SoftCOM 2025 - CONTENTS

GENERAL CO-CHAIRS MESSAGE

Dear participants and colleagues, it is our pleasure to welcome you to the SoftCOM 2025 conference. We are excited to have an opportunity to take part in the organization of an international conference that gathers researchers and professionals from academia and industry to share experiences and new ideas in such a dynamic area as Information and Communication Technology. Technology is increasingly shaping the prosperity of countries and companies. The development of disruptive technologies such as AI, along with geopolitical events, is creating new arenas of competition, centered on investment in the innovation, production, and adoption of advanced technologies. Emerging information and communication technologies are key drivers of the digital society and economy. With evolving and new services we are enabling people to innovate, learn, collaborate, and through joint research and technology advancement we are opening ground for new discoveries and sustainable economic growth. Our conference will provide opportunities to interact and network with presenters, experts, peers, and colleagues, as well as to participate in various discussions. The 33rd International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2025), technically co-sponsored by the IEEE Communications Society, will be held on September 18-20, 2025 in the beautiful city of Split located on the magnificent Croatian Adriatic coast. It will be our pleasure to meet you at the conference.

Welcome!

Sinisa Krajnovic

Dinko Begusic

TEHNICAL PROGRAM CHAIRS MESSAGE

The 33rd Conference on Software, Telecommunications and Computer Networks (SoftCOM 2025) will be held in Radisson Blu Resort hotel, Split, Croatia, September 18 to 20, 2025.

Researchers and experts from industry, research institutes and universities from 50 countries all around the world have prepared their submissions for presentation at SoftCOM 2025. Submitted papers have been peer reviewed by scientists from universities, institutes and ICT companies. The accepted papers have been carefully selected based on their contribution, relevance, conceptual clearness and overall quality.

The technical conference program features six general conference sessions, three special sessions and six symposia. The special sessions are dedicated to hot topics including: New Trends in Satellite and Space Communications and Navigation, Ad Hoc&Sensor Networks and Internet of Things and Advanced Educational Technologies.

Besides that a Business Forum will be organized featuring industrial panels and workshops with participation of managers, experts, professionals and institutions' representatives. The PhD Forum is dedicated to increase the visibility of doctoral students' research. The 25th Ericsson Nikola Tesla Summer Camp workshop provides the opportunity to students to promote their achievements and improve their innovations management skills.

On behalf of the Technical Program Committee we would like to thank and credit the authors for their excellent contributions. Particular thanks to the reviewers for their great job as well as to the IEEE Communications Society (ComSoc), Technical Committee of Communication Software for the support.

Technical Program Committee Co-chair

Pascal Lorenz

SoftCOM 2025 COMMITTEES

TECHNICAL PROGRAM COMMITTEE

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Tianhua Xu, Tianjin University, China

Toni Perkovic, University of Split, Croatia

Tony Bogovic, Perspecta Labs, USA

Zoran Blazevic, University of Split, Croatia

SoftCOM 2025 Conference Secretary

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**UNIVERSITY OF SPLIT
FACULTY OF ELECTRICAL ENGINEERING,
MECHANICAL ENGINEERING AND NAVAL
ARCHITECTURE - F E S B SPLIT**

**COMMUNICATIONS AND INFORMATION
SOCIETY, CROATIA (CCIS)**

Under the auspices of:

CROATIAN ACADEMY OF ENGINEERING

Technically co-sponsored by:

**I E E E COMMUNICATIONS SOCIETY
(COMSOC)**

IEEE CROATIA SECTION

**IEEE COMMUNICATIONS SOCIETY –
CROATIA CHAPTER**

SoftCOM 2025 PROGRAM OUTLINE

Thursday, September 18, 2025 (Hotel Radisson Blu)

> *08:00 – 09:00 Registration*
>
> *09:00 – 10:30 Technical program, Professional program, Business forum*
>
> *10:30 – 11:00 Coffee break*
>
> *11:00 – 12:30 Technical program, Professional program, Business forum*
>
> *12:30 – 14:30 Lunch*
>
> *14:30 – 16:00 Technical program, Professional program, Business forum*
>
> *16:00 – 16:30 Coffee break*
>
> *16:30 – 18:00 Technical program, Professional program, Business forum*

Friday, September 19, 2025 (Hotel Radisson Blu)

> *08:00 – 09:00 Registration*
>
> *09:00 – 10:30 Technical program, Professional program, Business forum*
>
> *10:30 – 11:00 Coffee break*
>
> *11:00 - 12:30 Keynote speech*
>
> *12:30 – 14:30 Conference Luncheon*
>
> *14:30 – 16:00 Technical program, Professional program, Business forum*
>
> *16:00 – 16:30 Coffee break*
>
> *16:30 – 18:00 Technical program, Professional program, Business forum*
>
> *18:30 – 23:00 Social program*

Saturday, September 20, 2025 (Hotel Radisson Blu)

> *08:30 – 10:00 Technical program, Professional program, Business forum*
>
> *10:00 – 10:30 Coffee break*
>
> *10:30 – 12:00 Technical program, Professional program, Business forum*
>
> *12:30 – Conference trip – Salona - The Ancient City Tour*

KEYNOTE SPEAKER

Status and (desired) evolution of the Telecommunications sector and thus of the related research

Nicola Blefari-Melazzi

University of Rome Tor Vergata, Italy, President of CNIT and of the RESTART Foundation
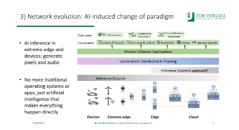
Abstract: The SOFTCOM conference focuses on communications software, services and applications, telecommunications, and computer networks—fields undergoing constant and significant transformation. However, this evolution extends beyond scientific and technological advancements. The profound impact of technical changes in networking, combined with the emergence of new players assuming increasingly influential roles in the delivery of ICT services, is reshaping the entire ecosystem, its value chains, and the relationships among stakeholders. These shifts are so substantial that they influence not only the economics of the sector but also the nature of research and development—affecting both the topics and challenges being addressed, as well as the methodologies employed. Two long-standing trends are now manifesting their full impact: the growing prominence of software, often equalling or surpassing hardware in importance; and the logical fragmentation of the Internet into a few dominant blocks, where a small number of actors control key content and functionalities. This results in an uneven landscape, with significant disparities in performance and services across regions. Together, these trends pose serious risks to traditional network operators and, in some areas, threaten infrastructure investments. This talk will explore the evolution of the communications sector, highlighting the implications of these trends for research priorities and challenges. Topics will include the deployment of 5G and other high-capacity networks, the transition toward 6G, and the roles of AI, cloud computing, and quantum technologies in EU-funded research initiatives. Key findings from large-scale research projects will also be discussed. The presentation will conclude with an overview of potential future scenarios for the European telecommunications ecosystem. It will identify the key factors and decisions that could shape its development, aiming to provide guidance for policymakers and regulators in choosing the most favourable paths forward.

Nicola Blefari-Melazzi is a full Professor of Telecommunications at the University of Roma Tor Vergata, where he served as Chair of the PhD program in Telecommunications Engineering, Chair of the undergraduate and graduate programs in Telecommunications Engineering and Chair of the Department of Electronic Engineering. From January 2017 to January 2023, he has been the Director of CNIT (National Inter-University Consortium for Telecommunications), a non-profit Consortium made up of 41 Italian Universities. More than 1,300 people, belonging to the participating universities, collaborate with CNIT, while the number of own-employees is more than 100. Since January 2023 he is the president of CNIT. His research projects have been funded by Italian Ministries, by the Italian National Research Council, by major companies (e.g., Ericsson, Telecom Italia), by the ESA and by the EU. He has participated in 33 EU projects, playing the role of project coordinator and PI for eight of them. Since September 2022, he is the President of the RESTART Foundation, established primarily for the implementation, coordination and management of the research program "Telecommunications of the Future", funded by the Italian Ministry of University with 116 M€. He evaluated many research proposals and projects in EU programs and served as TPC member, TPC Chair, General Chair and Steering Committee Chair for IEEE Conferences and guest editor for IEEE Journals. He has been an area editor for Elsevier's Computer Networks. He is author/co-author of about 260 papers. His research interests lie in the performance evaluation, design and control of telecommunications networks.

TECHNICAL PROGRAM: GENERAL CONFERENCE

S1: 5G & B5G TECHNOLOGIES

Chair: Giovanni Giambene (University of Florence, Italy)

Federation of Satellite Systems for Integrated Satellite-Terrestrial Networks: the 5G-HUB Project
Giovanni Giambene, Riccardo Zambon and Minh Hoang Nguyen (University of Siena, Italy); Miguel Ángel Vazquez (CTTC, Spain); Jorge Baranda (Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain); Erislandy Mozo (Centre Tecnològic de Telecomunicacions de Catalunya, Spain); Lorenzo Santilli (TIM - Telecom Italia SPA, Italy); Luis Cordeiro and José Ricardo Guimarães (OneSource, Portugal); Laura Campos (Hisdesat, Spain); Maria Ruiz Molina (Indra Espacio, Spain); Jesús Fernández (Indra Espacio, Spain & Indra, Spain); Julio Modrego Gil (INDRA, Italy); Fernando Zangarini (Open Arms, Italy); Lorenzo Stefano Massucchielli (Croce Rossa Italiana, Italy)

Implementing DualPI2 AQM in 5G Networks
Thayná C. Santos and Eduardo Freitas (Universidade Federal de Pernambuco, Brazil); Assis Tiago de Oliveira Filho (Universidade Federal de Pernambuco & GPRT Networking and Telecommunications Research Group, Brazil); Pedro R. X. do Carmo (Universidade Federal de Pernambuco & GPRT - Grupo de Pesquisa Em Redes e Telecomunicações, Brazil); Maria Eduarda Veras (Universidade Federal de Pernambuco, Brazil); Djamel Hadj Sadok (Federal University of Pernambuco, Brazil)

A Comparative and Measurement-Based Study on Real-Time Network KPI Extraction Methods for 5G and Beyond Applications
Batuhan Kaplan, Samed Keşir and Ahmet F Coskun (Turkcell, Turkey)

Overview of Throughput Modeling in 6G Networks
Stojan Kitanov (Mother Teresa University, Skopje, Macedonia, the former Yugoslav Republic of); Martina Antonic (University of Zagreb, Croatia)

User-UAV Association for Dynamic User in mmWave Communication for eMBB and URLLC
Siddhanta Parial (Indian Statistical Institute Kolkata, India); Sasthi C. Ghosh (Indian Statistical Institute, India); Anil Kumar Ghosh (Indian Statistical Institute Kolkata, India)

A Bayesian approach for stable mmWave link selection utilizing uncertain Markov chains
Durgesh Singh (Thapar Institute of Engineering and Technology, India); Sasthi C. Ghosh (Indian Statistical Institute, India)

S2: OPTICAL COMMUNICATIONS AND NETWORKING

Chair: Duje Čoko (University of Split, Croatia)

Predicting Wavefront Errors by Analysing Point Spread Function in Space Optical Communications
Kavindu Sellahewa and James J. Shawe (Walton Institute, South East Technological University, Ireland); Mohammed Salih Mohammed Gismalla and Deirdre Kilbane (Walton Institute, Ireland)

Investigation of Nonlinear Effects on a Quantum Key Distribution System in DWDM Scenarios
Marton Czermann, Eszter Udvary and Benjámin Ott (Budapest University of Technology and Economics, Hungary); Áron Szabó (Sigma Technology Hungary Ltd., Hungary); Benedek Kovacs (BUTE, Hungary)

Digital Twin-Integrated Binary Classifier ML Model for EDFA Failure Prediction
Mashboob Cheruvakkadu Mohamed, Renato Ambrosone, Muhammad Umar Masood and Gulmina Malik (Politecnico di Torino, Italy); Stefano Straullu (Links Foundation, Italy); Sai Kishore Bhyri (Nokia Corporation, India); Joao Pedro (Nokia Portugal, Portugal & Instituto de Telecomunicações, Portugal); Antonio Napoli (Nokia, Germany); Gabriele Maria Galimberti (Nokia Corporation, Italy); Walid Wakim (Nokia Corporation, USA); Vittorio Curri (Politecnico di Torino, Italy)

Optimizing RAN X-Haul Performance through Targeted Hollow-Core Fiber Deployment in Converged Metro-Access Networks
Ahtisham Ali (Consorzio TOP-IX, Italy & Politecnico di Torino, Italy); Sanwal Zeb, Andrea Rosso, Muhammad Umar Masood, Gulmina Malik, Renato Ambrosone and Riccardo Schips (Politecnico di Torino, Italy); Bruno Correia (Nokia Portugal, Portugal); Stefano Straullu (Links Foundation, Italy); Francesco Aquilino (LINKS Foundation Italy, Italy); Joao Pedro (Nokia Portugal, Portugal & Instituto de Telecomunicações, Portugal); Antonio Napoli (Nokia, Germany); Alessandro Galardini (TOP-IX Consortium, Italy); Vittorio Curri (Politecnico di Torino, Italy)

