph Transfer Function, 94	<i>Andreja Mihailovic, Julija Cerović-Smolović, Ivan Radevic, Nikola Žarić and Nina Perišić</i> , Navigating The AI Landscape In Montenegrin Enterprises: Employee Perceptions, Socio-Economic Impacts, Challenges, And Security Considerations, 43	<i>Branko Brkljač, Vladimir Kaluše, Branislav Popović and Milan Sečurjski</i> Transforming Faces Into Video Stories - VideoFace2.0, 85		
13:00	LUNCH								
15:00	SESSION 8 Chairs:	WORKSHOPS, PROJECTS, EXIBITION							
17:00	BREAK								

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17:30	SESSION 9 Chairs: Alla Levina, Marko Boskovic	Alla Levina and Boyko Sergey , Comparison of wavelet-based codes with linear cyclic codes, 80	Alla Levina, Andrew Plotnikov and Stepan Chapliyov Analysis of the Possibilities of Implementation Correcting Linear Block Codes into the Modbus Protocol, 71	Sourajit Maity, Dmitrii Kaplun, Vyacheslav Gulvanskii and Ram Sarkar A Vehicle Detection Model from Still Images using Modified RT-DETR with Channel and Spatial Attention Modules, 75	Gouranga Maity, Souvik Pramanik, Diptarka Mandal, Dmitrii Kaplun, Vyacheslav Gulvanskii and Ram Sarkar VEGAN: A Vision-language and Edge-enhanced GAN-based Microscopic Medical Image Segmentation Model, 97	Natalia Kopylova The Use of E-services for Teaching Future Engineers English at Technical Universities, 50	Marko Č. Bošković, Mirjana Maksimović, Tomislav B. Šekara and Budimir Lutovac A New Era of Intelligent Processing: Neuromorphic Computing (NMC), 55	Hemanth Manchabale , Dynamic and Secure Resource Management in Cloud Computing: A Control-Theoretic Approach, 67	
ROOM 2 (find ZOOM link for ROOM2 at the end of Program)									
11:00	SESSION 10 ORAL Chairs: Betim Cico, Rajeev Kanth	Bishwatma Khanal, Aki Happonen, Jukka Heikkonen and Rajeev Kanth Autonomous Quadruped Robot System with LiDAR Sensor Navigation and Task Execution, 16	Anton Jaššuk, Uljana Reinsalu and Thomas Hollstein , Open-Source Based Automated Interrupt-Driven Testing Methodology for Embedded Systems Labs for Undergraduate Students, 70	Aitor Landa-Arrue, Marc Barceló, Iñaki Garitano and Aitor Urbieto , Secure deployment of 5G/B5G core network, 73	Sören Jost, Marc Stöttinger and Rajeev Kanth , Low-Cost Platform for Fault Injection Attacks on Industrial Programmable Logic Controllers, 21	Elsa Jolla and Betim Cico , Impact of Steganography on Image Classification: A Comparative Study on Machine Learning and Deep Learning Models, 101	Luciana Toti, Alma Golgota and Klara Prifti Digital Transformation Through -INTERNET OF THINGS-Driven Digital Transformation Across Different Sectors in the Western Balkans Countries, 110		
13:00	LUNCH								
15:00	SESSION 10 ONLINE Chairs:	Aykut Ismailov and Vladimir Hristov Brochure segmentation methodology, 89	Zeljko Marusic, Danijel Zelenika and Tonco Marusic Optimizing Image Resolution for OCR-based Parking Sign Interpretation in Real-Time Applications, 92	Jithu John Jacob, Kevin S Thomas, Kaushik Chereddy and Dr. Mannar Mannan J , Autonomous Drone For Crisis Zones, 106	Vladimir Hristov , Control of Single-Axis Servo Motor Drive with PLC Controller, 90	Vladimir Hristov and Dimitar Pepedzhiev Digital Image Analysis of Surface Quality in Manufactured Flat Optical Lenses, 91	Stepan Kavan and Eva Styblova Radio System for Warning the Population in the Czech Republic During a Radiation Accident, 3		
17:00	BREAK								
17:30	SESSION 11 Chairs:	WORKSHOPS, PROJECTS, EXIBITION, ROUND TABLES							
20:00	CONFERENCE DINNER								



THURS: June 12 2025

ROOM 1 (find ZOOM link for ROOM1 at the end of Program)

