



SoftCOM 2023

Split, Croatia
21 - 23 September, 2023



SoftCOM 2023 - CONTENTS

GENERAL CO-CHAIRS MESSAGE	2
TECHNICAL PROGRAM CHAIRS MESSAGE	2
SoftCOM 2023 COMMITTEES	3
SoftCOM 2023 PROGRAM OUTLINE	4
KEYNOTE / INVITED SPEAKERS	5
TECHNICAL PROGRAM	6
GENERAL CONFERENCE	6
S1/I: MACHINE LEARNING APPLICATIONS I	6
S1/II: MACHINE LEARNING APPLICATIONS II	6
S2: SIGNAL PROCESSING	6
S3: 5G & B5G TECHNOLOGIES	6
S4: WIRELESS COMMUNICATIONS	7
S5: OPTICAL COMMUNICATIONS	7
S6/I: SOFTWARE DEVELOPMENT I	7
S6/II: SOFTWARE DEVELOPMENT II	8
S7: VEHICULAR COMMUNICATIONS AND SYSTEMS	8
S8: IoT NETWORKS	8
S9: CLOUD COMPUTING	9
PAS1: POSTERS / ABSTRACTS SESSION	9
SPECIAL SESSIONS	10
SS1: SPECIAL SESSION ON QoS IN WIRED AND WIRELESS NETWORKS	10
SS2: SPECIAL SESSION ON AD HOC&SENSOR NETWORKS AND INTERNET OF THINGS	10
SS3/I: SPECIAL SESSION ON SECURITY AND DIGITAL FORENSICS I	10
SS3/II: SPECIAL SESSION ON SECURITY AND DIGITAL FORENSICS II	11
SS4: SPECIAL SESSION ON GREEN NETWORKING AND COMPUTING	11
SS5: SPECIAL SESSION ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY (EEMC)	11
SS6: SPECIAL SESSION ON ROBOTICS AND ICT ASSISTED WELLBEING	11
TIMETABLE A: TECHNICAL PROGRAM, WORKSHOPS	12
TIMETABLE B: WORKSHOPS, TUTORIALS, BUSINESS FORUM	13
SPECIAL SESSIONS	
SS7: SPECIAL SESSION ON ADVANCED EDUCATIONAL TECHNOLOGIES	14
SS8: SPECIAL SESSION ON SMART ENVIRONMENTS & INTERNET OF THINGS	14
PROFESSIONAL PROGRAM: WORKSHOP ON ICT, PDS1: POSTERS/DEMOS SESSION	15
SYM1: SYMPOSIUM ON INFORMATION SECURITY AND INTELLECTUAL PROPERTY (ISIP)	15
TUTORIALS	17
BUSINESS FORUM	20
FLOOR PLAN OF HOTEL AMPHORA AND GENERAL INFORMATION	24

GENERAL CO-CHAIRS MESSAGE

Welcome Message

Dear participants and colleagues, it is our pleasure to welcome you to SoftCOM 2023 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.

The conference program offers innovative technical sessions and workshops that focus on the latest breakthroughs in areas of communications software, services and applications, telecommunications and computer networks.

The key drivers of the information society and economy are our current and emerging information and communication technologies. Through research and technology advancement, we are enabling new discoveries and sustainable economic growth, providing the space for people to collaborate, create, learn, and participate in innovative ways. We are the participants and shapers of a future global economy and society that is equitable, inclusive, green, safe, and resilient. Together we create the opportunity for a systemic shift to a sustainable development that simultaneously takes into account people and the planet.

The 31st International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2023), technically co-sponsored by the IEEE Communications Society, will be held 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*

TEHNIICAL PROGRAM CHAIRS MESSAGE

The 31st Conference on Software, Telecommunications and Computer Networks (SoftCOM 2023) will be held in Amphora hotel, Split, Croatia, September 21 to 23, 2023.

Researchers and experts from industry, research institutes and universities from 38 countries all around the world have prepared their submissions for presentation at SoftCOM 2023. 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 nine general conference sessions and eight special sessions

The special sessions are dedicated to hot topics including: QoS in Wired and Wireless Networks, Ad Hoc&Sensor Networks and Internet of Things, Security and Digital Forensics, Green Networking and Computing, Environmental Electromagnetic Compatibility, Robotics and ICT Assisted Wellbeing, Advanced Educational Technologies and Smart Environments & Internet of Things

Besides that a Business Forum will be organized featuring invited talks, industrial panel, and workshops with participation of managers, experts, professionals and institutions' representatives. The 12th Workshop on Software Engineering in Practice has been organized by the research group from Ericsson Nikola Tesla company. The 22th 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 2023 COMMITTEES

TECHNICAL PROGRAM COMMITTEE

Nikola Rozic, University of Split, Croatia (co - chair)

Pascal Lorenz, University of Haute Alsace, France (co-chair)

Abd-Elhamid Taha, Alfaisal University

Aleksejs Udalcovs, RISE Research Institutes of Sweden AB, Sweden

Alex Gelman, NETovations, LLC, USA

Algirdas Pakstas, Vilnius University, Lithuania

Andrej Hrovat, Jozef Stefan Institute, Slovenia

Arianit Maraj, Cyber Security Center – AAB College, Kosovo

Darko Huljenic, Ericsson Nikola Tesla, Croatia

Dean Marusic, Ericsson Nikola Tesla, Croatia

Dragan Poljak, University of Split, Croatia

Duje Coko, University of Split, Croatia

Enrique Chirivella Perez, University of the West of Scotland, UK

Franco Küppers, Skoltech, Russia

Gottfried Luderer, prof.em., Arizona State University, USA

Ignac Lovrek, University of Zagreb, Croatia

Jaime Lloret Mauri, Polytechnic University of Valencia, Spain

Joel Rodrigues, National Institute of Telecommunications (Inatel), Brazil

Josip Lorincz, University of Split, Croatia

Josko Radic, University of Split, Croatia

Luca Davoli, University of Parma, Italy

Luigi Patrono, University of Salento, Italy

Maja Matijasevic, University of Zagreb, Croatia

Maja Stella, University of Split, Croatia

Matko Saric, University of Split, Croatia

Miljenko Mikuc, University of Zagreb, Croatia

Mladen Russo, University of Split, Croatia

Oskars Ozolins, Research Institutes of Sweden (RISE AB), Sweden

Petar Solic, University of Split, Croatia

Tianhua Xu, University of Warwick, UK

Toni Perkovic, University of Split, Croatia

Tony Bogovic, Perspecta Labs, USA

Vesna Roje, University of Split, Croatia

Zoran Blazevic, University of Split, Croatia

SoftCOM 2023 Conference Secretary

Katarina Radoš, University of Split,

softcom@fesb.hr

**UNIVERSITY OF SPLIT
FACULTY OF ELECTRICAL ENGINEERING,
MECHANICAL ENGINEERING AND NAVAL
ARCHITECTURE - FESB SPLIT**

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

Under the auspices of:

CROATIAN ACADEMY OF ENGINEERING

Technically co-sponsored by:

**IEEE COMMUNICATIONS SOCIETY
(COMSOC)**

IEEE CROATIA SECTION

**IEEE COMMUNICATIONS SOCIETY –
CROATIA CHAPTER**

<http://www.fesb.hr/SoftCOM>

SoftCOM 2023 PROGRAM OUTLINE

Thursday, September 21, 2023 (Amphora Hotel)

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 – 14:15 Lunch

14:15 – 15:00 Invited speech

15:00 – 16:30 Technical program, Professional program, Business forum

16:30 – 17:00 Coffee break

Friday, September 22, 2023 (Amphora Hotel)

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 – 20:00 Guided tour in Diocletian's Palace

20:30 – 22:30 Evening in a City port of Split: Sailing club Labud

Saturday, September 23, 2023 (Amphora Hotel)

09:00 – 10:30 Technical program, Professional program, Business forum

10:30 – 11:00 Coffee break

11:00 – 16:00 Conference trip (Fortress of Klis)

11:30 – 12:30 Guided visit to Olive museum at Klis

12:30 – 16:00 Guided tour around the historic Klis fortress

KEYNOTE / INVITED SPEAKERS

KEYNOTE SPEECH

Friday, September 22, 11:00-12:30 (BURA)

Marco Ajmone Marsan, PhD

IMDEA Networks Institute, Spain and the Politecnico di Torino, Italy

Server Selection in the Internet Continuum

Abstract: The Internet is evolving toward a distributed system comprising interconnected computing facilities with variable performance, at different distances from end users. This distributed system is often called the Internet Continuum. In this context, users and service operators must select the servers on which computations are best allocated. In this talk we discuss the server selection problem, and we instantiate it on the facilities that are most widely available today, i. e., on a mix of cloud and edge computing infrastructures.