Thursday, September 18, 09:00 - 10:30 (PALMA)

S3: AI FOR COMMUNICATIONS AND NETWORKING

Chair: Valerio Frascolla (Ancona university, Italy)

AI-Enhanced Seamless Handover in Wi-Fi Networks with Multi-Link Management
Elena Ferrari (University of Padova, Italy); Dave A Cavalcanti (Intel Corporation, USA); Valerio Frascolla (Intel Deutschland GmbH, Germany); Rafael Rosales (Intel Labs, Mexico)

Binary VPN Traffic Detection Using Wavelet Features and Machine Learning
Yasameen Sajid Razooqi and Adrian Pekar (Budapest University of Technology and Economics, Hungary)

Federated Variational Autoencoders for Unsupervised Anomaly Detection in Distributed 5G Networks
Saeid Sheikhi, Amirhossein Ghaffari, Aref Amiri and Lauri Lovén (University of Oulu, Finland)

Machine Learning-assisted Secure Random Communication System by deploying kNN-based receiver
Areeb Ahmed (University of Ljubljana, Slovenia); Zoran Bosnić (University of Ljubljana, Faculty of Computer and Information Science, Slovenia)

Evaluation of Machine Learning Intrusion Detection Systems Resiliency to Network Traffic Evolution
Florent Durécu (LIMOS-CNRS Université Clermont Auvergne Clermont-Ferrand France); Maxime Puys (LIMOS-CNRS Université Clermont Auvergne Clermont-Ferrand France, France); Gerard Chalhoub (LIMOS-CNRS Université Clermont Auvergne Clermont-Ferrand France); Paul-Marie Grollemund (LMBP-UMR 6620 Université Clermont Auvergne Aubière France)

Thursday, September 18, 11:00 - 12:30 (PALMA)

S4/I: INFORMATION AND DATA PROCESSING I

Chair: Angelo Perkusich (Federal University of Campina Grande, Brazil)

Toward Generalizable and Extensible Workflow Automation for Multi-Source Data Processing
Danial Soltanal Khalili (Politecnico di Torino, Italy); Alessio Viticchié and Felice Cetrone (AlphaWaves Srl, Italy); Edoardo Patti and Alessandro Aliberti (Politecnico di Torino, Italy)

Automatic Calibration of Ranked Nodes in Bayesian Networks Using Genetic Algorithms

Mirko Barbosa Perkusich (VIRTUS, Brazil & Mirko Perkusich, Brazil); Felipe Cunha (Federal University of Campina Grande, Brazil); Danyllo Wagner Albuquerque (UFCG & Intelligent Software Engineering Group, Brazil); Kyller Costa Gorgônio and Angelo Perkusich (Federal University of Campina Grande, Brazil)

Graph Neural Networks for Minimum Independent Dominating Set Problem
Marko Kozlik, Marko Križmančić and Stjepan Bogdan (University of Zagreb, Croatia)

HdLOF: Fast, Scalable Local Outlier Factor for Large-Scale, High-Dimensional Anomaly Detection
Mahmood Almansoori (Budapest University of Technology and Economics, Hungary & Al-Qasim Green University, Iraq); Miklos Telek (Budapest University of Technology and Economics, Hungary)

QuantLLM: A Hybrid Classical-Quantum LLM Transformer with Adaptive Routing Framework for Inference Latency Minimization
Nishat Mahdiya Khan (Amity University Kolkata, India); Pronaya Bhattacharya (Amity University, Kolkata, India); Sandip Roy (Old Dominion University, USA & Asansol Engineering College, India); Sachin Shetty (Old Dominion University, USA)

Embodied Multimodal Chatbot for Mental Health Support in Web-Based 3D Environments
Gustavo Biaso Dias Pinto and João Pedro Ramalho de Sousa (UFLA, Brazil); Renata Lopes Rosa (Universidade Federal de Lavras, Brazil); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil)

Saturday, September 20, 08:30 - 10:00 (PALMA)

S4/II: INFORMATION AND DATA PROCESSING II

Chair: Matko Šarić (University of Split, Croatia)

Transfer Learning with Fine-Tuning for Air Pollution Forecasting
Grega Vrbančič, Jana Janković and Vili Podgorelec (University of Maribor, Slovenia)

A case of urban PM measurements with IoT sensors: issues and solutions
Niccolo' Moggi (Lepida Scpa, Italy & University of Bologna, Italy); Gianluca Mazzini (IEEEE, Italy); Stefania Nanni (Lepida ScpA, Italy)

Tracking Albania's Tourism Image Through Reddit-Based Sentiment and Topic Modeling
Gladiola Tigno (University of Tirana, Albania & European University of Tirana, Albania); Areti Stringa (University of Tirana, Albania); Florenc Hidri (Canadian Institute of Technology, Albania)

Adaptive Mixture of Experts for PM2.5 Forecasting: A Novel Ensemble Approach Outperforming Traditional Time Series Models
Vipin Kataria (Picarro, USA); Vivek Venkatesan (Vanguard, USA); Vinodkumar Reddy Surasani (RBC Wealth Management, USA); Ashish Sahu (Adobe Inc, USA)

Public Sentiment and COVID-19: A Twitter Data Analysis Using Deep Learning Techniques
Lucija Bročić and Tea Marasovic (University of Split, Croatia); Branko Žitko (University of Split, Faculty of Science, Croatia)

A Native Architecture Model to Enable FPGAs in Cloud Environments
Alin-Tudor Sferle, Daniel Zinca, Iustin-Alexandru Ivanciu and Virgil Dobrota (Technical University of Cluj-Napoca, Romania)

Thursday, September 18, 14:30 – 16:00 (AGAVA)
S5: IMAGE AND SIGNAL PROCESSING

Chair: Joško Radić (University of Split, Croatia)

Segmentation of the Drivable Area Using Front View Camera in Vehicle
Dunja Ćaleta (TTTech Auto CEE, Croatia); Mario Vranjes (University of Osijek, Croatia); Ratko Grbić (University of Osijek, Faculty of Electrical Enginnering, Croatia); David Mijić (TTTech Auto CEE, Croatia)

Video Emotion Classification Using EEG Conformer and Cross-Modal Representation Learning
Jörn Fischer (Technical University of Applied Sciences Mannheim, Germany); Hyoung-Gook Kim (Kwangwoon University, Korea (South)); Jin Kim (Chonnam National University, Korea (South))

Assessing the Performance of Attention Drop Prediction Using Electroencephalography Signals
Darija Jurko (Croatian Defence Academy, Croatia); Damir Krstinic (University of Split, Croatia)

Do We Really Need Balanced Error-Correcting Codes?
Marco Ferrari (CNR-IEIIT, Italy); Antonino Favano (Politecnico di Milano, Italy); Marco Sforzin and Paolo Amato (Micron, Italy); Luca Barletta (Politecnico di Milano, Italy)

A New Accurate Simply Explicitly Invertible Upper Bound for the \(Q\)-Function
Alessandro Soranzo, Francesca Vatta, Massimiliano Comisso, Giulia Buttazzoni and Fulvio Babich (University of Trieste, Italy)

Application for Face Super-Resolution Based on Generative Adversarial Networks
Ines Momić (TTTech-Auto, Croatia); Ratko Grbić (University of Osijek, Faculty of Electrical Enginnering, Croatia); Mario Vranjes (University of Osijek, Croatia); Matteo Brisinello (TTTech Auto Central and Eastern Europe, Croatia)

Constellation Design in NOMA Communication Systems
Marta Balić, Joško Radić and Matko Saric (University of Split, Croatia)

Thursday, September 18, 16:30 - 18:00 (AGAVA)
S6: SOFTWARE DEVELOPMENT

Chair: Linda Vicković (University of Split, Croatia)

OpenRASE: Service Function Chain Emulation
Theviyanthan Krishnamohan and Paul Harvey (University of Glasgow, United Kingdom (Great Britain))

Evaluating the Quality of User Stories: A Comparative Study of Large Language Models and Rule-Based Tool
Mirko Barbosa Perkusich (VIRTUS, Brazil & Mirko Perkusich, Brazil); Izabella Silva (UFCG, Brazil); Danyllo Wagner Albuquerque (UFCG & Intelligent Software Engineering Group, Brazil); Kyller Costa Gorgônio and Angelo Perkusich (Federal University of Campina Grande, Brazil)

LLM-CODEVAL: A Framework for Verifying Implementations of Mathematical Functions Using Language Models
Felipe Cunha (Federal University of Campina Grande, Brazil); Mirko Barbosa Perkusich (VIRTUS, Brazil & Mirko Perkusich, Brazil); Danyllo Wagner Albuquerque (UFCG & Intelligent Software Engineering Group, Brazil); Kyller Costa Gorgônio and Angelo Perkusich (Federal University of Campina Grande, Brazil)

SPECIAL SESSIONS AND SYMPOSIA

SS1: SPECIAL SESSION ON NEW TRENDS IN SATELLITE AND SPACE COMMUNICATIONS AND NAVIGATION

Friday, September 19, 09:00 - 10:30 (KAKTUS)
SS1: SPECIAL SESSION ON NEW TRENDS IN SATELLITE AND SPACE COMMUNICATIONS AND NAVIGATION

Chair: Roberto Garello (Politecnico di Torino, Italy)

Distributed Deep Learning Approach for Seamless Handover Management in Non-Terrestrial Networks
Nour Badini (University of Genoa, Italy); Mona Jaber (Queen Mary University of London, United Kingdom (Great Britain)); Mario Marchese, Camilo Jose Rojas and Fabio Patrone (University of Genoa, Italy)

Constellation Optimization for Low-Earth-Orbit-Based Positioning Services in African Region
Elena Simona Lohan (Tampere University, Finland & Universitat Autonoma de Barcelona, Spain); Kaan Celikbilek (Tampere University, Finland); Oana Cramariuc (CITST, Romania)

Impact of Error-Correcting Code Performance on Telecommand Rejection in Ground-to-Space Communications
Rebecca Giuliani (Università Politecnica delle Marche, Italy); Nicola Maturo (European Space Agency, The Netherlands); Davide Rovelli (TEC-SET European Space Agency, The Netherlands); Massimo Battaglioni (Università Politecnica Delle Marche, Italy); Marco Baldi and Franco Chiaraluce (Università Politecnica delle Marche, Italy)

Distributed On-Demand Routing for VLEO Constellations with 3-Terminal Inter-Satellite Links
Nicolò Benso and Alessandro Compagnoni (Politecnico di Torino, Italy); Gregory F. Stock (Saarland University, Germany); Juan A. Fraire (Inria/INSA Lyon & CONICET, National University of Córdoba, Argentina); Gabriel Maiolini Capez and Camilla Ottaviani (Politecnico di Torino, Italy); Daniel Gaetano Riviello (CNR-IEIIT, Italy); Giacomo Verardo (KTH Royal Institute of Technology, Sweden); Mirca Gargiulo (Thales Alenia Space Italia, Italy); Leonardo Ospizio (Thales Alenia Space Italy, Italy); Carla Fabiana Chiasserini (Politecnico di Torino & CNIT, IEIIT-CNR, Italy); Roberto Garello (Politecnico di Torino, Italy)

Location-based Radio Resource Management with MU-MIMO for VLEO-NTN Systems
Daniel Gaetano Riviello (CNR-IEIIT, Italy); Bjorna Anamali (Politecnico di Torino, Italy); Alberto Tarable (CNR-IEIIT, Italy)

Hybrid Precoding Algorithms for Non-Terrestrial Networks
Deyu Kong (Harbin Institute of Technology, China); Giorgio Taricco (Politecnico di Torino, Italy); Qing Guo (Harbin Institute of Technology, China)

SS2: SPECIAL SESSION ON AD-HOC & SENSOR NETWORKS AND INTERNET OF THINGS

Friday, September 19, 9:00 - 10:30 (PALMA)
SS2: SPECIAL SESSION ON AD-HOC & SENSOR NETWORKS AND INTERNET OF THINGS

Chair: Ante Kristić (University of Split, Croatia)

Channel Access Scheduling for the IEEE 802.11ah IoT Network Adopting the Triggered RAW Mode based on Slot Length Adjustment
Chung-Ming Huang and Kuan-Yu Lin (National Cheng Kung University, Taiwan)