9:00	KEYNOTE 3	Prof. dr Rajeev Kanth , Savonia University of Applied Sciences, & University of Turku, Finland, Hebei University of Environmental Engineering, China							
9:50	KEYNOTE 4	Prof. Dr Akbar Sheikh-Akbari , Leeds Beckett University, School of Built Environment, Engineering and Computing, United Kingdom							
10:40	BREAK								
11:00	SESSION 12 Chairs: Jordan Krlev, Akbar Sheikh-Akbari	Radovan Stojanović, Jovan Đurković, Mihailo Vukmirović, Blagoje Babić and Vesna Miranović Medical Data Over Sound - HealthTalk Concept, 111	Jovan Djurkovic, Prof. Radovan Stojanovic, Andrej Skraba, Mihailo Vukmirović, Blagoje Babić and Vesna Miranović Cardiac Rhythm Monitoring with ChatGPT Integration, 114	Sina Mahroughi, Hossein Mehrabinejad, Theocharis Ispoglou, John George and Akbar Sheikh-Akbari Innovative Technologies for Non-Intrusive Aflatoxin Detection in Pistachios, 77	Jordan Krlev, Tsonyo Slavov, Asparuh Markovski and Petia Georgieva Uncertain Model Identification in Type I Diabetes: A Robust Control Framework for Glucose Regulation,42	Jordan Krlev, Asparuh Markovski, Tsonyo Slavov and Petia Georgieva Robust Strategies for Enhanced Glycemic Control in Type I Diabetes, 84	Ozgun Mert Dedeoglu and Deniz Akdur, Improving Quality in Embedded Software Development: The Impact of OSAL in Evolving Systems, 48	Asem Omari, Omaia Al-Omari and Said Badreddine , A machine learning approach to analyze the shift from in-person to virtual care for mental health services, 107	
13:00	LUNCH								
14:00	SESSION 13 Chairs:	WORKSHOPS, PROJECTS, EXIBITION, ROUND TABLES							
17:00	CLOSING	CLOSING CEREMONY							
18:00	CLOSING BREAK								



ROOM 2 (find ZOOM link for ROOM2 at the end of Program)									
11:00	SESSION 14 Chairs:	Milan Prokin and Dragana Prokin Capturing Air Pollution from Electric Vehicles, 95	Milan Prokin and Dragana Prokin Minimizing Air Pollution from Electric Vehicles, 96	Maxim Grachev and Yury Parshin , MIMO System for Data Transmitting from a Moving Transmitter in an Inhomogeneous Medium, 78	Igor Beracka, Haris Turkmanović, Dragomir El Mezeni, Vladimir Rajović and Ilija Popadić Synchronization of Video and Gyroscope Data Based on FPGA for Electro-Optical Systems Stabilization, 86	Moses Kasule and Djurdj Budimir , DPD Linearisation of Transmitters for 5G Wireless Networks, 100	Marina Bulat and Boris Antic Optimized Numerical Integration for Embedded Architectures, 59	Dusko Petrovic and Radovan Stojanovic Integration of the concepts of relay-based LPWAN network and Artificial Intelligence in the detection and prevention of wildfires, 116	Luigi Pomante Concurrency Analysis in System-Level Behavioral Models, 115
13:00	LUNCH								
14:00	SESSION 15 Chairs:	WORKSHOPS, PROJECTS, EXIBITION, ROUND TABLES							
16:00	WIP/RESERVE SLOTS Chair: Eva Cipi	Eljona Zanaaj, Eva Cipi, Arlind Ago and Redi Capoj , Green IoT Applications in Agriculture, 10	Mojtaba Mahdavi , Efficient Implementation of 2D Interleavers in Embedded Systems Using In-Memory Computing, 47	Arbi Elezi, Dhurate Hyseni and Betim Cico Tuning DeepSeek-Coder-V2-Lite-Base for C# Code Smell Detection: Advancing Towards Task Versatility in Software Maintenance, 109	Michael Korenfeld, Adi Yehieli and Michael Winokur IoT Connected AI-Powered 3D Food Printing for Smart Food Production, 11				
17:00	CLOSING	CLOSING CEREMONY							
18:00	CLOSING BREAK AND REFRESHMENT								



FRI: June 13 2025

TEAM WORK
SUMMER SCHOLL LESSONS
EXCURSION

SS-CPSIoT 2025

Program Link

<https://mecoconference.me/wp-content/uploads/2025/05/CPSandIoT2025-Summer-School-Schedule- FINAL-4.1.pdf>

ZOOM Links	
ROOM1	https://us06web.zoom.us/j/8702896180?pwd=UipKABg1dQO66cvbLXa1MpJanu9abl.1
ROOM2	https://us05web.zoom.us/j/7621096592?pwd=UOjxvfkkbxqA46Y65LKnScHcxoaZtg.1
ROOM3 - Summer School	https://us06web.zoom.us/j/8342653096?pwd=q2vx39MlCtJivUfjYkWlDxZ3cPb4Wl.1