Marco Ajmone Marsan (marco.ajmone@imdea.org) is a part-time Research Professor at the IMDEA Networks Institute in Spain and an Emeritus Professor of Politecnico di Torino. From 1974 to 2021 he was at the Politecnico di Torino, in the different roles of an academic career, with an interruption from 1987 to 1990, when he was a full professor at the Computer Science Department of the University of Milan. He obtained degrees in EE from the Politecnico di Torino and the University of California, Los Angeles (UCLA). He served in the editorial board of several international journals, and chaired the steering committee of the ACM/IEEE Transactions on Networking. He was the General Co-chair of Infocom 2013 and ICC 2023. He is a Fellow of the IEEE, and a member of the Academia Europaea and of the

Academy of Sciences of Torino. He is qualified as "ISI Highly Cited researcher" in computer science. He received a honorary degree in Telecommunication Networks from the Budapest University of Technology and Economics. He was the Vice-Rector for Research, Innovation and Technology Transfer at the Politecnico di Torino, and the Director of IEIT-CNR. He was the Italian delegate in the ICT and IDEAS Committees of FP7.

INVITED SPEECH

Thursday, September 21, 14:15-15:00 (BURA I)

Oskars Ozoliņš, PhD

Riga Technical university, Latvia

High-Baudrate SiP and InP Modulators for Data Center Interconnects

Abstract: The booming internet traffic sets highly challenging requirements for high-speed computing where low latency is required. This leads to a choice of intensity modulation and direct detection system with the highest baudrate possible. Furthermore, record baudrate supporting modulators will be the key technology for future optical interconnect applications. In this talk we are going to report on recent advances on high-baudrate modulators in silicon photonics (SiP) and indium phosphide (InP) technologies. We are going to report on SiP ring resonator and Mach-Zehnder modulators and on InP based externally modulated and directly modulated lasers.



Oskars Ozoliņš (M'09) received the M.Sc. degree in telecommunications from Riga Technical University, Riga, Latvia, in 2009 and the Dr. Sc.Ing. (Ph.D.) degree in optical communications from Riga Technical University, in 2013 O. Ozoliņš is an Academician (foreign member) at the Latvian Academy of Science. He is also the Latvian Council of Science Expert in Committees: Engineering, Computer Science, and Physics. His research interests are in the areas of digital and photonic-assisted signal processing techniques, high-speed short-reach communications and devices, optical and photonic-wireless interconnects, and machine learning for optical network monitoring. In his professional career, O. Ozoliņš has been a guest researcher at Ill-

V Lab (Nokia Bell Labs and Thales, France), Keysight Technologies (Böblingen Germany), DTU Fotonik (Technical University of Denmark, Denmark), IDLab (Ghent University – imec, Belgium), OFO (KTH Royal Institute of Technology, Sweden), and FOTON laboratory (University of Rennes 1, France). In total 265 days for external stays. O. Ozoliņš is holder of a world record reported at OFC2023 conference post-deadline session: on optical amplification free highest baud rate for OOK, PAM4 and PAM6 transmitted with single integrated externally and directly modulated laser. He is the author of around 230 international journal publications, conference contributions, invited talks/tutorials/keynote/lecture, patents, and book chapters. He has more than 13 years of experience in supervising students. He has supervised 36 bachelor students, 23 master students, 5 Ph.D. students, and 3 postdocs. O. Ozoliņš was a Technical Program Committee (TPC) member of the ECOC2022, Basel Switzerland. He also was a TPC member of OFC2023, San Diego California, USA.

TECHNICAL PROGRAM: GENERAL CONFERENCE

Thursday, September 21, 11:00 - 12:30 (BURA I)

S1/I: MACHINE LEARNING APPLICATIONS I

Chair: Tamara Grujić (University of Split, Croatia)

Empirical Comparison of Face Verification Algorithms from UAVs

Julio Diez-Tomillo, Jose Alcaraz-Calero and Qi Wang (University of the West of Scotland, United Kingdom (Great Britain))

Development Of a New Dynamic Approach For Facial Recognition and Emotion Detection

Hadi Ben Amor (Tunis, Tunisia); Seifeddine Bouallegue (University of Doha for Science and Technology, Qatar); Afef Bohli (National Engineering School of Tunis, Tunisia); Ridha Bouallegue (Innov'COM @ Sup'Com., Tunisia)

Dynamic Images Comparison using Siamese Neural Network

Domagoj Steiner (TTTech Auto CEE Osijek, Croatia); Mario Vranjes (University of Osijek, Faculty of Electrical Engineering, Computer Science and Information Technology, Croatia); Matija Pul (dSPACE Engineering D. O. O., Croatia); Marjan Herceg (Josip Juraj Strossmayer University of Osijek, Croatia)

Dynamic Optimization of Provider-Based Scheduling for HPC Workloads

Jacopo Marino and Fulvio Risso (Politecnico di Torino, Italy); Mauro Bighi (PUNCH Torino S.p.A., Italy)

The Transfer Learning-Based Approach for Electromagnetic Signal Classification Using Simulated HGCAL Data

Marina Prvan, Arijana Burazin Mišura, Vesna Pekic and Josip Music (University of Split, Croatia)

Thursday, September 21, 15:00 - 16:30 (BURA I)

S1/II: MACHINE LEARNING APPLICATIONS II

Chair: Matko Šarić (University of Split, Croatia)

Radio Frequency-Based Drone Detection and Classification using Deep Learning Algorithms

Raluca Nelega (Communications Department, Technical University of Cluj-Napoca, Romania); Romulus Valeriu Flaviu Turcu (INCDTIM, Romania & Babes-Bolyai University, Romania); Bogdan Belean (National Institute for Research and Development of Isotopic and Molecular Technologies & Technical University of Cluj-Napoca, Romania); Emanuel Puschita (Technical University of Cluj-Napoca (TUC-N), Romania & National Institute for Research and Development of Isotopic and Molecular Technologies (INCDTIM), Romania)

Time series LSTM prediction of water consumption in the Republic of Croatia by regions

Tea Polic (Rochester Institute of Technology Croatia, Croatia); Martin Zagar (RIT Croatia, Croatia); Alan Mutka (Rochester Institute of Technology Croatia, Croatia)

Securing Cyber-Physical Systems Against GPS Spoofing Attacks Using Confidence Attribution

Matheus Wagner and Antônio Augusto Fröhlich (Federal University of Santa Catarina, Brazil)

Soybean Disease Detection by Deep Learning Algorithms

Oluwatoyin Joy Omole (Federal University of Lavras, Brazil); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil); Renata Lopes Rosa (Federal University of Lavras, Brazil)

Use of ChatGPT as Configuration Support Tool and Network Analysis

Stella A Marques (Federal University of Lavras, Brazil); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil); Renata Lopes Rosa (Universidade Federal de Lavras, Brazil)

Thursday, September 21, 09:00 - 10:30 (BURA II)

S2: SIGNAL PROCESSING

Chair: Joško Radić (University of Split, Croatia)

Reordering-Less FFT: A Novel FFT Processor with Parallel Input/Output in Normal Order

Mojtaba Mahdavi (Ericsson, Sweden)

Signal Processing Based Antenna Pattern Characterization for MIMO Systems

Chandan Kumar Sheemar (University of Luxembourg, Luxembourg); Jorge Querol and Symeon Chatzinotas (University of Luxembourg, Luxembourg)