Real - Time environmental Monitoring in Historical semiconfined spaces: a case study of the SENNSE IoT deployment in Florence
Alberto Bucciero (CNR, Italy); Marta Castellini (CNR-ISPC, Italy); Alessandra Chirivì (CNR, Italy); Riccardo Colella (National Research Council (CNR), Italy); Alessandro Conti (University of Florence, Italy); Mohamed Emara (ISPC-CNR, Italy); Lidia Fiorini (University of Florence, Italy - Sapienza University of Rome, Italy); Matteo Greco and Mohamed Ali Jaziri (ISPC-CNR, Italy); Mariacristina Metrangolo (CNR - ISPC, Sede Secondaria di Lecce, Italy); Irene Muci (University of La Sapienza & CNR-ISPC, Italy); Noushin Najafiragheb (ISPC-CNR, Italy); Andrea Pandurino and Cristiano Riminesi (National Research Council, Italy); Stefano Santo Sabato (Mediasoft srl, Italy); Francesco Taurino (ISPC-CNR, Italy); Grazia Tucci (University of Florence, Italy); Davide Zecca (CNR - Istituto di Scienze del Patrimonio Culturale, Italy)

MQTT over QUIC: Comparison with TCP and TCP+TLS in a Virtualized IoT Environment
Davi Souza Luna (IFPE & Campus Igarassu, Brazil); Ramon Mota de Souza Farias (Instituto Federal de Pernambuco, Brazil & Campus Igarassu, Brazil); David Cavalcanti (Federal University of Pernambuco, Brazil)

Enhancing IoT Security via Optimized Dual Chain-Channel Device Identification and Attack Detection Scheme

Ogobuchi Daniel Okey (Federal University of ABC (UFABC), Brazil & Michael Okpara University of Agriculture, Umudike (MOUAU), Nigeria); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil); Sajjad Dadkhah (University of New Brunswick (UNB), Canada); João Henrique Kleinschmidt (Universidade Federal Do ABC, Brazil)

Minimizing Cost in Bistatic Radar Placement for Belt Coverage

Ethan Hunt (Kennesaw State University, USA); Bing-Hong Liu (National Kaohsiung University of Science and Technology, Taiwan); Tu N. Nguyen, Yong Shi and Kun Suo (Kennesaw State University, USA)

Soil Moisture Prediction with Attention-Enhanced Deep Learning Models

Vlado Grubišić (University of Mostar, Bosnia and Herzegovina); Daniel Vasić (University of Mostar & Faculty of Science Math and Education, Bosnia and Herzegovina); Hrvoje Ljubić and Robert Rozić (University of Mostar, Bosnia and Herzegovina); Tomislav Volarić (Faculty of Science and Education University of Mostar, Bosnia and Herzegovina)

Friday, September 19, 9:00 - 10:30 s(AGAVA)
SS3: SPECIAL SESSION ON ADVANCED EDUCATIONAL TECHNOLOGIES

Chair: Branko Žitko (University of Split, Croatia)

Comparison of Generative Artificial Intelligence Tools in the Assessment of Student Assignments

Matija Novak, Darko Androcec and Ruben Picek (University of Zagreb, Croatia)

AI Literacy in the Classroom: Applying the TPACK Framework in Primary Education

Boško Lišnić and Goran Zaharija (University of Split, Croatia); Saša Mladenović (University of Split & Faculty of Science, Croatia)

Designing Education for the AI Era: Principles for Integrating LLMs in Pedagogy

Alberto Biscalchin (Malmö University, Sweden); Arezoo Sarkheyli-Hägele (Malmö universitet, Sweden); Bahtijar Vogel and Jeanette Eriksson (Malmö University, Sweden)

CLUE LMS: LLM-Based Chat and Quiz Generation for Enhanced Learning

Alfonso Piscitelli, Gennaro Costagliola, Mattia De Rosa, Vittorio Fuccella and Parinaz Tabari (University of Salerno, Italy)

Children's Perception and Engagement with a Humanoid Robot Speaking Their Native Language

Hana Ivančić, Ana Vuksanović and Dorotea Potoč (University of Zagreb, Croatia); Lucija Ćurko (Some New Kids, Croatia); Suzana Mamić (Kindergarten Sunčana, Croatia); Ivan Lipanović (Some new kids, Croatia); Tomislav Jagušt (University of Zagreb, Croatia)

Thursday, September 18, 14:30 - 16:00 (KAKTUS)
SYM1/I: SYMPOSIUM ON NEXT GENERATION WIRED AND WIRELESS NETWORKS I

Chair: Pascal Lorenz (University of Haute Alsace, France)

Measurement and Complex Analysis of QoS/E in 4G/5G Mobile Networks under High Mobility

Zbyněk Kocur and Ondrej Vondrous (Czech Technical University in Prague, Czech Republic)

A Low-Complexity Compressive Sensing Channel Estimation and Phase Optimization for RIS-Aided Millimeter-wave MIMO Systems

Mahmoud Naamani (Le CNAM, France); Didier Le Ruyet and Hmaied Shaiek (CNAM, France)

RIS Size Determination Across Frequencies and Deployment Scenarios: A Simulation-Based Study

Emre Arslan (Koc University, Turkey); Ahmet F Coskun (Turkcell, Turkey)

Evaluation of Video Streaming Quality Degradation in Lossy Environment

Janusz Henryk Klink and Michał Łuczyński (Wroclaw University of Science and Technology, Poland); Jaroslav Frnda (University of Zilina, Slovakia); Tadeus Uhl (Flensburg University of Applied Sciences, Germany)

Reflect Array-Type Static Surfaces: Design and Experimental Evaluation in Outdoor mmWave Networks

Samed Keşir, Batuhan Kaplan and Zehra Yigit (Turkcell, Turkey); Emre Arslan (Koc University, Turkey); Ahmet F Coskun (Turkcell, Turkey); Recep Baş and Sergiy Panin (Millimeter Wave and

Terahertz Research Laboratories (MİLTAL), Turkey); Ilhami Unal (University College Dublin, Ireland); Sefa Kayraklık (Koç University & Tübitak Bilgem, Turkey); Onur Salan (Communications and Signal Processing Research (HİSAR) Laboratory, TÜBİTAK BİLGEM, Turkey); Ibrahim Hokelek (TUBITAK BILGEM, Turkey)

On Phase Optimization for Multi-Beam Transmitting RIS-Assisted mmWave MIMO Systems

Mahmoud Naamani (Le CNAM, France); Didier Le Ruyet and Hmaied Shaiek (CNAM, France)

SYM1/II: SYMPOSIUM ON NEXT GENERATION WIRED AND WIRELESS NETWORKS II

Thursday, September 18, 16:30 - 18:00 (KAKTUS)

SYM1/II: SYMPOSIUM ON NEXT GENERATION WIRED AND WIRELESS NETWORKS II

Chair: Pascal Lorenz (University of Haute Alsace, France)

Energy-Aware Anomaly Detection in Wind Turbine SCADA Systems

Angela Voinea Ciocan and Sofiane Hamrioui (ESAIP, France); Pascal Lorenz (University of Haute Alsace, France); Vincent Courboulay (L3i - La Rochelle Université, France); Adrian Ciocan (La Rochelle University, France)

Time-Series Forecasting with SARIMAX for Intent Prediction

Nagham Hachem (Gustave Eiffel University, France); Eric Renault (LIGM, Université Gustave Eiffel, CNRS, ESIEE Paris, France); Cuong Manh Nguyen (LIGM, ESIEE Paris, University Gustave Eiffel, France)

Scalable and Adaptive Multi-Access Edge Computing: A Dynamic Classification and Containerization Framework

Mohammed Hamad AlMuharif and Sankaranarayanan Suresh (King Faisal University, Saudi Arabia); Pascal Lorenz (University of Haute Alsace, France)

A Finer ALOHA-Based Analytical Model for LR-FHSS Performance Evaluation

Wilem Lamdani (University of Rennes, France); Gerardo Rubino (INRIA, France); Soraya Ait Chellouche (University of Rennes 1, France); Yassine Hadjadj-Aoul (University of Rennes, France); César Viho (IRISA / INRIA Rennes & University of Rennes I, France)

Effects of Non-Contiguous Spectrum on Time-of-Arrival Estimation in Multiband ISAC

Ana Jeknić (Jožef Stefan Institute & Jožef Stefan International Postgraduate School, Slovenia); Aleš Švigelj (Jožef Stefan Institute, Slovenia); Tomaž Javornik (Jožef Stefan Institute, Slovenia & Jožef Stefan International Postgraduate School, Slovenia); Andrej Hrovat (Jožef Stefan Institute, Slovenia)

Joint QoE Optimization in Adaptive Streaming Network Fluctuations on Edge Layers

André Luiz Silva de Moraes, Sr (Federal University of Santa Catarina, Brazil & Federal Insitute of Santa Catarina, Brazil); Douglas D J Macedo (Federal University of Santa Catarina, Brazil)

SYM2/I: SYMPOSIUM ON SECURITY AND DATA FORENSICS I

Thursday, September 18, 14:30 – 16:00 (PALMA)

SYM2/I: SYMPOSIUM ON SECURITY AND DATA FORENSICS I

Chair: Toni Perković (University of Split, Croatia)

Toward Secure Content-Centric Approaches for 5G-Based IoT: Advances and Emerging Trends

Ghada Jaber (Universite de Technologie de Compiegne, France); Mohamed Ali Zormati (Université de Technologie de Compiègne (UTC), France); Walid Cavelius, Louka Chapiro and Mohamed El Ahmadi (Université de Technologie de Compiègne, France)

Multi-Metric Detection and Mitigation of Label-Flipping Attacks in Federated Learning Using Conditional Variational Autoencoders

Sai Sriram Gonthina (International Institute of Information Technology, Naya Raipur, India); Sandip Roy (Old Dominion University, USA & Asansol Engineering College, India); Sayyed Farid Ahamed (Old Dominion University, USA); Pronaya Bhattacharya (Amity University, Kolkata, India); Sachin Shetty (Old Dominion University, USA)

Adaptive and Context-Aware Defenses Against Interest Flooding Attacks in CCN-based IoT

Ghada Jaber (Universite de Technologie de Compiegne, France); Remi Bouchard, Alienor Bruniaux, Théodore Garcher, Soulaymane Kebli, Maoye Guan and Zhiyi Zhang (University of Technology of Compiegne, France)

An Experimental Evaluation on LLM-based Classification of Emerging Cyber Threat Tactics

Raimir Holanda Filho and Pedro Pinheiro (University of Fortaleza, Brazil); Luis Gouveia (University Fernando Pessoa, Portugal); Tiago Monteiro, Arthur Mendonca and Vinicius Dourado (University of Fortaleza, Brazil)

Overview of graph neural networks application on state-of-the-art cyber security network threat detection techniques
Riko Luša (University of Zagreb, Faculty of Electrical Engineering and Computing); Damir Pintar (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia)

SYM2/II: SYMPOSIUM ON SECURITY AND DATA FORENSICS II

Thursday, September 18, 16:30 – 18:00 (PALMA)
SYM2/II: SYMPOSIUM ON SECURITY AND DATA FORENSICS II

Chair: Miljenko Mikuc (University of Zagreb, Croatia)

Security Analysis of a Typical Endpoint in the Internet
Michał Jóźków (Poland)

VITA: Verifiable Decentralized Authentication and Access control in B5G/6G IoT Environments
Mohammed B. Alshawki (Furtwangen University, Germany & Eotvos Lorand University, Hungary); Yehao Zhou (ELTE Eotvos Lorand University, Hungary); Sándor Laki (Eötvös Loránd University, Hungary); Peter Ligeti (Eotvos Lorand University, Hungary)

DEEP-STRIDE: Automated Security Threat Modeling with Vision-Language Models
Eranga Bandara (Old Dominion University, USA); Amin Hass (Accenture Technology Labs, USA); Ravi Mukkamala and Sachin Shetty (Old Dominion University, USA); Abdul Rahman (Deloitte & Touche LLP, USA); Ross Gore and Safdar Hussain Bouk (Old Dominion University, USA)

p4SD: A lightweight port scan detection for programmable networks
Daniel Miranda (University of Minho, Portugal); Rui Pedro C. Monteiro (University of Minho & INESC TEC, Portugal); João Marco C. Silva (University of Minho, Portugal & INESC TEC, Portugal)

Towards Agent-Based Generation of Multi-Step Vulnerability Scenarios for Cyber Ranges
Dora Pavelić (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia); Ivan Kovačević and Filip Katulić (University of Zagreb Faculty of Electrical Engineering and Computing & CyberArrange Security Solutions j.d.o.o., Croatia); Stjepan Gros (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia)

SYM2/III: SYMPOSIUM ON SECURITY AND DATA FORENSICS III

Friday, September 19, 14:30 - 16:00 (RUŽMARIN)
SYM2/III: SYMPOSIUM ON SECURITY AND DATA FORENSICS III

Chair: Miljenko Mikuc (University of Zagreb, Croatia)