NOTE:
For details on programme and registration visit: https://mecoconference.me/programme/#logom
Other info info@mecoconference.me +38267577057 (Conference phone - urgent issues) Conference taxi: https://www.royaltaxi.me/ +382 67 019 702 info@royaltaxi.me 42.28311848652398, 18.838384938890286 (Venue coordinates)

**CPS&IoT'2025 Summer School on
Cyber-Physical Systems and Internet-of-Things
Budva, Montenegro, June 10-14, 2025**

Schedule

Day 1, Tuesday 10 June:

09:00-09:15 Event Chairs and Special Guests

Title: Opening Ceremony of the CPS&IoT'2023 Summer School, and MECO'2023 and CPS&IoT'2023 Conferences

09:15-10:15 Wolfgang Ecker, Infineon and TU Munich, DE

Keynote: How to Circumvent a RISC-V Dead End

10.15-10.30 Lech Jóźwiak, TU/e, NL and Radovan Stojanović, University of Montenegro, ME

Title: Introduction to the CPS&IoT'2021 Summer School

10.30-11.00 Break

11.00-13.00 Lech Jóźwiak, TU/e, NL

Title: Green CPS and IoT for Green World

13.00-14.00 Lunch Break

14.00-15.30 Said Hamdioui, TU Delft, NL

Title: The Future of Energy-Efficient Computing: Beyond CMOS and Von Neumann

15.30-17.00 Natalie Simson & Wolfgang Ecker, DE

Title: RISC-V vs. ARM

17.00-17.30 Break

17.30-19.00 Natalie Simson & Wolfgang Ecker, DE

Title: RISC-V vs. ARM

21.00 Gala Dinner

Day 2, Wednesday 11 June:

09.30-10.30 Reiner John, AVL, AT

Title: Keynote: AI+ — Self-Awareness as the Key to Resilience, Efficiency, and ROI

10.30-11.00 Break

11.00-12.30 Reiner John, AVL, AT

Title: Applications of Quantum Sensing and AI in Real-Time Edge Computing Systems (lecture/hands-on)

12.30-14.00 Lunch Break

14.00-17.00 Nabil Abdennadher, Univ. of Applied Sciences, West. Switzerland, CH

Title: Towards a decentralized Federated Learning based edge-to-edge Continuum Computing Framework

17.00-17.30 Break

17.30-19.00 Iryna DE ALBUQUERQUE SILVA, CEA, FR

Title: Aidge: Embedded AI Open Source Platform

Day 3, Thursday 12 June:

09.00-10.30 Samir OUCHANI, CESI, FR

Title: Designing Trustworthy Smart Systems: Bridging Artificial Intelligence and Formal Methods

10.30-11.00 Break

11.00-12.30 Zakaria Chihani, CEA, FR

Title: Trustworthy AI: Methods & Tools

12.30-13.30 Lech Jóźwiak, TU/e, NL

Title: Quality-driven Design of Cyber-Physical Systems

13.30-14.30 Lunch Break

14.30-16.30 Hans Vangheluwe and Joachim Denil, University of Antwerp, BE

Title: General systems engineering concepts (for CPS) and General modelling and simulation concepts

16.30-17.30 Joachim Denil, University of Antwerp, BE

Title: Requirements Modelling for Testing and Run-time Monitoring

17.30-18.00 Break

18.00-19.00 Rakshit Mittal and Hans Vangheluwe, University of Antwerp, BE

Title: Modelling and simulation of physical systems using OpenModelica (lecture/hands-on)

Day 4, Friday 13 June:

09.00-10.00 Rakshit Mittal and Hans Vangheluwe, University of Antwerp, BE

Title: Calibration and control of physical systems using OpenModelica (lecture/hands-on)

10.00-12.00 Joeri Exelmans and Hans Vangheluwe, University of Antwerp, BE

Title: Modelling, simulation, and synthesis of discrete-event systems using Statecharts (lecture/hands-on)

12.00-13.00 Lunch Break

13.00-16.30 Anish Bhobe, Dominique Blouin, and Yara Hallak, Telecom Paris, FR

Title: Modelling, verification, and synthesis of embedded cyber-physical systems using AADL and RAMSES (lecture/hands-on)

16.30-17.00 Break

17.00-18.30 Radovan Stojanovic, University of Montenegro and MECOnet, ME

Title: Design of performance and energy efficient nodes for smart systems

18.30-19.00 Closing of the CPS&IoT'2023 Summer School

+ Free participation in sessions of the CPS&IoT'2023 Conference and MECO'2023 Conference

Summer School participants are expected to come with their own laptops. Internet access will be guaranteed.

Day 5, Saturday 14 June: Excursion possible (excursion fee is not included in the summer school fee)