ATSC 3.0 constellation analysis using computer vision combined with AI decision tree

Jefferson Hengles Almeida, Paulo Lopes and Cristiano Akamine (Universidade Presbiteriana Mackenzie, Brazil)

Thursday, September 21, 11:00 - 12:30 (BURA II)

S3: 5G&B5G TECHNOLOGIES

Chair: Miljenko Mikuc (University of Zagreb, Croatia)

Distributed Asynchronous Protocol for Service Provisioning in the Edge-Cloud Continuum

Itamar Cohen (Ariel University, Israel); Paolo Giaccone (Politecnico di Torino, Italy); Carla Fabiana Chiasserini (Politecnico di Torino & CNIT, IEIIT-CNR, Italy)

Adaptive Timers and Buffer Optimization for Layer-2 Protocols in 5G Non-Terrestrial Networks

Chandan Kumar Sheemar (University of Luxembourg, Luxembourg); Sumit Kumar (SnT, University of Luxembourg, Luxembourg); Jorge Querol and Symeon Chatzinotas (University of Luxembourg, Luxembourg)

A Deep Intrusion Detection Model for Network Traffic Payload Analysis

Sina Hojjatinia (Nokia Bell Labs, France); Mehrnoosh Monshizadeh and Vikramajeet Khatri (Nokia Bell Labs, Finland)

Demonstration of QKD Integration into 5G Campus Network

Patrik Burdiak and Lukas Kapicak (VSB - Technical University of Ostrava, Czech Republic); Emir Dervisevic (UNSA - University of Sarajevo, Bosnia and Herzegovina); Libor Michalek (VSB - Technical University of Ostrava, Czech Republic); Miralem Mehic (University of Sarajevo, Bosnia and Herzegovina); Miroslav Voznak (VSB - Technical University of Ostrava, Czech Republic)

Challenges for conflict mitigation in O-RAN's RAN Intelligent Controllers

Cezary Adamczyk (Poznan University of Technology, Poland)

Securing D2D Therapeutic Hiking Group in 5G Networks for Partial Coverage Scenario

Salah Zemmoudj (University of Bejaia & Research Unity LaMOS, Algeria); Nabila Bermad (Abderrahmane Mira University & Laboratoire de Modélisation Stochastique, Algeria)

Friday, September 22, 09:00 - 10:30 (MAESTRAL)

S4: WIRELESS COMMUNICATIONS

Chair: Matko Šaric (University of Split, Croatia)

Wideband Spectrum Sensing Utilizing Cumulative Distribution Function and Machine Learning

Jakub Nikonowicz and Mieczyslaw Jessa (Poznan University of Technology, Poland)

Dynamically Predicting Wi-Fi Coverage Mapping Using Bioinspired Neural Networks

Rustam Latypov (Kazan Federal University, Russia); Ayrat R. Nurutdinov (Tattelecom, Russia)

Guard Interval's Length Prediction in 802.11ay Systems in Indoor Environments

Monika Drozdowska and Narcis Cardona (The Polytechnic University of Valencia, Spain)

Design of Circular Dual-Band Six-Elements Dipole Array for Omnidirectional Radiation Pattern

Saber Dakhli (IETR Laboratory, INSA Rennes & Innov'Com Laboratory, SUPCOM, University of Carthage Tunis, France); Jean-Marie Floch (INSA of Rennes, France); Hatem Rmili (King Abdulaziz University & Faculty of Engineering, Saudi Arabia)

Friday, September 22, 14:30 – 16:00 (BURA II)

S5: OPTICAL COMMUNICATIONS

Chair: Stanislaw Kozyrowski (Warsaw University of Technology & Computer Science Institute, Poland)

Embedding Delay-Constrained VNF Forwarding Graphs into Reconfigurable WDM Optical Networks

Valentin Kirchner (Hasso-Plattner-Institute, Germany); Holger Karl (Hasso Plattner Institute & University of Potsdam, Germany)

Testing the First Hungarian CV-QKD System On a Real Optical Line

Botond László Márton (Budapest University of Technology and Economics, Hungary); Zsolt Kis (Wigner Research Center for Physics, Hungary); Laszlo Bacsaardi (Budapest University of Technology and Economics, Hungary)

Towards the Adoption of a Plugable Architecture for Network Features Visualization

Gian Paolo Jesi and Andrea Odorizzi (Lepida ScpA, Italy); Gianluca Mazzini (LepidaSpA & UniFe, Italy)

Friday, September 22, 14:30 - 16:00 (JUGO)

S6: SOFTWARE DEVELOPMENT I

Chair: Linda Vicković (University of Split, Croatia)

Performance of Config-as-Code Git Repositories

Péter Hegyi and Peter Fazekas (Nokia Bell Labs, Hungary); Nandor Galambosi (Nokia Bell Labs, Hungary)

Automatic Dependency Tracking in Microservice-based Systems Using Static Analysis in Helm Charts

Anett Fekete (Eötvös Loránd University & Ericsson Hungary Ltd., Hungary); Benedek Kovacs (BUTE, Hungary); Zoltán Porkoláb (Eötvös Loránd University & Ericsson Hungary, Hungary)

An Approach for Integrating Interactive Detection of Code Smells on Agile Software Development

Danyllo Wagner Albuquerque (UFCG & Intelligent Software Engineering Group, Brazil); Everton Guimaraes (Penn State University, USA); Mirko Perkusich (VIRTUS, Brazil); Hyggo Almeida and Angelo Perkusich (Federal University of Campina Grande, Brazil)

Evaluating Interactive Detection of Code Smells on Software Development Activities

Danyllo Wagner Albuquerque (UFCG & Intelligent Software Engineering Group, Brazil); Everton Guimaraes (Penn State University, USA); Mirko Perkusich (VIRTUS, Brazil); Hyggo Almeida and Angelo Perkusich (Federal University of Campina Grande, Brazil)

Friday, September 22, 16:30 - 18:00 (JUGO)

S6/II: SOFTWARE DEVELOPMENT II

Chair: Linda Vicković (University of Split, Croatia)

Exploring the Capabilities of Professionals and Agile Teams: an Updated Review

Felipe Cunha (Federal University of Campina Grande, Brazil); Mirko Perkusich (VIRTUS, Brazil); Everton Guimaraes (Penn State University, USA); Ramon Santos (Federal University of Campina Grande, Brazil); Thiago Rique (VIRTUS, Brazil); Danylo Wagner Albuquerque (UFCEG & Intelligent Software Engineering Group, Brazil); Angelo Perkusich, Hyggo Almeida and Kyller Costa Gorgônio (Federal University of Campina Grande, Brazil)

RiskControl: A Bayesian Network-based tool to Support Risk Management in Software Projects

Emanuel Dantas (IFPB, Brazil); Ademar França de Sousa Neto, Sr. (Federal University of Campina Grande & Education, Brazil); Thiago Rique (IFPB, Brazil); Luiz Antônio (UFCEG, Brazil); Danylo Wagner Albuquerque (UFCEG & Intelligent Software Engineering Group, Brazil); Mirko Perkusich (VIRTUS-UFCEG, Brazil); Hyggo Almeida (UFCEG, Brazil); Angelo Perkusich (Federal University of Campina Grande, Brazil)

Neural Networks to Predict Software Development/Maintenance Performance and Required Time

Matej Plugel (RIT Croatia & Amplexor Adriatic, Croatia); Domagoj Tolić (RIT Croatia, Croatia)

Thursday, September 21, 09:00 - 10:30 (BURA I)

S7: VEHICULAR COMMUNICATIONS AND SYSTEMS

Chair: Ante Kristić (University of Split, Croatia)

Enhancing Traffic Flow and Safety in Mixed Vehicle Fleets: Mitigating the Influence of Non-Cooperative Vehicles on Autonomous Intersection Management Systems

SeyedeZahra Chamideh, William Tärneberg and Maria Kihl (Lund University, Sweden)