Deep Packet Inspection (DPI) Enabled Data Perturbation
Siwar Kriaa (Nokia Bell Labs, France & nokia France networks, France); Vikramajeet Khatri and Mehrnoosh Monshizadeh (Nokia Bell Labs, Finland); Kari Tiirikainen (Boldyn Networks, Finland)

DDoS Attack Detection and Mitigation Using Double Deep Q-Networks
Mia Jadrić (University of Split, Croatia); Saša Mladenović (University of Split & Faculty of Science, Croatia)

Privacy-Preserving Federated Data Governance Framework for Secure Parameter Exchange in Distance Education
Oluyemisi Adenike Oyedemi (Federal University of Lavras, Brazil); Renata Lopes Rosa (Universidade Federal de Lavras, Brazil); Ugochukwu Okwudili Matthew, Sr (Federal University of Lavras, Brazil & Hussaini Adamu Federal Polytechnic, Nigeria); Lukman Adebayo Ogundele (Olabisi Onabanjo University, Ago Iwoye, Nigeria); Yetunde Esther Ogunwale (University of Ilesa, Nigeria); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil)

Agent-Based AI Approach to Security in IoT Systems Leveraging GenAI
Nenad Petrovic (University of Nis, Serbia); Dragana Krstic (University of Niš, Serbia); Suad Suljovic (Metropolitan University in Belgrade, Serbia); Slawomir Hanczewski and Mariusz Glabowski (Poznan University of Technology, Poland)

SYM3/I: SYMPOSIUM ON GREEN NETWORKING AND COMPUTING I

Thursday, September 18, 09:00 – 10:30 (KAKTUS)
SYM3/I: SYMPOSIUM ON GREEN NETWORKING AND COMPUTING I

Chair: Josip Lorincz (University of Split, Croatia)

A comparison of static and dynamic micro-service placement strategies for edge computing

Riccardo Lancellotti and Manuel Iori (University of Modena and Reggio Emilia, Italy); Thiago Alves de Queiroz (Federal University of Catalao, Brazil); Davide Agostini (University of Modena and Reggio Emilia, Italy)

OTRE-POWER: Open Tool for Reproducible Characterization of Edge Power Consumption
Francesco Faenza (PostDoc Researcher, Italy & University of Modena and Reggio Emilia, Italy); Riccardo Mescoli, Linda Burchiellaro and Claudia Canali (University of Modena and Reggio Emilia, Italy)

Energy-aware Scheduling in Cloud-native Environment
Selome Kostentinos Tesfatsion and Oleg Gorbatov (Ericsson AB, Sweden); Xuejun Cai (Ericsson, Sweden)

SYM3/II: SYMPOSIUM ON GREEN NETWORKING AND COMPUTING II

Thursday, September 18, 11:00 - 12:30 (KAKTUS)
SYM3/II: SYMPOSIUM ON GREEN NETWORKING AND COMPUTING II

Chair: Josip Lorincz (University of Split, Croatia)

Energy-Aware Adaptive Federated Learning for IoT Security in 6G
Yasintha Rumesh and Pawani Porambage (VTT Technical Research Centre of Finland, Finland); Ijaz Ahmad (VTT Technical Research Centre of Finland & VTT Technical Research Center of Finland, Finland)

Energy Optimization in IoT Adaptive Security: A Performance Comparison of Deep Reinforcement Learning Approaches
Asma Arab (Université de Technologie de Compiègne, France); Ghada Jaber (Universite de Technologie de Compiegne, France); Abdelmadjid Bouabdallah (Universite de Technologie - Compiegne, France)
Enhancing Energy-Efficient Resource Allocation in OFDMA Networks Using Deep Q-Network Optimization
Arjola Biti (Polytechnic University of Tirana, Albania & Vodafone, Albania); Olimpjon Shurdi and Luan Ruçi (Polytechnic University of Tirana, Albania)

A Power Consumption Model for Customer Premise Equipment: Methodology and Application
Robin Dethienne and Jerome Louveaux (Université catholique de Louvain, Belgium); David Bol (Université Catholique de Louvain, Belgium)

SYM4/I: SYMPOSIUM ON ROBOTICS AND ICT ASSISTED WELLBEING I

Saturday, September 20, 08:30 - 10:00 (KAKTUS)
SYM4/I: SYMPOSIUM ON ROBOTICS AND ICT ASSISTED WELLBEING I

Chair: Vladan Papić (University of Split, Croatia)

Telehealth and telemedicine web-app for skin ulcers remote monitoring
Guido Pagana (LINKS Foundation & Politecnico of Turin, Italy); Debora Beneduce (LINKS Foundation, Italy); Marco Cutarelli, Simone Terranova, Matteo Sabbatini, Alessandro Imperiale and Khalili Param Atefeh (Politecnico di Torino, Italy); Francesco Lubrano and Giuseppe Caragnano (LINKS Foundation, Italy)

Lightweight Hybrid Image Analysis for Maize Disease Detection
Ugochukwu Okwudili Matthew, Sr (Federal University of Lavras, Brazil & Hussaini Adamu Federal Polytechnic, Nigeria); Renata Lopes Rosa (Universidade Federal de Lavras, Brazil); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil)

Bio-robotic mobile platform for studying insect behavioral patterns
Valentin Nikolov (Sensata Technologies, Bulgaria); Ivan Chavdarov (Bulgarian Academy of Sciences, Bulgaria & St Kliment Ohridski, Bulgaria); Bozhidar Naydenov (Institute of Robotics, Bulgarian Academy of Sciences, Sofia, Bulgaria); Plamen Kunev (Institute of Robotics, Bulgarian Academy of Sciences, Bulgaria)

Evaluation of deep neural network architectures and image datasets for olive fruit detection
Josip Music, Toma Sikora, Mirjana Bonkovic and Vladan Papic (University of Split, Croatia)

TrackOne: Smart Logistics for a Sustainable and Interoperable Agricultural Supply Chain in the Era of Digitization
Franco Maciariello, Fabrizio Benelli and Giovanna Sangiuolo (Universitas Mercatorum, Italy); Eddi Lorenzi, Cristiana Caponio and Claudio Salvadori (New Generations Sensors srl, Italy)

Optimizing Olive Detection via YOLOv8 and Active Learning: Benefits of Uncertainty-Based and Missed-Detection Sampling Strategies
Mirjana Bonkovic (University of Split, Croatia); Ozana Uvodić (University Departments of Professional Studies, Croatia); Mojmil Cecić (University of Split, Croatia); Ana Kuzmanić Skelin (Faculty of Electrical Engineering, Croatia)

Saturday, September 20, 10:30 - 12:00 (KAKTUS)
SYM4/II: SYMPOSIUM ON ROBOTICS AND ICT ASSISTED WELLBEING II

Chair: Mirjana Bonković (University of Split, Croatia)

Optimising Controller of an Unstable Process I
Mikulas Huba (Slovak University of Technology in Bratislava, Slovakia); Jarmila Škrinárová (Matej Bel University, Slovakia); Pavol Bistak (Slovak University of Technology in Bratislava, Slovakia); Damir Vrancic (Jožef Stefan Institute, Slovenia)

Social Robot Selection in Primary Education: A Multi-Criteria Decision-Making Approach
Maria Tzampazaki, Eleni Vrochidou, Georgios Lekkas, Theofanis Kalampokas and George A Papakostas (Democritus University of Thrace, Greece)

Image-Based Deep Learning for Biomedical Time-Series: Enhancing 1D Signal Classification via 2D Transformations
Georgios Lekkas, Panagiotis Georgiadis, Emmanouil V Gkouvrikos, Eleni Vrochidou and George A Papakostas (Democritus University of Thrace, Greece)

Computer Vision in Extended Reality
Elpida Siandri and Zoi Kasapi (Democritus University of Thrace, Greece); Stamatis Chatzistamatis (University of the Aegean, Greece); Georgios Lekkas, Eleni Vrochidou and George A Papakostas (Democritus University of Thrace, Greece)

Thursday, September 18, 16:30 - 18:00 (RUŽMARIN)
SYM5/I: CONTEL SYMPOSIUM: Smart Environments, User Behavior, and Services I

Chair: Maja Matijasevic (University of Zagreb, Croatia), Erich Leitgeb (University of Technology, Graz, Austria)

Modeling of User Interactions for Adaptive Video Streaming Services on Smartphone Devices
Ivan Bartolec and Lea Skorin-Kapov (University of Zagreb, Croatia)

Architecting the Future: Harmonizing SOA and

Microservices in IoT-Driven Smart Cities
Meriton Ibraimi (University of Technology Graz, Austria & University of Tetova, Macedonia, the former Yugoslav Republic of); Festim Halili and Merita Kasa Halili (State University of Tetovo, Macedonia, the former Yugoslav Republic of)

Decentralized and Cyber Security Solutions for Life Long Learning through Micro-credentials: An approach taken by the University of Ljubljana
Argene Superina, Andrej Kos and Matevž Pustišek (University of Ljubljana, Slovenia)

Traffic Monitoring Using LED-Based Visible Light Sensing integrated in the Existing Lighting Infrastructure
Christian Fragner (Joanneum Research, Austria); Christian Krutzler (Joanneum Research Forschungsgesellschaft mbH, Austria); Andreas P Weiss (Joanneum Research, Austria); Robert Wenighofer and Robert Galler (Technical University of Leoben, Austria)

Analysis of Similarity in User Movements Based on Call Data Records
Antonia Žaja (University of Zagreb, Croatia); Mario Kordić (Croat, Croatia); Marin Vukovic (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia)

Saturday, September 20, 08:30 - 10:00 (RUŽMARIN)
SYM5/II: CONTEL SYMPOSIUM: AI/ML and Advances in Optical & Wireless Communication Systems II

Chair: Mario Kušek (University of Zagreb, Croatia)

Ensemble machine learning with uncertainty quantification for $C2n$ prediction in FSO networks
Arfan Zaghloul and Pasha Bekhrad (Graz University of Technology, Austria); Attila Magyar (University of Pannonia, Hungary); Erich Leitgeb (Graz University of Technology, Austria)

Deep Learning for Automatic Ionogram Scaling: Heading for More Generalizing Approaches
Mirela Fetescu (Joanneum Research & Graz University of Technology, Austria); Karin Plimon (Joanneum Research, Austria); Martin Winter (JOANNEUM RESEARCH Forschungsgesellschaft mbH, Austria); Carlo Scotto (Istituto Nazionale di Geofisica e Vulcanologia, Italy); Bruno Nava (International Centre for Theoretical Physics (ICTP), Italy); Miquel Garcia-Fernandez and Sergi Sanchez

(Rokubun, Spain); Johannes Ebert (Joanneum Research, Austria); Franz Teschl (Graz University of Technology, Austria); Raul Orus Perez (European Space Agency (ESA) / ESTEC, The Netherlands)

Polarization-Based Peak Distortion Mitigation for 5G Sidelink Positioning
Franziska Rasp (Graz University of Technology, Austria; Continental Automotive Technologies GmbH, Germany; OTH Regensburg, Germany); Burak Sahinbas and Thomas Reisinger (Continental Automotive Technologies GmbH, Germany); Erich Leitgeb (Graz University of Technology, Austria); Susanne Hipp (OTH Regensburg, Germany)

Agentic AI-Driven Network Management: Case of ABEP in MRC Combining System for Wireless Signal Transmission under BX Fading
Dragana Krstic (University of Niš, Serbia); Suad Suljovic (Metropolitan University in Belgrade, Serbia); Nenad Petrovic (University of Nis, Serbia); Zoran Popovic (Technical College of Vocational Studies, Zvecan, Serbia)

3-D BPM Analysis of Bending Loss and Modal Power Distribution in PCB-Embedded Polymer Multimode Fibers
Hiroaki Takahashi (AT&S Austria Technologie & Systemtechnik Aktiengesellschaft, Austria); Claudia Ebner and Gyuhyeon Park (AT&S AG, Austria); Junya Sakamoto and Erich Leitgeb (Graz University of Technology, Austria)

AI-Driven Fault Prediction and Restoration Leveraging Real-Time SOP Monitoring
Gulmina Malik, Imran Chowdhury Dipto and Muhammad Umar Masood (Politecnico di Torino, Italy); Ahtisham Ali (Consorzio TOP-IX, Italy & Politecnico di Torino, Italy); Mashboob Cheruvakkadu Mohamed (Politecnico di Torino, Italy); Stefano Straullu (Links Foundation, Italy); Sai Kishore Bhyri (Nokia Corporation, India); Gabriele Maria Galimberti (Nokia Corporation, Italy); Joao Pedro (Nokia Portugal, Portugal & Instituto de Telecomunicações, Portugal); Antonio Napoli (Nokia, Germany); Walid Wakim (Nokia Corporation, USA); Vittorio Curri (Politecnico di Torino, Italy)