WEKA-based Real-Time Attack Detection for VANET Simulations

Yasmine Chaouche (Ecole Nationale Supérieure d'Informatique, Algeria); Eric Renault (LIGM, Université Gustave Eiffel, CNRS, ESIEE Paris, France); Ryma Boussaha (National Higher School of Computer Engineering, Algeria)

Driver Monitoring System using an Embedded Computer Platform

Rajesh Rimal (TTTech Auto, Croatia); Marijan Herceg (Josip Juraj Strossmayer University of Osijek, Croatia); Mario Vranjes (University of Osijek, Faculty of Electrical Engineering, Computer Science and Information Technology, Croatia); Ratko Grbić (University of Osijek, Faculty of Electrical Engineering, Croatia)

Steering Angle Prediction Algorithm Performance Comparison in Different Simulators for Autonomous Driving

David Dumančić (TTTech Auto D. O. O., Croatia); David Mijić (TTTech Auto CEE, Croatia); Mario Vranjes (University of Osijek, Faculty of Electrical Engineering, Computer Science and Information Technology, Croatia); Ratko Grbić (University of Osijek, Faculty of Electrical Engineering, Croatia)

Thursday, September 21, 15:00 - 16:30 (BURA II)

S8: IoT NETWORKS

Chair: Mario Kušek (University of Zagreb, Croatia)

LoRaMeter: Signal Mapping in LoRa Networks

Julian Zobel, Paul Frommelt, Lukas Simon Laufenberg, Régis Fayard, Lukas Wehrstein and Ralf Kundel (Technical University of Darmstadt, Germany); Ralf Steinmetz (Technische Universität Darmstadt, Germany)

tSIP: A Lightweight SIP-Based Messaging Protocol for Resource-Constrained Embedded Devices

Haytham Khalil and Khalid Elgazzar (Ontario Tech University, Canada)

Performance optimization in transition toward open industrial control systems

Mladen Sverko (University of Zagreb & Danieli System, Croatia); Tihana Galinac Grbac (Juraj Dobrila University of Pula & Faculty of Engineering, Croatia); Darko Huljenić (Ericsson Nikola Tesla d. d., Croatia)

Trust Analysis to Identify Malicious Nodes in the Social Internet of Things

Raza Ul Mustafa (Munster Technological University, Ireland); Alan McGibney and Susan Rea (Nimbus Research Centre, Ireland)

An Overview of Machine Learning-Enabled Network Softwarization for the Internet of Things

Mohamed Ali Zornati (Université de Technologie de Compiègne (UTC) & Institut National Des Sciences Appliquées et de Technologie (INSAT), France); Hicham Lakhlef (Heudiasyc, University of Technology of Compiègne, France)

A Novel Resource Allocation in Software-Defined Networks for IoT Application

Alexandre Ladeira de Souza (UFLA, Brazil); Ogochuchi Daniel Okey (UFABC, Brazil); Renata Lopes Rosa (Federal University of Lavras, Brazil); Muhammad Saadi (University of Central Punjab Lahore, Pakistan); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil)

Saturday, September 23, 09:00-10:30 (BURA I)

S9: CLOUD COMPUTING

Chair: Gordan Ježić (University of Zagreb, Croatia)

Performance Evaluation of QUIC vs TCP for Cloud Control Systems

Haorui Peng and William Tärneberg (Lund University, Sweden); Emma Fitzgerald (Lund University, Sweden & Warsaw University of Technology, Poland); Maria Kihl (Lund University, Sweden)

Implementation of Sequential Detection of Replay Attacks for a Cloud-Native Controller

Sinchan Biswas (Norwegian University of Science and Technology, Norway); Fatemeh Akbarian and Maria Kihl (Lund University, Sweden)

Blockchain-based Identity and Access Management in a Community Cloud

Kouadio Rodrigue N'goran (IMT Atlantique & INP-HB, France); Jean-Louis Tetchueng (Universite Rennes 1, France); Yvon Kermarrec (IMT-Atlantique, France); Aguié Pacôme Bertrand Brou (ESATIC, Cote d'Ivoire); Olivier Asseu (INP-HB, Cote d'Ivoire)

Detecting and Mitigating Actuator Attacks on Cloud Control Systems through Digital Twins

Fatemeh Akbarian and William Tärneberg (Lund University, Sweden); Emma Fitzgerald (Lund University, Sweden & Warsaw University of Technology, Poland); Maria Kihl (Lund University, Sweden)

Visual Query System Based on Conceptual Graphs for Apache Cassandra

Camelia Florina Andor and Andrei Buiciuc (Babes-Bolyai University, Romania)

Unified Approach to Video-Based AI Inference Tasks in Augmented Reality Systems Assisted by Mobile Edge Computing

Alexandre Ladeira de Souza (UFLA, Brazil); Ogobuchi Daniel Okey (UFABC, Brazil); Renata Lopes Rosa (Federal University of Lavras, Brazil); Muhammad Saadi (University of Central Punjab Lahore, Pakistan); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil)

Friday, September 22, 16:30 - 18:00

(HALL NEARBY BURA)

PAS1: POSTERS / ABSTRACTS SESSION

Chair: Damir Brešković (Hrvatski Telekom, Croatia)

CD and CDC technologies in next-generation optical networks

Stanislaw Kozdrowski (Warsaw University of Technology & Computer Science Institute, Poland); Pawel Krysztofik (Warsaw University of Technology, Poland)

Analysis of client link utilization for DWDM networks as a function of time

Bartłomiej Piotr Grzelak (Military University of Technology, Poland); Sławomir Sujecki (Wrocław University of Science and Technology, Poland); Stanislaw Kozdrowski (Warsaw University of Technology & Computer Science Institute, Poland); Piotr Sliwka (Cardinal Stefan Wyszyński University in Warsaw, Poland)

Automated calculation of CVSS v3.1 temporal score based on Apache Log4j 2021 vulnerabilities

Artur Balsam (Wrocław University of Science and Technology, Poland); Michał Walkowski, Maciej Roman Nowak, Jacek Oko and Sławomir Sujecki (Wrocław University of Science and Technology, Poland)

Spectrum Occupancy Detection Supported by Federated Learning

Łukasz Kułacz (Poznań University of Technology, Poland)

Ant Colony algorithms application for telco networks performance with multi-criteria optimization

Michał Berliński (Orange Labs, Poland); Mateusz Rasmus (Orange Labs Polska, Poland); Zbigniew Kopertowski (Orange Polska, Poland); Stanislaw Kozdrowski (Warsaw University of Technology & Computer Science Institute, Poland)

SPECIAL SESSIONS

SS1: SPECIAL SESSION ON QoS IN WIRED AND WIRELESS NETWORKS

Friday, September 22, 09:00 - 10:30 (LEVANT)

SS1: Special Session on QoS in Wired and Wireless Networks

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

QoE-Driven Coding Bitrate Determination for Adaptive Video Streaming to Home Viewers

Janusz Henryk Klink (Wroclaw University of Science and Technology, Poland)

Evolved Cold-Potato Routing Practices

Jan Marius Evang (Oslo Metropolitan University & Simula Metropolitan Center for Digital Engineering, Norway); Tarik Cicic (Simula Metropolitan Center for Digital Engineering, Norway)

Learning-Based Infrastructure To Vehicle Link Quality Estimation

Raoua Chakroun (LAAS/CNRS, Tunisia); Thierry Villemur (LAAS-CNRS, University of Toulouse, France); Kokouvi Benoit Nouganke (LAAS-CNRS & Univ de Toulouse, France)

High-Precision Round-Trip Time Measurements in the Internet with HiPerConTracer

Thomas Dreibholz (Simula Metropolitan Centre for Digital Engineering, Norway)

Service orchestration in Autonomous Vehicle Networks: Leveraging Vehicular Fog and Edge Computing

Sarra Khaber (Université Grenoble Alpes, France); Ryma Boussaha (National Higher School of Computer Engineering, Algeria); Yacine Challal (University of Doha for Science and Technology & Heudiasyc lab. UMR CNRS, Qatar)