SYM5/III CONTEL - CEEPUS

Thursday, September 18, 14:30 - 16:00 (RUŽMARIN)
SYM5/III: CONTEL CEEPUS

Chair: Galia Marinova (Universitly of Sofia, Bulgaria)

A Web-Based Hybrid Optimization Platform for

Real-Time Microgrid Energy Management
Elton Boshnjaku and Besnik Qehaja (Technical University of Sofia, Bulgaria); Edmond Hajrizi (University for Business and Technology, Austria); Vassil Guliashki (Institute of Information and Communication Technologies - BAS, Bulgaria); Galia Marinova (Technical University of Sofia, Bulgaria & Technical University-Sofia, Bulgaria)

Automatic Power Supply Design Tool Selection in the Online-CADCOM platform
Katerina M Kostova (Technical University of Sofia, Bulgaria); Galia Marinova (Technical University of Sofia, Bulgaria & Technical University-Sofia, Bulgaria)

BigSEIZ Test Outcomes: Applying ML Techniques for Fake News Identification and Comparing SIR and SEIZ Epidemic Models on Twitter's Temporal Network
Kristel Bozhiqi (Uamd, Albania); Vassil Guliashki (Institute of Information and Communication Technologies - BAS, Bulgaria)

AI-Powered Workflow Completion in the Online-CADCOM Platform
Lavdim Menxhiqi (UBT, Kosovo); Galia Marinova (Technical University of Sofia, Bulgaria & Technical University-Sofia, Bulgaria)

Optimization Model for Communications Between Hospitals During a Pandemic
Diellza Berisha (Bulgarian Academy of Sciences, Bulgaria & UBT - Higher Education Institution, Kosovo); Vassil Guliashki (Institute of Information and Communication Technologies - BAS, Bulgaria)

SYM6/I: SYMPOSIUM: ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY I

Friday, September 19, 16:30 - 18:00 (OLEANDAR)
SYM6/I: SYMPOSIUM ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY I

Chair: Dragan Poljak (University of Split, Croatia)

Towards Implementation of Advanced Bioheat Models in Human Head Exposed to 5G Radiation
Ivan Dominik Horvat (University of Maribor, Slovenia); Jana Wedel (Friedrich-Alexander-Universität, Germany); Nejc Vovk and Blaž Kamenik (University of Maribor, Slovenia); Paul Steinmann (Friedrich-Alexander-Universität, Germany); Jure Ravnik (University of Maribor, Faculty of Mechanical Engineering, Slovenia)

TIMETABLE A: TECHNICAL PROGRAM, SYMPOSIA

Thursday, September 18 (Hotel Radisson Blu)

Time/Hall	AGAVA	PALMA	KAKTUS
8:00-9:00	REGISTRATION		
9:00-10:30	S1: 5G & B5G Technologies	S3: AI for Communications and Networking	SYM3/I: Symposium on Green Networking and Computing I
10:30-11:00	Coffee Break		
11:00-12:30	S2: Optical Communications and Networking	S4/I: Information and Data Processing I	SYM3/II: Symposium on Green Networking and Computing II
12:30-14:30	Lunch		
14:30-16:00	S5: Image and Signal Processing	SYM2/I: Symposium on Security and Data Forensics I	SYM1/I: Symposium on Next Generation Wired and Wireless Networks I
16:00-16:30	Coffee Break		
16:30-18:00	S6: Software Development	SYM2/II: Symposium on Security and Data Forensics II	SYM1/II: Symposium on Next Generation Wired and Wireless Networks II

Friday, September 19 (Hotel Radisson Blu)

Time/Hall	AGAVA	PALMA	KAKTUS
08:00-09:00	REGISTRATION		
09:00-10:30	SS3: Special Session on Advanced Educational Technologies	SS2: Special Session on Ad-Hoc & Sensor Networks and Internet of Things	SS1: Special Session on New Trends in Satellite and Space Communications and Navigation
10:30-11:00	Coffee Break		
11:00-12:30	Keynote speech: Nicola Blefari-Melazzi: *Status and (desired) evolution of the Telecommunications sector and thus of the related research* (GRAND BALLROOM)		
12:30-14:30	Conference Luncheon		
14:30-16:00	W2: Workshop on Information Security and Intellectual Property	W1: 1st OWIN6G/I Workshop on Optical and Wireless Sensor Networks for 6G	PHD FORUM
16:00-16:30	Coffee Break		
16:30-18:00	W1: 1st OWIN6G/I **Invited talk:** Z. Ghassemlooy, S. Zvanovec (PALMA)		WESC (KAKTUS)
18:30-23:00	Social program Guided tour in Diocletian's Palace (18:30 - 20:00) Evening in the cellars of Diocletian's Palace (20:30 – 23:00)		

Saturday, September 20 (Hotel Radisson Blu)

Time/Hall	AGAVA	PALMA	KAKTUS
08:30-10:00	S4/II: Information and Data Processing II (PALMA)		SYM4/I: Symposium on Robotics and ICT Assisted Wellbeing I
10:00-10:30	Coffee Break		
10:30-12:00	WICT/II: 31st Workshop on Information and Communications Technologies II (AGAVA)		SYM4/II: Symposium on Robotics and ICT Assisted Wellbeing II (KAKTUS)
12:30-15:00	Conference trip-Salona-The Ancient City Tour		

TIMETABLE B: WORKSHOPS, BUSINESS FORUM

Thursday, September 18 (Hotel Radisson Blu)

Time/Hall	RUŽMARIN	OLEANDAR
08:30-09:00	REGISTRATION	
09:00-10:30	WICT/I: 31st Workshop on Information and Communications Technologies I	Tutorial T3: A. Mujezinović
10:30-11:00	Coffee Break	
11:00-12:30	WICT/DI: Workshop on Deepfake images: analysis and detection	Tutorial T3: A. Mujezinović
12:30-14:30	Lunch	
14:30-16:00	SYM5/III: Contel – CEEPUS (RUŽMARIN)	
16:00-16:30	Coffee Break	
16:30-18:00	SYM5/I: Contel Symposium: Smart Environments, User Behavior, and Services I (RUŽMARIN)	

Friday, September 19 (Hotel Radisson Blu)

Time/Hall	RUŽMARIN	OLEANDAR
8:00-9:00	REGISTRATION	
9:00-10:30	Building Croatia's Digital Future: Opportunities and Challenges of the ICT Sector	Tutorial T1: D. Poljak
10:30-11:00	Coffee Break	
11:00-12:30	Tutorial T1: D. Poljak (OLEANDAR)	
12:30-14:30	Conference Luncheon	
14:30-16:00	SYM2/III: Symposium on Security and Data Forensics III	Tutorial T2: J. Ravnik
16:00-16:30	Coffee Break	
16:30-18:00	1st Workshop on Computer Vision and Artificial Intelligence in Fruit Cultivation	SYM6/I: Symposium on Enviromental Electromagnetic Compatibility I
18:30-23:00	Social program Guided tour in Diocletian's Palace (18:30 - 20:00) Evening in the cellars of Diocletian's Palace (20:30 – 23:00)	

Saturday, September 20 (Hotel Radisson Blu)

Time/Hall	RUŽMARIN	OLEANDAR
8:30-10:00	SYM5/II: Contel Symposium: AI/ML and Advances in Optical & Wireless Communication Systems II	SYM6/II: Symposium on Enviromental Electromagnetic Compatibility II
12:30-15:00	Conference trip-Salona-The Ancient City Tour	

TIMETABLE C: POSTER SESSIONS

Friday, September 19 (Hotel Radisson Blu)

Time/Hall	ADRIATIC	MAESTRAL	BURA
08:00-09:00	REGISTRATION		
09:00-10:30	DIGIPHY (BURA)		
14:30-16:00	OWIN6G/P, POSTER SESSION (ADRIATIC)	PHD FORUM (MAESTRAL)	
16:30-18:00	OWIN6G/P (ADRIATIC)		

Analysis of Temperature Distribution During Laser-Eye Treatment Using Compound and Extracted Eye Models
Mario Cvetković (University of Split, Croatia); Hrvoje Dodig (University of Split, Faculty of Maritime Studies & Naval Electronic Center, PCE, Croatia); Dragan Poljak (University of Split, Croatia)

Computational Study of 5G Technology Dosimetry on SAM Human Head Model
Klementina Vidjak, Maja Škiljo and Dragan Poljak (University of Split, Croatia)

Typical 5G Scenarios in Republic of Croatia - Measured Values of Electric Field
Marin Galić (University of Split, Croatia & Environmental Measurement Center LTD, Croatia); Dragan Poljak (University of Split, Croatia); Tomislav Ivandić (Environmental Measurement Center LTD, Croatia)

SYM6/II: SYMPOSIUM: ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY II

Saturday, September 20, 9:00 - 10:00 (OLEANDAR)

SYM6/II: ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY II

Chair: Dragan Poljak (University of Split, Croatia)

A Simple Analytical Modeling of a Rocket Thruster- Double Disk Solenoid Plasma Thruster
Dragan Poljak, Sandro Skocic, Marko Duvnjak and Tin Marusic (University of Split, Croatia); Ognjan Bozic and Slobodan Danko Bosanac (Adriatic Aerospace Association (A3), Croatia)

Assessment of steady-state temperature elevation in a 3-layer tissue model: A simplified analytical approach
Enida Cero Dinarević and Dragan Poljak (University of Split, Croatia)

Step Voltage Calculation Above a Horizontal Grounding Grid
Vicko Doric (University of Split, FESB, Croatia); Ljubomir Hrboka (CARNET, Croatia); Dragan Poljak (University of Split, Croatia)

W1: 1st OWIN6G/I WORKSHOP ON OPTICAL AND WIRELESS SENSOR NETWORKS FOR 6G

Friday, September 19, 14:30 - 16:00 (PALMA)

W1 1st OWIN6G/I Workshop on Optical and Wireless Sensor Networks for 6G

Chair: Stanislav Zvanovec (University of Prague, Czechia), Zabih Ghassemlooy (Northumbria University, UK)

Throughput and Capacity Analysis of LiFi-over-Powerline
Atiyeh Pouralizadeh (Fraunhofer Heinrich Hertz Institute & Technische Universität Berlin, Germany); Lennert Bober (Fraunhofer Heinrich Hertz Institute, Germany); Volker Jungnickel (Fraunhofer Heinrich Hertz Institute & Technische Universität Berlin, Germany); Andrea M Tonello (University of Klagenfurt, Austria)

Demonstration of a Novel Gigabit Optocoupler with Small Footprint and High Isolation Voltage
Kai Schmieder (Fraunhofer Institute for Photonic Microsystems IPMS, Germany); Tobias Schneider (Fraunhofer Institute for Photonic Microsystems, Germany); René Kirrbach (Fraunhofer IPMS, Germany)

Optical Wireless Localization by Encoding angle of departure: a system performance analysis
Lev Azarkh (Eindhoven University of Technology, The Netherlands); Jean-Paul Linnartz (Technische Universiteit Eindhoven, The Netherlands)

Dynamic Refractive Index Sensing Using a Tapered U-Shaped Fiber and an Interrogator with Real-Time Spectral Waterfall Visualization
Yiming Shen (Technological University Dublin, Ireland & Eblana Photonics, Ireland); Raul Zamorano-Illanes and Haili Ma (Northumbria University, United Kingdom (Great Britain)); Bo Cai (Eblana Photonics, Ireland); Qiang Wu and Zabih Ghassemlooy (Northumbria University, United Kingdom (Great Britain)); Yuliya Semenova (Technological University Dublin, Ireland)

Performance Analysis and Modeling of an Indoor IoT-Oriented Energy Harvesting Optical Wireless Sensor Network
Alexandros Aslanidis and Thomas Kamalakis (Harokopio University of Athens, Greece); Stanislav Zvanovec (Czech Technical University in Prague, Czech Republic); Raul Zamorano-Illanes and Zabih Ghassemlooy (Northumbria University, United Kingdom (Great Britain))

Analysis of Segmentation Techniques for Space Multiplexing in a Rolling Shutter Optical Camera Communication
Raul Zamorano-Illanes, Zabih Ghassemlooy, Qiang Wu and Xicong Li (Northumbria University, United Kingdom (Great Britain)); Shivani Rajendra Teli and Carlos Guerra-Yánez (Czech Technical University, Czech Republic); Stanislav Zvanovec (Czech Technical University in Prague, Czech Republic)