A novel QoE Indicator for Mobile Networks based on Twitter Opinion Ranking

Marcelo dos Santos (Universidade Federal de Lavras, Brazil); Demostenes Zegarra Rodriguez (Federal University of Lavras & Nokia Technology Institute, Brazil); Renata Lopes Rosa (Universidade Federal de Lavras, Brazil)

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

Friday, September 22, 09:00 - 10:30 (JUGO)

SS2: Special Session on Ad Hoc&Sensor Networks and Internet of Things

Chair: Miljenko Mikuc (University of Zagreb, Croatia)

Flexible, robust, scalable solution to extract information from IoT Public Network Sensors

Stefania Nanni (Lepida ScpA, Italy); Gianluca Mazzini (LepidaSpA & UniFe, Italy); Massimo Carboni (Lepida Scpa, Italy)

An Efficient Emergency Messages Dissemination for Hybrid Sensor and Vehicular Networks

Rebiba Souadhi (Polytech Nantes, France); Fouzi Semchedine (University of Setif, Algeria)

Extending Functionality of ERP Systems with IoT Data

Ruben Picsek, Lovro Posaric and Darko Androcec (University of Zagreb, Croatia)

A Localisation and Telemetry LoRa Node for Rockets

Marta Brzyska, Krzysztof Klimaszewski and Krzysztof Martin (Poznan University of Technology, Poland)

An Efficient Hierarchical LSTM-based Framework for Intrusion Detection in Internet of Things (IoT) Systems

Bouazza Abdelhamid (University of Msila, Algeria); Hichem Debbi (University of Msila, Algeria); Hicham Lakhlef (Heudiasyc, University of Technology of Compiègne, France); Abdelkarim Smaili (Dalian University of Technology, China)

SS3/I: SPECIAL SESSION ON SECURITY AND DIGITAL FORENSICS I

Friday, September 22, 14:30 - 16:00 (BURA I)

SS3/I: Special Session on Security and Digital Forensics I

Chair: Toni Perković (University of Split, Croatia)

Adoption of Two-Factor Authentication in a Pre-Existing Heterogeneous System

Elisa Benetti and Simone Saponi (LepidaScpA, Italy); Gianluca Mazzini (LepidaSpA & UniFe, Italy)

Asymmetric Byzantine Quorum Approach to Resolve Trust Issues in Decentralized Blockchain Oracles

Fahad Rahman (University Paris Cité, France); Chafiq Titouna (Université of Gustave Eiffel, France); Farid Nait-Abdesselam (University of Missouri Kansas City, USA)

A Framework Proposal for Early Cyber Threat Identification and Profiling

Renato Marinho (Morphus Labs, Brazil); Raimir Holanda (University of Fortaleza, Brazil)

How Large Is the Gap? Exploring MANRS and ISO27001 Security Management

Jan Marius Evang (Oslo Metropolitan University & Simula Metropolitan Center for Digital Engineering, Norway); Ioana Livadariu (SimulaMet, Norway)

SS3/II: SPECIAL SESSION ON SECURITY AND DIGITAL FORENSICS II

Friday, September 22, 16:30 - 18:00 (BURA I)

SS3II: Special Session on Security and Digital Forensics II

Chair: Toni Perković (University of Split, Croatia)

An IDS for DDoS Attacks in SDN using VGG-Based CNN Architecture

Mamdouh Muhammad (FAU, Germany); Abdullah Alshraa (Friedrich-Alexander-Universität, Germany); Reinhard German (University of Erlangen, Germany)

A strategy to improvise coin-age selection in the Proof of Stake Consensus Algorithm

Harshavardhan Netha Gurrām, Hafeez Mohamad, Abhinav Sriram and Anjaneyulu Endurthi (RGUKT Basar, India)

SDN-based Port Hopping Technique for Mitigating Network Attacks

Joseph Anajemba (Abu Dhabi, United Arab Emirates); Nedal Ababneh (Abu Dhabi Polytechnic, United Arab Emirates); Yasir Hamid and Muhammad Atif Chowhan (Abu Dhabi Polytechnic, United Arab Emirates); Otuu Obinna (Swansea University, United Kingdom (Great Britain)); Emir Vajzovic (Abu Dhabi Polytechnic University, United Arab Emirates)

Automation Improvement in Cyber Risk Management

Kire Jakimoski (FON University, Republic of North Macedonia)

SS4: SPECIAL SESSION ON GREEN NETWORKING AND COMPUTING

Thursday, September 21, 09:00 – 10:30 (JUGO)

SS4: Special Session on Green Networking and Computing

Chair: Josip Lorincz (University of Split, Croatia)

Estimating Power Consumption of Collocated Workloads in a Real-World Data Center

Pritam Jaywant Chaudhari, Satoshi Kaneko and Taku Okamura (Hitachi, Ltd., Japan)

5G networks supported by UAVs, RESSs, and RISS

Adam Samorzewski and Adrian Kliks (Poznan University of Technology, Poland)

An Adaptive Energy Saving Mechanism for Middleware of Things

David Cavalcanti (Federal University of Pernambuco, Brazil); Danny Hughes (Katholieke Universiteit Leuven, Belgium); Nelson Souto Rosa (Federal University of Pernambuco, Brazil)

SS5: SPECIAL SESSION ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY (EEMC)

Friday, September 22, 16:30-18:00 (BURA II)

SS5: Special Session on Environmental Electromagnetic Compatibility (EEMC)

Chair: Dragan Poljak (University of Split, Croatia)

The Influence of HF Wireless Power Transmitter on nearby Thin -Wire Objects: A Simplified Analytical Model

Petra Rasic, Zoran Blažević and Dragan Poljak (University of Split, Croatia)

Numerical Filtering of Electric Field in Human Head Models Exposed to High-Frequency EMF

Mario Cvetković (University of Split, Croatia); Dragan Poljak (University of Split, FESB, Croatia); Hrvoje Dodig (University of Split, Faculty of Maritime Studies & Naval Electronic Center, PCE, Croatia)

Direct Time Domain Calculation of Near Field Generated by a Straight Thin Wire in Free Space

Dragan Poljak and Sinisa Antonijević (University of Split, Croatia); Vicko Doric (University of Split, FESB, Croatia)

Axial Ratio of Quarter- and Half-wavelength Cloverleaf Antenna for Drone FPV Applications

Maja Škiljo (University of Split, Croatia); Marina Udženija (FESB, Croatia); Zoran Blažević (University of Split, Croatia)

Automatic Detection of Peak Spatial-Average Power Density on Nonplanar Body Models

Ante Kapetanović and Dragan Poljak (University of Split, Croatia); Hrvoje Dodig (University of Split, Faculty of Maritime Studies & Naval Electronic Center, PCE, Croatia)

SS6: SPECIAL SESSION ON ROBOTICS AND ICT ASSISTED WELLBEING

Thursday, September 21, 11:00 - 12:30 (JUGO)

SS6: Special Session on Robotics and ICT Assisted Wellbeing

Chair: Vladan Papić (University of Split, Croatia)

Design of a 3D Printed Humanoid Robotic Hand

Ivan Chavdarov (Institut of Robotics, Bulgarian Academy of Sciences & Sofia University "St. Kliment Ohridski", FMI, Bulgaria); Ivaylo Georgiev (Bulgarian Academy of Sciences, Bulgaria); Valentin Nikolov (Sensata Technologies, Bulgaria); Bozhidar Naydenov (Dassault Systemes & Institut of Robotics, Bulgarian Academy of Sciences, Bulgaria)

EEG Signal Analysis Approaches for Epileptic Seizure Event Prediction Using Deep Learning

Chrisa Samara (International Hellenic University, Greece); Eleni Vrochidou (International Hellenic

TIMETABLE A: TECHNICAL PROGRAM, SYMPOSIA

Thursday, September 21 (Amphora Hotel, Split)

Time/Hall	BURA I	BURA II	JUGO
08:00-09:00	REGISTRATION		
09:00-10:30	S7: Vehicular Communications and Systems	S2: Signal Processing	SS4: Special Session on Green Networking and Computing
10:30-11:00	Coffee Break		
11:00-12:30	S1/I: Machine Learning Applications I	S3: 5G & B5G Technologies	SS6: Special Session on Robotics and ICT Assisted Wellbeing
12:30-14:15	Lunch		
14:15-15:00	Invited Speech: O. Ozoliņš, High-Baudrate SiP and InP Modulators for Data Center Interconnects (BURA I)		
15:00-16:30	S1/II: Machine Learning Applications II	S8: IoT Networks	SS7: Special Session on Advanced Educational Technologies
16:30-17:00	Coffee Break		

Friday, September 22 (Amphora Hotel, Split)

Time/Hall	BURA I	BURA II	JUGO
08:00-09:00	REGISTRATION		
09:00-10:30	SS2: Special Session on Ad Hoc&Sensor Networks and Internet of Things (JUGO)		
10:30-11:00	Coffee Break		
11:00-12:30	Keynote Speech: Marco Ajmone Marsan: <i>Server Selection in the Internet Continuum</i> (BURA)		
12:30-14:30	Conference Luncheon		
14:30-16:00	SS3/I: Special Session on Security and Digital Forensics I	S5: Optical Communications	S6/I: Software Development I
16:00-16:30	Coffee Break		
16:30-18:00	SS3/II: Special Session on Security and Digital Forensics II	SS5: Special Session on Environmental Electromagnetic Compatibility (EEMC)	S6/II: Software Development II
	PAS1: Posters/Abstracts Session (Hall nearby BURA) PDS1: Posters/Demos Session (Hall nearby BURA)		
18:00-22:30	Social program		

Saturday, September 23 (Amphora Hotel, Split)

Time/Hall	BURA I	BURA II
09:00-10:30	S9: Cloud Computing	SS8: Special Session on Smart Environments & Internet of Things
10:30-11:00	Coffee Break	
11:00-16:00	Conference trip	

TIMETABLE B: WORKSHOPS, TUTORIALS, BUSINESS FORUM

Thursday, September 21 (Amphora Hotel, Split)			
Time/Hall	LEVANT	MAESTRAL	TRAMONTANA
08:00-09:00	REGISTRATION		
09:00-10:30	VITA project presentation	Tutorial T3 (D. Poljak and A. Šušnjara) <i>Dosimetry for Human Exposure to 5G Mobile Communication Systems</i>	
10:30-11:00	Coffee Break		
11:00-12:30	SYM1: Symposium on Information Security and Intellectual Property (ISIP) Invited talks: Krešimir Grgić, Dinka Šago	Panel Discussion: AI from University to local IT	
12:30-14:15	Lunch		
14:15-15:00	Invited Speech: O. Ozoliņš, High-Baudrate SiP and InP Modulators for Data Center Interconnects (BURA I)		
16:30-17:00	Coffee Break		
Friday, September 22 (Amphora Hotel, Split)			
Time/Hall	LEVANT	MAESTRAL	TRAMONTANA
08:00-09:00	REGISTRATION		
09:00-10:30	SS1: Special Session on QoS in Wired and Wireless Networks	S4: Wireless Communications	Tutorial T2 (K. Li) <i>Method of Power Density and Temperature Elevation Analysis for Skin Exposure to Electromagnetic Fields above 6 GHz</i>
10:30-11:00	Coffee Break		
11:00-12:30	Keynote Speech: Marco Ajmone Marsan: Server Selection in the Internet Continuum (BURA)		
12:30-14:30	Conference Luncheon		
14:30-16:00	Panel Discussion: Digital Transformation	Workshop on Development of Optical Communication Networks	Tutorial T1 (Z. Šipuš) <i>Body-Centric Communication and Sensor Systems: Design Challenges</i>
16:00-16:30	Coffee Break		
16:30-18:00	WESC: Ericsson Nikola Tesla Summer Camp 2023 Workshop & WSEP: 12th Workshop on Software Engineering in Practice (LEVANT)	WICT: Workshop on ICT (TRAMONTANA)	
Social program			
Friday, September 22 Evening in Split (18:00-22:30)			
Guided tour in Diocletian palace (18:30 – 20:00)			
Evening in the Port of Split: Sailing club Labud (20:30-22:30)			
Saturday, September 23 Conference trip (11:00 – 16:00)			
Guided visit to Olive museum at Klis (11:30-12:30)			
Guided tour around the historic Klis fortress (12:30-16:00)			
* Note: approximate time is indicated. Actual info on shuttle/bus transfer will be available at the registration desk.			

University, Greece); George A Papakostas (International Hellenic University, Greece)

Object-Based Tree Stump Detection Fusing RGB and Multispectral Data

Pranisha Chaturvedi (Hochschule Bonn-Rhein-Sieg, Germany); Maximilian Johanneken and Ahmad Drak (Hochschule Bonn-Rehin-Sieg, Germany); Sebastian Houben (Hochschule Bonn-Rhein-Sieg, Germany); Alexander Asteroth (Bonn-Rhein-Sieg University of Applied Sciences, Germany)

Detection of small fruits in natural environment images

Mirela Kundid Vasić (University of Mostar & Faculty of Mechanical Engineering and Computing, Bosnia and Herzegovina); Josip Gugić and Vladan Papic (University of Split, Croatia)

SS7: SPECIAL SESSION ON ADVANCED EDUCATIONAL TECHNOLOGIES

Thursday, September 21, 15:00 - 16:30 (JUGO)

SS7: Special Session on Advanced Educational Technologies

Chair: Ani Grubišić (University of Split, Croatia)

Towards a German National Education Platform

Ksenia Neumann (Otto-Von-Guericke-University & BIRD Lab, Germany); Damanpreet Singh Walia (Otto-Von-Guericke-University, Germany); Daniel Staegemann (Otto-Von-Guericke University Magdeburg, Germany); Robert Häusler (Otto-Von-Guericke-University, Germany); Stefan Weidner (SAP University Competence Center Magdeburg, Germany); Klaus Turowski (Otto von Guericke University Magdeburg, Germany)

Detection of at-risk students in Virtual Learning Environment

Robert Rozić and Hrvoje Ljubić (University of Mostar, Bosnia and Herzegovina); Tamara Grujic (University of Split, Croatia); Ana Kuzmanić Skelin (Faculty of Electrical Engineering, Croatia)

Analysis of Student Behaviour on Large Learning Management Systems

Lars Mehnen (Technikum Wien, Austria); Birgit Pohn (University of Applied Sciences Technikum Wien & Medical University Graz, Austria); Matthias Blaickner (University of Applied Sciences Technikum Wien, Austria); Thomas Mandl (FH Technikum Wien, Austria); Isabel Dregely (University of Applied Sciences Technikum Wien, Austria)

Exploring Student Persistence with Automatically Generated Practice through Interaction Patterns

Rachel Van Campenhout, Michelle Clark, Jeff Dittel, Nick Brown and Richard Benton (VitalSource, USA); Benny G Johnson (VitalSource Technologies, USA)

Exploring Student Engagement in Online Programming Courses: A Two-Level K-means Analysis

Ivan Peraić (University of Zadar, Croatia); Ani Grubisic (University of Split, Croatia)

SS8: SPECIAL SESSION ON SMART ENVIRONMENTS & INTERNET OF THINGS

Saturday, September 23, 09:00 - 10:30 (BURA II)

SS8: Special Session on Smart Environments & Internet of Things

Chair: Maja Stella (University of Split, Croatia)

An LSTM-based outlier detection approach for IoT sensor data in hierarchical Edge Computing

Somia Bibi (University of Batna2, Algeria); Chafiq Titouna (Université de Gustave Eiffel, France); Faiza Titouna (University of Batna 2, Algeria); Farid Nait-Abdesselam (University of Missouri Kansas City, USA)

SeReIn: Smart Home Sensor Relationship Inference

Samuel Nack, Razib Iqbal and Siming Liu (Missouri State University, USA)

A Novel Distance Estimation Framework for PDR Based Indoor Localization Using RNNs