Modeling and Experimental investigation of Ambient Light Effect in Indoor NIR-OCC Systems
Nooshin Amini, Asghar Gholami and Ehsan Bagheri (Isfahan University of Technology, Iran); Negar Shirvani Kordavani (Isfahan University of Technology (IUT), Iran); Zabih Ghassemlooy and Raul Zamorano-Illanes (Northumbria University, United Kingdom (Great Britain))

On the Usage of Pulse-Width Modulation for Sensing Data Transmission supported on Optical Camera Communication
Atiya Fatima Usmani (University of Aveiro, Portugal); Miguel Rêgo (University of Aveiro & Instituto de Telecomunicações, Portugal); Shivani Rajendra Teli (Czech Technical University, Czech Republic); Stanislav Zvanovec (Czech Technical University in Prague, Czech Republic); Luis Nero Alves (DETI, Universidade of Aveiro, Portugal & Instituto de Telecomunicações, Portugal); Pedro Fonseca (University of Aveiro, Portugal & Instituto de Telecomunicações, Portugal)

Towards the development of digital twins for OWC networks
Satish Kumar Modalavalasa (Czech Technical University in Prague, Czech Republic); Carlos Guerra-Yánez and Shivani Rajendra Teli (Czech Technical University, Czech Republic); Christos Giachoudis (Ecole Centrale Méditerranée, France); Stanislav Zvanovec (Czech Technical University in Prague, Czech Republic); Thomas Kamalakis (Harokopio University of Athens, Greece); Zabih Ghassemlooy (Northumbria University, United Kingdom (Great Britain))

Implementing a Traffic Classifier on Embedded SoC Systems with Deep Learning Processor Unit
Francisco Rau (MaxLinear, Spain & Universitat de Valencia, Spain); Luis Miguel Giraldo (Universitat de Valencia, Spain); Carlos Herranz (Maxlinear & MXL, Spain); Joaquin Perez (Universitat de Valencia, Spain); Iñaki Val (MaxLinear, Spain); Raimundo Garcia (Department of Electronic Engineering - Higher Technical School of Engineering, Spain)

Application controller approach with embedded systems for a sensoring system
Luis Miguel Giraldo (Universitat de Valencia, Spain); Atiya Fatima Usmani (University of Aveiro, Portugal); Joaquin Perez (Universitat de Valencia, Spain); Luis Nero Alves (DETI, Universidade of Aveiro, Portugal & Instituto de Telecomunicações, Portugal); Raimundo Garcia (Department of Electronic Engineering - Higher Technical School of Engineering, Spain); Pedro Fonseca (University of Aveiro, Portugal & Instituto de Telecomunicações, Portugal)

LSTM-Based Traffic Prediction for 5G Mobile Network Operator
Francisco Rau (MaxLinear, Spain & Universitat de Valencia, Spain); Carlos Herranz (MaxLinear & MXL, Spain); Iñaki Val (MaxLinear, Spain); Joaquin Perez (Universitat de Valencia, Spain)

Friday, September 19, 14:30 - 16:00 (ADRIATIC)

PAS1: POSTER / ABSTRACTS SESSION

Chair: Matko Šarić (University of Split, Croatia)

Shape vs. Volume in Learning Analytics: Longitudinal Evidence from 11 Million LMS Interactions
Lars Mehnen (Technikum Wien, Austria); Birgit Pohn (University of Applied Sciences Technikum Wien, Austria & Medical University Graz, Austria)

Friday, September 19, 14:30 - 15:00 (PALMA)

OWIN6G INVITED TALK: MILICA PETKOVIC

BRIDGING THE SPECTRUM INDOORS: HYBRID RF/OWC SOLUTIONS FOR SMART IOT SYSTEMS

Milica Petković, PhD
University of Novi Sad, Serbia

Abstract: As an innovative modern technology for both indoor and outdoor applications, the optical wireless communications (OWC) represent wireless connectivity using infrared, visible or ultraviolet bands. With its powerful benefits such as high bandwidth, low cost and operation in an unregulated spectrum, OWC have

received an attention in research and industry areas as an appropriate alternative or complement to the traditional radio-frequency (RF) systems. To address the surging demand for wireless connectivity driven by the massive deployment of Internet of Things (IoT) devices, hybrid indoor networks that integrate RF and OWC technologies are emerging as a key enabler of next-generation connectivity. These heterogeneous networks combine the wide coverage and maturity of RF systems (e.g., WiFi, Bluetooth) with the high-capacity, interference-free characteristics of OWC technologies (e.g., LiFi, VLC). Such hybrid architectures offer enhanced throughput, reliability, energy efficiency, and spectrum utilization compared to stand-alone solutions. Moreover, they enable seamless user experiences through intelligent handover, load balancing, and adaptive resource allocation. The synergy of RF and OWC within shared indoor environments is particularly promising for applications requiring low latency, high security, and precise localization—ranging from industrial automation and smart healthcare to immersive AR/VR services. This talk will explore the potential of hybrid RF/OWC indoor networks to meet the stringent requirements of 5G-and-beyond IoT systems and highlight the key challenges and future research directions in their design and deployment.

Biography:

Milica Petkovic was born in Knjazevac, Serbia, in 1986. She received the M.Sc. and Ph.D. degrees in electrical engineering from the Faculty of Electronic Engineering, University of Nis, Serbia, in 2010 and 2016, respectively. Currently, she is an Assistant Professor with the Department of Power, Electronic and Telecommunication Engineering, Faculty of Technical Sciences, University of Novi Sad, Serbia. Her research interests are in the broad area of digital communication systems with emphasis on optical wireless communications (OWC), indoor OWC for future Internet of Things (IoT), design of free-space optical (FSO) communication systems, mobile cellular systems (5G and beyond 5G). She published more than 50 papers in top-tier journal and conference proceedings. She was a national representative and WG4 Vice-Chair for the EU COST action CA19111 on Optical Wireless Communications. She is coordinator of Autonomous Province of Vojvodina Long-term Project, "Visible light technology applications for detection, localization and communication in smart buildings," as well as Proof of Concept, The Science Fund of the Republic of Serbia, "Design and implementation of IoT gateway for hybrid OWC/LoRa networks". She has been involved in many national and international projects.

PROFESSIONAL PROGRAM

Friday, September 19, 14:30 - 16:00 (ADRIATIC)

PDS1: POSTER / DEMOS SESSION

Chair: Matko Šarić (University of Split, Croatia)

Approximate Solution of Equations with Numerical Calculation Methods
Mauro Pullin (Galileo Galilei State Scientific High School, Selvazzano Dentro, Padova & University of Padova - Department of Information Engineering - Department of Neuroscience, Italy)

The Montecarlo Method
Mauro Pullin (Galileo Galilei State Scientific High School, Selvazzano Dentro, Padova & University of Padova - Department of Information Engineering - Department of Neuroscience, Italy)

Thursday, September 18, 09:00 - 10:30 (RUŽMARIN)

WICT/I: 31st Workshop on Information and Communications Technologies I

Chair: Maja Stella (University of Split, Croatia)

On Homomorphic Encryption Feasibility in Large-Scale Cloud Environments
Sanon Isooba (Eotvos Lorand University, Hungary); Fatemeh Stodt (Furtwangen University, Germany); Mohammed B. Alshawki (Furtwangen University, Germany & Eotvos Lorand University, Hungary)

From Virtual Machines to Containers: A Case Study in Legacy Infrastructure Modernization
Elisa Benetti (LepidaScpA, Italy); Gianluca Mazzini (LepidaSpA & UniFe, Italy)

Regional IoT Data Integration in a Big-Data Framework
Gian Paolo Jesi and Andrea Odorizzi (Lepida ScpA, Italy); Gianluca Mazzini (LepidaSpA & UniFe, Italy)

Optimising Controller of an Unstable Process II (part 2)
Mikulas Huba (Slovak University of Technology in Bratislava, Slovakia); Jarmila Škrinárová (Matej Bel University, Slovakia); Pavol Bistak (Slovak University of Technology in Bratislava, Slovakia); Damir Vrancic (Jožef Stefan Institute, Slovenia)

Modern Approach and Trends in Information Systems
Tina Klisura (FESB & King ICT, Croatia); Maja Stella (University of Split, Croatia)

A Computer Vision Solution for Smart Traffic Lights
Roko A Bogdanović and Joško Radić (University of Split, Croatia)

Saturday, September 20, 10:30 - 12:00 (RUŽMARIN)

WICT/II: 31st Workshop on Information and Communications Technologies II

Chair: Marina Prvan (University of Split, Croatia)

Network intrusion detection system based on machine learning algorithm
Benjamin Varvodić (TTTech Auto, Croatia); Mario Vranjes (University of Osijek, Croatia); Marijan Herceg (FERIT, Croatia); Ratko Grbić (University of Osijek, Faculty of Electrical Enginneering, Croatia)

A Conceptual Framework for Assessing the Relationship between Organizations' Digital Maturity and Cyber Resilience
Hrvoje Karna (University of Defence and Security, Croatia); Vida Vukovic (University of Defense and S$/IISecurity, Montenegro)

Multi-Model Deep Learning Approach for Multi-Class Brain Tumor Detection from MRI
Abu Mukaddim Rahi (North South University, Bangladesh); Mariam Binte Bashir (North South University & Dhaka, Bangladesh); Maher Ali Rusho (University of Colorado, Boulder, USA); Md. Khurshid Jahan (North South University, Bangladesh)

LoRa-Based Indoor Localization: The Role of Bandwidth and Spreading Factor
Hakim Adjedjou (Conservatoire nationale des arts et métiers- Paris, France); Lounis Zerioul (Conservatoire Nation Des Arts et Metiers, France); Iness Ahriz (CNAM, France); Samuel Garcia and Michel Terré (Conservatoire national des arts et métiers, France)

Complex Networks from Survey Data: Evaluation of Existing Theory and a Proposed Way Forward
Dino Pitoski (Peoplet Ltd., Croatia & University of Rijeka, Croatia); Ana Meštrović (University of Rijeka, Croatia); Hans Schmeets (Maastricht University, The Netherlands)

Intelligence Driven Cyber: A Survey of Gaps in Emerging Markets
Ajla Cerimagic Hasibovic (Univerzitet u Sarajevu, Bosnia and Herzegovina); Muhamed Hasić and Kara Westerfield (University of Dubrovnik, Croatia)

Thursday, September 18, 11:00 - 12:30 (RUŽMARIN)

WICT/DI: Workshop on Deepfake images: analysis and detection

Chair: Damir Krstinić (University of Split, Croatia)

Deepfake Detection Study Review
Natasa Vulevic, Paula Bonic and Damir Krstinic (University of Split, Croatia)

A Dual Approach Deepfake Generation for Synthetic Wildfire Images
Jakov Bejo (University of Split, FESB, Croatia); Damir Krstinic (University of Split, Croatia); Antonia Bartulović (University of Split, FESB, Croatia); Maja Braović (University of Split - FESB, Croatia)

Comparative Analysis of DeepFake Generation Models
Lovre Gradac, Robert Lovrić, Jakov Petric and Antonia Ivanda (University of Split, Croatia)

Unmasking Deepfakes: Anomaly Detection in GAN-Generated Content
Josip Maretić, Dina Vrandečić, Ante Turudić and Antonia Ivanda (University of Split, Croatia)

Friday, September 19, 14:30-16:00 (KAKTUS)

PHD FORUM

Chair: Maja Škiljo (University of Split, Croatia)

Enhanced Human-AI Interaction through Structured Prompting of Large Language Models
Dino Nejašmić and Andrina Granić (University of Split, Croatia)

Multimodal Sensor Data in Vector databases: Applications for academic integrity
Robert Rozić (University of Mostar, Bosnia and Herzegovina)

QoE Evaluation of UI for Geo-located Wearable AR
Katarina Mišura and Mirko Suznjevic (University of Zagreb, Croatia)

Enhancing Transportation Data Presentation: From Graphs to AI-Driven Insights
Ivana Slošić (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia); Jurica Babic (University of Zagreb & Faculty of Electrical Engineering and Computing, Croatia)

Fire Detection Using a Multimodal Machine Learning Approach
Davor Damjanovic and Josip Balen (Josip Juraj Strossmayer University of Osijek, Croatia)

Client Grouping Strategies in Federated Learning: Models vs. Latent Space
Katarina Vuknić (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia); Ivana Podnar Zarko (University of Zagreb, Croatia)

Emphasising the Social in QoE-Centric Frameworks for Multiuser Immersive XR Systems
Mirta Moslavac (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia); Lea Skorin-Kapov (University of Zagreb, Croatia)

Exploring Active Learning Approaches in Olive Fruit Detection
Ozana Uvodić (University Departments of Professional Studies, Croatia); Mirjana Bonkovic (University of Split, Croatia)

Towards Autonomous Pruning in Orchards
Jana Dukić (Faculty of Electrical Engineering, Computer Science and Information Technology Osijek, Croatia); Petra Pejić, Ivan Vidović and Emmanuel Karlo Nyarko (Josip Juraj Strossmayer University of Osijek, Croatia)

Adversarial Domain Generalisation for Cross-Network Anomaly Detection
Ivan Sičić and Miljenko Mikuc (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia)

Quality of Experience in Multi-User Cross-Reality Environments
Lea Brzica and Lea Skorin-Kapov (University of Zagreb, Croatia)

Human-in-the-Loop Interaction: Building Intelligent Environments for Robotics and Gaming
Nikolina Roso and Mirko Suznjevic (University of Zagreb, Croatia)

Optimizing Precision Irrigation in Vineyards Using IoT and Deep Learning
Simona Stojanova and Emilija Stojmenova Duh (University of Ljubljana, Slovenia)

Acoustic Side-Channel Attack on Keyboards Using a Convolutional Neural Network
Dario Vranjes (FESB, University of Split, Croatia); Toni Perkovic (University of Split, FESB, Croatia); Marin Bugarić (FESB University of Split, Croatia); Ivo Stancic (University of Split, Croatia)

Friday, September 19, 14:30 - 15:00 (AGAVA)

W2: WORKSHOP ON INFORMATION SECURITY AND INTELLECTUAL PROPERTY (ISIP)

ISIP INVITED TALK I: MAJA PROSO

SOME LEGAL CHALLENGES OF PROCESSING PERSONAL DATA ON THE INTERNET

Maja Proso, PhD
University of Split, Faculty of Law, Split, Croatia

Summary:
The fast pace of information and communication technology development introduces considerable challenges and risks for safeguarding personal data, given the internet's central role in nearly all aspects of daily life. Privacy and data protection are connected, as legal data protection mechanisms are essential for online privacy. Recognized internationally as a basic human right, the misuse of technology has recently illuminated the significance of privacy in modern society and the difficulty of defining it within the context of ongoing technological and informational growth. The digital shift also affects how companies analyze user preferences for targeted advertising. This invited talk will examine the right to personal data privacy, the current legal protections, and specifically the rules and some obstacles related to processing personal data online, taking as an example profiling and target advertising, particularly concerning the use of cookies. Internet companies process this data to create tailored advertisements, products, and services for individual consumers.

Biography:
Maja Proso, Associate Professor, PhD is employed at the Faculty of Law, University of Split, at the Department of Civil Law, where she teaches as the head of mandatory and elective courses in the integrated undergraduate and graduate law program, in the professional undergraduate administrative studies program, in the postgraduate specialist program in Medical Law, and in the postgraduate University doctoral program in legal sciences. She is the author of a scientific book (monograph), co-author of a university textbook, and numerous scientific papers in which she has addressed topics in civil law, medical law, sports law, food law, consumer protection law, environmental law, as well as topics related to the protection of (personal) data in the digital environment and AI. She has participated as a presenter, with papers or invited lectures, at numerous domestic and international scientific and professional conferences.

Friday, September 19, 15:00 - 15:30 (AGAVA)

ISIP INVITED TALK II: DRAŽEN LUČIĆ

CO-RELATION BETWEEN THE NIS 2 DIRECTIVE AND THE STANDARD HRN EN ISO/IEC 27001:2023

Dražen Lučić, PhD
University of Zagreb, Faculty of Electrical Engineering and Computing, Zagreb, Croatia

Summary:
The European Union (EU) Directive on security of network and information systems 2 (NIS 2) sets a range of network and information security requirements which apply to the various sectors of economy. International Standard Organisation (ISO) has issued the new version of the standard 27001, related to information security, in order to corelate to the requirements in NIS 2 directive and to cope better with contemporary requirements on cybersecurity. The case study of a legal entity with public authorities in Croatia, as a typical mid-size EU member state, has been presented. Croatian Standards Institute (HZN) issued last year the version of HRN EN ISO/IEC 27001:2023 standard in order to support the entities in Croatia in building an effective and reliable cybersecurity. Pre-emption of possible cybersecurity incidents with a negative influence

on business activities as well as risk management and crisis management plan are some of the most important prerequisites for a successful business continuation.

Biography:

Dražen Lučić owns PhD degree at Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia. More than 20 years he was working at Ericsson, mostly as manager and in Western Europe, eventually as Senior Sales Manager for a global telecommunication operator. After coming back to Croatia, he was from 2009 until 2019 Executive Director and President of the Council of Croatian National Regulatory Authority for Network Industries (Electronic Communications, Postal Services and Railway Services – HAKOM). Since 2019 he works at Croatian Chamber of Economy as the head of Information security department. He is (co)author of more than 100 papers and articles which are published in media and presented at both international and national conferences. He is lecturer at the Faculty of Computing and Informatics and at the Faculty of Geodesy and geomatics at University North. Dražen Lučić is also the Vice president of the Council of the postgraduate multidiscipline specialist study of electronic communications market regulation at Faculty of Electrical Engineering and Computing at University of Zagreb. He is certified internal auditor for ISO/IEC 27001. He is member of the global working group for cybersecurity at International Chamber of Commerce (ICC) and president of the working group for digital economy at ICC Croatia. Dražen Lučić is senior member of IEEE and member of several Croatian associations as well as councils and working groups associated to various ministries and related to information security, cybersecurity, corporate security and "artificial intelligence".

Friday, September 19, 14:30 - 16:00 (AGAVA)

W2: Workshop on Information Security and Intellectual Property (ISIP)

Chair: Marija Boban (University of Split, Croatia), Gordan Ježić (University of Zagreb, Croatia)

AI-Driven Digital Forensics in Cybersecurity: Countering Algorithmic Manipulation and Cognitive Attacks
Marija Boban (University of Split Faculty of Law, Croatia); Tonći Prodan (University of Split, Croatia); Marija Gombar (Hrvatska, Croatia & Croatian Defense Academy Dr Franjo Tuđman, Croatia)

Protection from manipulative aspects of digital personalized advertising
Maja Proso (University of Split, Croatia)

Co-relation Between the NIS 2 Directive and the Standard HRN EN ISO/IEC 27001:2023
Dražen Lučić (Hrvatska Gospodarska Komora, Croatia)

TUTORIALS

TUTORIAL T1   Friday, September 19, 9:00 – 10:30 (OLEANDAR)

Dragan Poljak, PhD
University of Split, FESB, Split, Croatia

Computational Models in Applied Electromagnetics

Summary: Tutorial starts with some general aspects of computational electromagnetics and electromagnetic compatibility (EMC). The introduction also outlines some well-established analytical and numerical solution methods. First, a crash-course on the theory of thin wire antennas and related numerical solution methods for various integral equations in both frequency and time domain will be presented. Related computational examples include to dipoles, Yagi-Uda arrays and logarithmic-periodic dipole antennas (LPDA). In particular, some recent applications to air trafic control and ground penetrating radar (GPR) will be discussed.
Next, full wave (antenna) models for various thin wire structures, from rather simple to realistic complex geometries, will be addressed. This will be followed by the analysis of overhead/belowground transmission

lines. A trade-off between the use of rigorous full wave models and approximate transmission line (TL) approach will be emphasized with particular focus to PLC (Power Line Communications) configurations, lightning channel, realistic grounding systems for wind turbines. Tutorial will also deal with the human exposure to electromagnetic fields. Low frequency, high frequency and transient exposures related to possible adverse health effects will be discussed addressing electromagnetic interference (EMI) sources such as power lines, transformer substations, wireless power transfer (WPT) base stations antennas for 2G/3G/4G and 5G systems. Some biomedical application of electromagnetic fields, with particular emphasis on transcranial magnetic stimulation (TMS), transcranial electric stimulation (TES) and nerve fiber stimulation, will be also discussed. Furthermore, a stochastic approach (featuring the use of stochastic collocation (SC) technique and analysis of variance (ANOVA)) to analysis of GPR, grounding electrodes, human exposure to electromagnetic fields and biomedical application of electromagnetic fields will be outlined. The presentation will end up with some topics in magnetohydrodynamics pertaining to the modeling of plasma physics phenomena pertaining to the applications in thermonuclear fusion arising with EUROfusion projects activities. In particular an overview of the activities pertaining to the analysis of the EMC/EMI of electrical and electronic equipment and grounding system in the within the framework of EUROfusion IFMIF-DONES project will be given.

Biography: *Dragan Poljak received his PhD in el. Eng. in 1996 from the Univ. of Split, Croatia. He is the Full Prof. at Dept. of Electron. and Computing, Univ. of Split. His research interests include computational electromagnetics (CEM), electromagnetic compatibility (EMC), bioelectromagnetics, ground penetrating radar (GPR), magnetohydrodynamics (MHD) and plasma physics). To date Prof. Poljak has published around 200 journal, and more than 300 conference papers, respectively, and authored some books, e.g. two by Wiley, one by IEEE Press, New Jersey and one by Elsevier, St Louis. He is a Senior member of IEEE, a member of Editorial Board of Eng. Anal. with Boundary Elements, Math. Problems in Eng. And IET Sci. Measur. & Techn. He was awarded by several prizes for his research achievements, such as National Prize for Science (2004 and 2023), Croatian sect. of IEEE annual Award (2016), Technical Achievement Award of the IEEE EMC Society (2019), George Green Medal from University of Mississippi (2021) and Certificate of Appreciation from IEEE Standards Associations (2022). From May 2013 to June 2021 Prof. Poljak was a member of the board of the Croatian Science Foundation. He was involved in ITER physics EUROfusion collaboration and he is currently involved in DONES EUROfusion collaboration and in Croatian Center for excellence in research for tech. sciences. He is active in few Working Groups of IEEE/Internat. Committee on Electromagnetic Safety (ICES) Tech. Comm. 95 SC6 EMF Dosimetry Modeling.*

TUTORIAL T2   Friday, September 19, 14:30 – 18:00 (OLEANDAR)

Jure Ravnik, PhD
University of Maribor, Maribor, Slovenia

Simulation and modelling of particle laden flows

Summary: In this tutorial, we will examine the study and practical importance of particle-laden flows ranging from dilute suspensions of spherical rigid droplets to inhomogeneous soft deformable particles. Particulate systems are widely used in various industries such as cement, petrochemical, wastewater treatment, and pharmaceutical, where different types of particles are transported, mixed, stored, or segregated. In addition, nonspherical particles are widely present in nature, from the composition of blood to dust particles in the air. On the other hand, not all particles are rigid nor are they homogenous. Research in the field of soft deformable particles is less established. Nevertheless, there are relevant examples of suspensions, both of industrial and scientific interest, where the suspension consists of soft, non-linearly deformable micron- and submicron-sized particles that have a non-spherical shape due to the deformability of the particles. These particles include microgels, filled polymers, biological cells, as well as liquid droplets, vesicles and liquid capsules, with elastic or viscoelastic properties. To model or control systems which include these soft, deformable particles, the governing physics of the particle system must be well understood. We will showcase how by simulating airflow patterns using computational fluid dynamics (CFD), we can model how droplets containing pathogens are dispersed during human activities such as breathing or coughing. These simulations provide insights into the physical mechanisms involved and help assess infection risks. CFD tools also enable the evaluation of short-term, short-range flow dynamics, aiding in the prediction of droplet dispersion patterns. We will stress the importance of accurate modeling, as it informs strategies to mitigate disease spread. For instance,

improving air quality management can reduce exposure to pathogen-laden particles, thereby lowering infection risks. Additionally, understanding the dynamics of particle motion helps identify key factors influencing transmission, such as droplet size, velocity, and trajectory.

Beyond the specific case of COVID-19, these we will present the broader implications of particle-laden flows in various environmental and industrial applications by focusing on non-spherical, inhomogeneous and deformable particles and showcase the integration of advanced computational tools with physical modeling as a powerful approach to addressing complex flow problems.

Suggested reading:

- Wedel, Jana, Paul Steinmann, František Prinz, František Lízal, Matjaž Hriberšek, and Jure Ravnik. "Mass Distribution Impacts on Particle Translation and Orientation Dynamics in Dilute Flows." Powder Technology 452 (February 2025): 120424. https://doi.org/10.1016/j.powtec.2024.120424.

- Wedel, Jana, Mitja Štrakl, Matjaž Hriberšek, Paul Steinmann, and Jure Ravnik. "A Novel Particle–Particle and Particle–Wall Collision Model for Superellipsoidal Particles." Computational Particle Mechanics 11, no. 1 (February 2024): 211–34. https://doi.org/10.1007/s40571-023-00618-6.