Likhith Ayinala and Pavana Ravi Sai Kiran Malyala (Indian Institute of Technology Jodhpur, India)

PROFESSIONAL PROGRAM

Friday, September 22, 16:30 - 18:00 (TRAMONTANA)

WICT: Workshop on Information and Communication Technologies

Chair: Damir Krstinić (University of Split, Croatia)

A Framework for Wireless and Secure JPEG 2000 Image and Video Transmission Over Wireless Networks
Max Agueh (Efrei Research Lab & Université Panthéon Assas, France); Henoc Soude (IMSP, Benin)

Web Camera Based Attention Tracking

Katarina Vuknić and Damir Krstinić (University of Split, Croatia)

Irregularities Detection in Operation of the Diesel Engine

Joško Radić, Ante Rubic and Matko Saric (University of Split, Croatia)

Web application for tissue image analysis using TIAToolbox library

Josipa Grgurovic, Matko Saric, Joško Radić and Mladen Russo (University of Split, Croatia)

Friday, September 22, 16:30 - 18:00

(HALL NEARBY BURA)

PDS1: Posters/Demos Session

Chair: Damir Brešković (Hrvatski Telekom, Croatia)

A Live Demonstration of HiPerConTracer 2.0

Thomas Dreibholz (Simula Metropolitan Centre for Digital Engineering, Norway)

System for Detecting Failures in Diesel Engine Operation

Ante Rubic and Joško Radić (University of Split, Croatia)

Thursday, September 21, 11:00 - 12:30 (LEVANT)

SYM1: SYMPOSIUM ON INFORMATION SECURITY AND INTELLECTUAL PROPERTY (ISIP)

ISIP INVITED TALK: KREŠIMIR GRGIĆ

SECURITY ASPECTS OF THE IOT ENVIRONMENT - CHALLENGES, REQUIREMENTS AND LIMITATIONS

Krešimir Grgić, PhD

Faculty of Electrical Engineering, Computer Science and Information Technology, University of Osijek, Croatia

Summary:

The Internet of Things (IoT) architecture connects and integrates a large number of heterogeneous devices, very different in their computing, energy and communication properties. This also significantly affects the security aspects of the IoT environment. This talk will analyze the current situation regarding the cybersecurity of the IoT environment, with a focus on existing challenges, requirements and limitations. Also, the current state and guidelines for the future development of security mechanisms intended for the IoT environment will be presented.



Biography:

Krešimir Grgić received the M.Sc. degree in 2005 and the Ph.D. degree in 2011, both from Josip Juraj Strossmayer University of Osijek, Faculty of Electrical Engineering, Computer Science and Information Technology in Osijek, Croatia. He is employed as an associate professor at the same faculty, Department of Communications (currently he is a head of the Chair of Radiocommunications and Telecommunications). His research interests include (but not limited to) computer and communication networks, Internet of Things (IoT), wireless sensor networks, cybersecurity and error control coding. He is the author of more than 50 publications, including international journal and conference papers. He has long-term experience in teaching and supervising students on bachelor, master and postgraduate studies. He actively participated in several research and professional projects. He is a member of IEEE (senior member).

ISIP INVITED TALK: DINKA ŠAGO

SOME ASPECTS OF THE RIGHT OF ACCESS TO INFORMATION AS A RIGHT PROTECTED BY THE EUROPEAN CONVENTION OF HUMAN RIGHTS

Dinka Šago, PhD

Faculty of law, University of Split

Summary:

Article 10 of the European Convention on Human Rights does not confer a general right of access to information. It does not impose on Member States positive obligations to collect and disseminate information of its own motion. But, the case-law of the European Court of Human Rights underlined that the Convention was a living instrument which should be interpreted in the light of present-day conditions, which empowered it to adopt a broader interpretation of the notion of the “freedom to receive information” encompassing recognition of a right of access to information.

This presentation shows the development of the approach of the European Court of Human Rights to protecting the right of access to information under Article 10 of the European Convention for the Protection of Human Rights and Fundamental Freedoms. The presentation ends with certain conclusions about the conditions in protecting the right of access to information according to the European Convention and the level of protection of the rights that should be provided.



Biography:

Dinka Šago is Associate Professor at the Chair for Civil Procedure Law, Faculty of Law University of Split, Croatia. She has graduated at the Faculty of Law in Split. She worked as judicial trainee at the Municipal Court in Split and she has passed Bar Exam. In 2010. she finished Post-graduate Study in Civil and Family Law sciences and won a master's degree of law at Faculty of Law University of Zagreb. At the Faculty of Law, University of Split she has graduated defending PhD dissertation in 2012. She was a member of research team in the scientific project of the Faculty of Law in Maribor „Recognising and implementing court decisions in the national systems of Croatia and Slovenia and within the area of the European court“. She is the co-author of four books, author and co-author of the scientific papers in

Croatian and English language and she had lectures on national and international congresses. She participates in teaching courses in Civil Procedure Law, European Civil Procedure Law, Non-contentious law, Organisation of the judiciary, Croatian and european enforcement law and Notary law.

SYM1: Symposium on Information Security and Intellectual Property (ISIP)

Co-Chairs: Marija Boban (University of Split, Croatia) and Gordan Ježić (University of Zagreb, Croatia)

Information Security Management System in Public Entity with Legal Authorities During COVID-19 Pandemic

Dražen Lučić (Hrvatska Gospodarska Komora, Croatia)

Purpose of Punishment for Perpetrators of Computer Crime

Ivan Vukusic (University of Split Faculty of Law, Croatia)

Protection of Personal Data in IoT Devices from Legal and Social Aspects

Marija Boban (University of Split Faculty of Law, Croatia) and Vedran Uroš (Polytechnic “Marko Marulić” Knin, Knin, Croatia)

TUTORIALS

TUTORIAL T1

Friday, September 22 14:30-16:00 (TRAMONTANA)

Zvonimir Šipuš, PhD

Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia

Body-Centric Communication and Sensor Systems: Design Challenges

Abstract: One of the major challenges in the development of components for body-centric systems is to design a device that can at the same time satisfy technical requirements and fulfil non-technical requests. For example, on-body devices should be aesthetically acceptable and suitable for wearable applications, while implantable devices should be small and made of biologically acceptable materials. Various applications has led to many breakthroughs in body-centric systems focused on healthcare, fitness, civil services and entertainment. The design process usually start with analytic modelling of canonical cases, realization of proof-of-concept prototypes, and finally development of components suitable for integration into a body-centric system. The aim of this presentation is to present a simplified model of an implanted and wearable antenna that provides close-form expressions to estimate EM radiation from the implant despite being only a rough approximation. Furthermore, realization of wearable antennas using conductive fabric and thread will be discussed, demonstrating that the proposed antennas are suitable for all three (off-body, on-body, and in-body) body-centric communication scenarios.



Biography: Zvonimir Šipuš was born in Zagreb, Croatia, in 1964. He received the B.Sc. and M.Sc. degrees in electrical engineering from the University of Zagreb, Croatia, in 1988 and 1991, respectively, and the Ph.D. degree in electrical engineering from Chalmers University of Technology, Gothenburg, Sweden, in 1997. From 1988 to 1994, he worked at Rudjer Boskovic Institute, Zagreb, Croatia, as Research Assistant, involved in the development of detectors for explosive gases. In 1994, he joined the Antenna Group at Chalmers University of Technology, where he was involved in research projects concerning conformal antennas and soft and hard surfaces. In 1997, he joined the Faculty of Electrical Engineering and Computing, University of Zagreb, where he is currently a Professor. From 1999 to 2005, he was also an Adjunct Researcher at the Department of Electromagnetics, Chalmers University of Technology. Since 2006 he was engaged in teaching in the European Doctoral School of antennas (ESoA). His current research interests include the analysis and design of electromagnetic structures with application to antennas, microwaves, and optical communication and sensor systems.