- Wedel, Jana, Matjaž Hriberšek, Paul Steinmann, and Jure Ravnik. "Coefficient of Tangential Restitution for Non-Spherical Particles." Powder Technology 437 (March 2024): 119526. https://doi.org/10.1016/j.powtec.2024.119526.

- Wedel, Jana, Matjaž Hriberšek, Jure Ravnik, and Paul Steinmann. "A Novel Pseudo-Rigid Body Approach to the Non-Linear Dynamics of Soft Micro-Particles in Dilute Viscous Flow." Journal of Computational Physics 519 (December 2024): 113377. https://doi.org/10.1016/j.jcp.2024.113377.

- Pallares, Jordi, Alexandre Fabregat, …, Jure Ravnik, …, et al. "Computational Fluid Dynamics Challenge on Indoor Dispersion of Pathogen-Laden Aerosols." Physics of Fluids 37, no. 2 (February 1, 2025): 025226. https://doi.org/10.1063/5.0252665.

Biography: *Jure Ravnik is a professor of Power, Process, and Environmental Engineering at the University of Maribor's Faculty of Mechanical Engineering in Slovenia. His research interests span multiphase and multicomponent fluid flows, turbulence, heat and matter transfer, numerical methods, and approximation methods. He has been involved in various research and development projects at national and EU levels, including the simulation of fluid flows during paper production, nanofluid behavior, and the development of numerical algorithms for diverse applications. Furthermore, Dr. Ravnik actively participates in commissions, societies, and associations, organizes conferences and edits journals, contributing significantly to the academic and research community in the field of transport phenomena modelling. Currently, he serves as the Head of the Laboratory for transport phenomena in solids and fluids and the Head of Academic Assembly of the Faculty of Mechanical Engineering, University of Maribor.*

TUTORIAL T3
Thursday, September 18, 9:00 – 12:30 (OLEANDAR)

Adnan Mujezinović, PhD
University of Sarajevo, Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina

Advanced Computational Approaches for Electric and Magnetic Field Estimation Near Overhead Transmission Lines

Summary: The tutorial begins with a general overview of classical numerical methods used for the calculation of electric fields and magnetic flux densities in the vicinity of overhead transmission lines. Analytical and numerical approaches such as the charge simulation method and Biot-Savart law based method will be briefly reviewed to provide the theoretical foundation. Following the classical calculation methods, the tutorial will address the modeling and analysis of stationary AC corona on overhead transmission line conductors. Furthermore, the influence of higher-order current harmonics on the distribution of magnetic flux density near overhead lines will be examined. Subsequently, the tutorial introduces modern computational trends, including the application of machine learning techniques and evolutionary algorithms for field estimation. A method based on artificial neural networks (ANN) will be presented for estimating electric field intensity and

magnetic flux density using geometric parameters of overhead lines combined with voltage and current data. Practical computational examples involving different line configurations and operational scenarios will be included. The tutorial will highlight the importance of generating appropriate synthetic datasets based on overhead line configuration algorithms to enhance the training and accuracy of machine learning models. Further, an approach for estimating magnetic flux density near multi-system overhead transmission lines will be outlined. The method synthesizes the results from individual three-phase systems to produce the total magnetic flux density distribution in the vicinity of multi-circuit lines and transmission corridors with shared infrastructure. A method based on artificial neural networks for estimating higher-order harmonics of magnetic flux density due to current waveform distortion will also be introduced. In addition, the tutorial will explore the use of metaheuristic algorithms for optimizing parametric functions that describe the spatial distribution of magnetic flux density. These optimization techniques enable improved model fitting and higher accuracy compared to traditional methods. The tutorial will conclude by demonstrating how the integration of classical modeling techniques with modern machine learning and evolutionary algorithms offers a powerful, accurate, and scalable framework for the estimation of electric and magnetic fields near high-voltage transmission lines.

Biography: *Adnan Mujezinović received his M.Sc. and Ph.D. degrees in Electrical Engineering from the Faculty of Electrical Engineering, University of Sarajevo, Bosnia and Herzegovina, in 2011 and 2017, respectively. Since 2012, he has been affiliated with the same faculty and currently holds the position of Associate Professor at the Department of Electric Power Engineering. He is a member of the IEEE and CIGRE organizations. He is actively involved in CIGRE activities and currently serves as the Chairman of the D1 Committee of BH K CIGRE. He has authored numerous papers published in international journals and conference proceedings. His research interests include numerical modeling and calculation of electromagnetic fields, cathodic protection systems, and overhead transmission lines.*

BUSINESS FORUM

Friday, September 19, 9:00-10:30 (RUŽMARIN)

Building Croatia's Digital Future: Opportunities and Challenges of the ICT Sector

Panelists:

- **Damir Habijan, Minister, Ministry of Justice, Public Administration and Digital Transformation**
- **Gordana Kovačević, President and CEO, Ericsson Nikola Tesla**
- **Irena Weber, Director General, Croatian Employers' Association**
- **Dr. Ana Katalinić Mucalo, Deputy Executive Director, HAKOM**
- **Dr. Valerio Frascolla, Director Research and Innovation, Intel Labs**
- **Dr. Siniša Krajnović, Partner, McKinsey & Company (moderator)**

The panel will focus on selected topics vital to the Croatian ecosystem and, more broadly, the European Research & Innovation landscape. Invited panelists from key industries in Croatia and Europe will address a series of questions and engage with the audience to guarantee a lively and open discussion.

The discussion will focus on a combination of

- **key technology trends**
- **business dynamics**
- **competitiveness** amid an increasingly challenging geopolitical landscape

Friday, September 19, 16:30-18:00 (RUŽMARIN)

1st Workshop on Computer Vision and Artificial Intelligence in Fruit Cultivation

Prof. Zdenko Kovačić, PhD

Application of AI in Agricultural Robotics

ORGANIZING COMMITTEE

- Prof. Vladan Papić, University of Split, FESB, Croatia, vpapic@fesb.hr
- Prof. Vassilis Kaburlasos, International Hellenic University (IHU), Greece , vgkabs@ihu.gr
- Prof. Frane Strikić, University of Split, University Department of Marine Studies, Croatia, frane.strikic@unist.hr

Timetable:

- Introduction (10 min)

- Invited lecture, „**Application of AI in Agricultural Robotics**" prof. dr.sc. Zdenko Kovačič (60 min)
- Current research and results (30 min)
- Break (15 min)
- Invited lecture, „**Bringing Computer Vision and AI to the Orchard: Four Case Studies in Fruit Cultivation**" assistant professor Eleni Vrochidou (20 min)
- Discussion (30 min)
- Future research in Yield estimation (30 min)

Workshop supported by the Croatian Science Foundation under the project number HRZZ IP-2024-05-6393.

Biography:

Prof. Zdenko Kovačić, PhD (1958) graduated from the Faculty of Electrical Engineering in Zagreb (1981), earned his MSc (1987) and PhD (1993). After working in the Končar Electrotechnical Institute (1982-1985), he joined the Faculty of Electrical Engineering and Computing (FER), where he taught and conducted research for over 39 years, retiring as Full Professor in 2023. He has been a visiting researcher in the USA (Virginia Tech), Russia and Slovakia and from 2004–2008 he was Head of the Department of Automation and Computer Engineering. He is founder of the Laboratory for Robotics and Intelligent Control Systems (LARICS) which today employs more than 20 researchers. He has led more than 40 international and national R&D projects in robotics, automation, and control, with strong collaboration with industry. He is currently the leader of the TerraSpiro R&D project funded by the NPOO Targeted Scientific Research (CZI) program, and collaborates on several projects funded by various programs, including the CROBOHUB++, SEGVAC, IFRoS, AeroStream and Marble projects.

He is co-author of two scientific monographs (Springer, Taylor & Francis), a university and a high-school textbook, and more than 200 scientific publications. He supervised over 300 theses, including 7 MSc theses and 12 PhD dissertations. He has been active in international organizations (IEEE, EuRobotics) and served as president of the Croatian Robotics Society and the Croatian Robotics Association. He is also co-founder of the spin-off company Romb Technologies and a patent holder.

For his scientific and professional achievements, he received numerous awards, including the Fran Bošnjaković Award (2013), the Josip Lončar Award (2018), the Nikola Tesla Award (2022), several innovation prizes, and the Croatian State Science Prize for Lifetime Achievement (2023) in the field of technical sciences.

Invited lecture, „**Bringing Computer Vision and AI to the Orchard: Four Case Studies in Fruit Cultivation**"

Invited Speaker: Eleni Vrochidou, Assistant Professor, MLV Research Group, Department of Informatics, Democritus University of Thrace

Short abstract:

Bringing Computer Vision and AI to the Orchard: Four Case Studies in Fruit Cultivation

This lecture introduces MLV Reserch Group and its recent achievements in applying computer vision and AI in the cultivation of four different fruit types of regional interest, specifically in the Region of Eastern Macedonia and Thrace (EMT):

Grapes: Guidelines for the application of computer vision in precision viticulture tasks.

Pomegranate: Presentation of a novel image dataset of pomegranate fruits of three different quality grades related to their intended use and comparative performance evaluation of deep learning models for pomegranate quality assessment.

Cherries: Presentation of a vision-based pruning algorithm for cherry tree structure elements segmentation and exact pruning points determination, following strict and precise pruning rules for dormant cherry trees of the Central Leader training system, supported by an open-access dataset.

Kiwifruit: Presentation of an open dataset for kiwifruit leaf disease recognition and a corresponding application that is currently used in EMT region by over 100 kiwifruit producers, as part of the participation of our team at the project DigiAgriFood, which is the first european digital innovation hub in the Hellenic agrifood sector.

Biography:
Eleni Vrochidou received a diploma degree in embedded systems, an M.Sc. degree in automatic control systems, and a Ph.D. degree in signal processing from the Department of Electrical and Computer Engineering, Democritus University of Thrace (DUTH), Greece, in 2004, 2007, and 2016, respectively. She is currently Assistant Professor at the Department of Informatics, Democritus University of Thrace. As a researcher, she is a member of the Machine Learning and Vision (MLV) Research Group, where she participates in research projects. Her research interests are intelligent systems, signal processing, pattern recognition, and embedded systems. She has several publications in international scientific conferences, journals, and book chapters in her research areas.

Friday, September 19, 16:30-18:00 (KAKTUS)

WESC: ERICSSON NIKOLA TESLA SUMMER CAMP 2025 WORKSHOP

Ericsson Nikola Tesla Summer Camp is a summer workshop for senior students from Croatian and universities from the region. The first Summer Camp was organized back in 2001 and since then more than 600 students participated. Students work five weeks on real problems in real industrial environment with mentors both from the company and universities.

MODERATORS:

Andrej Grgurić (Ericsson Nikola Tesla), Maja Matijašević (University of Zagreb), Duje Žaja (Ericsson Nikola Tesla)

Project team 1
Team members: Andrej Lukas, Bruno Radić, Mario Macan
Mentor(s): Duje Žaja, Dijana Malek, Mia Mirosevic, Nikola Kuzmanic

Project team 2
Team members: Nena Tolić, Ema Pezelj, Anamarija Mamić
Mentor(s): Katarina Babić, Tomislav Jelinić

Project team 3
Team members: Antonio Jurjević, Duje Perišin
Mentor(s): Gligorije Cupkovic, Jakov Kristian Krstulovic

Project team 4
Team members: Rei Krstić, Karlo Perković
Mentor(s): Frane Radak, Karla Pupačić

Friday, September 19, 9:00-10:30 (BURA)

Research demonstration: XR Communication and Interaction Through a Dynamically Updated Digital Twin of a Smart Space - DIGIPHY

Presented by

Lea Brzica, University of Zagreb Faculty of Electrical Engineering and Computing

The goal of the DIGIPHY project is to research and design technologies for immersive and intuitive eXtended Reality (XR) inter-personal communication and interaction. The project aims to enable remote presence and interaction of people and objects within a dynamically updated digital twin (DT) of a sensor-equipped smart space. In tasks requiring interaction and/or collaboration between users in separate physical and virtual spaces, effective communication and shared control and interaction mechanisms are essential.

In this demonstration, visitors can experience it firsthand by playing a game of chess across virtual reality (VR) and augmented reality (AR) displays. With one player wearing an AR heasdet, and the other a VR headset, participants can interact and try out various virtual object (chess piece) manipulation techniques, as well as different chess board sizes – from classic table-size to room-scale.

GENERAL CONFERENCE INFORMATION

ABOUT

The 33rd International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2025) will be held on September 18-20 in Split, Croatia.

ELECTRONIC PROCEEDINGS

Electronic Proceedings and Final Program will be available at the conference website.

LANGUAGE

The Conference language is English.

SECRETARY

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