TUTORIAL T2

Friday, September 22 09:00-10:30 (TRAMONTANA)

Kun Li, PhD

Advanced Wireless and Communication Research Center (AWCC), The University of Electro-Communications, Japan

Method of Power Density and Temperature Elevation Analysis for Skin Exposure to Electromagnetic Fields above 6 GHz

Abstract: Increasing demand of wireless technology at millimeter wave (MMW) has raised extensive concerns on the human exposure safety to the electromagnetic fields. Above 6 GHz, the adverse health effects is the superficial heating of the biological tissues owing to shallow penetration depths. Dosimetry analysis in recent years aims at clarifying the relationship between various definitions of power density and skin surface temperature elevation using numerical approaches, such as widely-used finite-difference time-domain (FDTD) method. These studies did not address dosimetric effects arising from the detailed skin structure at MMW frequencies, primarily because the EM-simulation cannot satisfy such a high numerical

resolution of detailed skin configuration, which may require large amounts of computational resources. In this tutorial, the formula-based analytical methodology for MMW dosimetry evaluation above 6 GHz will be mainly explained. The impacts on the calculation accuracy caused by various factors, such as structure of skin tissue, dielectric and thermal parameters, angle and polarization of incidence wave, and clothing effects will be presented as well.



Biography: Kun Li received the B.E. degree in communication engineering from the Nanjing University of Posts and Telecommunications, Nanjing, China, in 2011, and the M.E. and Ph.D. degrees in electrical engineering from the University of Toyama, Toyama, Japan, in 2014 and 2017, respectively. From 2017 to 2019, he was a Researcher with the Electromagnetic Compatibility Laboratory, National Institute of Information and Communications Technology, Tokyo, Japan. From 2020 to 2023, he was an Assistant Professor with the Faculty of Engineering and Design, Kagawa University, Takamatsu, Japan. He was a Visiting Researcher with the CNRS/IETR, University of Rennes 1, Rennes, France, from 2022 to 2023. In 2023, he joined the

Advanced Wireless and Communication Research Center, The University of Electro-Communications, Tokyo, Japan, where he is currently working as an Associate Professor. His research interests include electromagnetic computation and measurement for radiation safety by human exposure to electromagnetic fields in radio frequencies, antenna design and measurement techniques for wireless body area network system. Dr. Li was the recipient of the Young Scientist Award of the URSI, in 2020, the Risaburo Sato Award of EMC Sapporo & AMPEC, in 2019, the IEEE AP-S Japan Student Award in 2015, and the IEICE Best Letter Award in 2017. He is a member of IEEE International Committee on Electromagnetic Safety TC95 and Co-Chair of Working Group under Subcommittee 6 EMF Dosimetry Modeling established to study average schemes and assessment methods of absorbed power density. He is a senior member of URSI and a member of IEEE and IEICE.

TUTORIAL T3

Thursday, September 21 09:00-10:30 (TRAMONTANA)

Dragan Poljak and Anna Šušnjara, PhD
University of Split, FESB, Split, Croatia

Dosimetry for Human Exposure to 5G Mobile Communication Systems

Abstract: Human exposure to mobile communications systems of fifth generation (5G) may cause a local temperature rise at the body surface (skin, ear and eye in particular). According to ICNIRP 2020 guidelines, this surface heating is quantified by absorbed power density (S_{ab}) above transition frequency of 6GHz, while for the frequencies below 6GHz specific absorption rate (SAR) is relevant dosimetric quantity being widely used in last decades. Also, transmitted power density (TPD), an alternative dosimetric quantity and metric, providing an estimation of skin temperature increase for exposure to radiation in GHz frequency range is used.

The presentation first starts with simple incident dosimetry procedures to estimate the external field radiated by 5G systems. This is followed by deterministic internal dosimetry procedures. As an opener to the subject, an analytical assessment of S_{ab} and TPD for the case of Hertz dipole radiating in the presence of an unbounded lossy half-space will be presented. It will be followed by an analytical/numerical assessment of S_{ab} in the homogeneous planar model of the human tissue due to radiation of horizontal dipole antenna of finite length in GHz frequency range. Next topic of interest is the calculation of incident power density (IPD) and related temperature increase in multilayer tissue model using different numerical methods based on the paper prepared by IEEE ICES working group and published in IEEE Access (November 2021 Issue). Furthermore, an assessment of the epithelial/absorbed power density in multilayer tissue model using different numerical methods will be presented. This part of the Tutorial is based on the paper prepared by IEEE ICES working group and recently published in IEEE Access (January 2023 Issue). An assessment of transmitted power density in multilayer planar tissue will be presented, as well.

Tutorial will also deal with stochastic-deterministic electromagnetic-thermal dosimetry in lower portion of GHz frequency range. Starting with an overview of some of the most relevant stochastic modelling techniques in bioelectromagnetism, the presentation continues with a more detailed description of the

stochastic collocation method. Several examples deal with stochastic collocation method applied to the analysis of anatomically based realistic multi-layered model of the human head exposed to radiation from 5G communication systems. This part of the talk is based on the paper published in IEEE TEMC Special Issue on Progress in Environmental Electromagnetic Safety and Biomedical EMC (October 2021 Issue).

Finally, some ongoing work dealing with realistic model of the human ear exposed radiation above 6 GHz will be addressed.

Some concluding remarks and future work directions, primarily based on IEEE ICES WG 7, will be outlined.



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 (electromagnetic compatibility, bioelectromagnetics, ground penetrating radar and plasma physics). To date Prof. Poljak has published around 190 journ. And more than 300 conf. papers, and authored some books, e.g. two by Wiley, 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), 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. 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.*



Biography: *Anna Šušnjara received her PhD degree in el. Eng. in 2021 from the Univ. of Split, Croatia. She is a postdoc researcher at Dept. of Electron. and Computing, FESB, Univ. of Split. Her research interests include numerical modelling, uncertainty quantification and sensitivity analysis in computational electromagnetics, particularly in bioelectromagnetism. Dr. Šušnjara was awarded with National Prize for Science in 2021 and Univ. of Split Prize for Science in 2022. In 2016 she received the best poster award at BioEM conference. In the same year dr. Šušnjara spent one month at Politecnico di Torino as ACRI awardee in Young Investigator Training Program. She gave seminars/lectures about numerical modelling in computational electromagn. at several European academic institutions and tutorials at international scientific conferences. From 2015 until 2021 dr. Šušnjara was involved in ITER physics EUROfusion collab. In 2021 she joined a work group within IFMIF-DONES project. Dr. Šušnjara is a member of IEEE and BIOEM societies. She currently serves as Vice President of Croatian chapter of IEEE EMC society. To date, dr. Šušnjara authored and co-authored 18 journ. and more than 35 conf. papers. She serves as a reviewer to seven journals and two conferences. Full list of her publications can be found at: <https://www.bib.irb.hr/pregled/znanstvenici/348056>.*

BUSINESS FORUM

Thursday, September 21, 09:00-10:30 (LEVANT)

VITA (Virtual Telemedicine Assistance) PROJECT PRESENTATION

Session organizers: Mladen Russo (project leader), Maja Stella, Luka Kraljević, Davor Meter

Project VITA (Virtual Telemedicine Assistance) is a research project that aims to develop a highly innovative collaborative telemedicine platform based on virtual and augmented reality interfaces, computer vision and IoT medical devices. Our telemedicine platform aims to facilitate remote consultations, diagnoses, and treatment options for patients. In this presentation, project results and capabilities of the currently developed prototype will be demonstrated.

The project VITA is financed by the Croatian Government and the European Union through the European Regional Development Fund - the Competitiveness and Cohesion Operational Program (KK.01.1.1.01).

Development of a DICOM (Digital Imaging and Communications in Medicine) Viewer for Mixed Reality (MR) Interface

Duje Žaja, Mia Veraja, Luka Kraljević, Maja Stella (University of Split, Croatia)

Usability of Scene Reconstruction from Point Cloud with Microsoft HoloLens 2 for Telemedicine

Duje Žaja, Ivor Horvat Rehak, Luka Kraljević, Mladen Russo (University of Split, Croatia)

Point Cloud Visualization from the Depth Map of one Frame

Stipe Živaljić, Ivo Budimir, Luka Kraljević, Mladen Russo (University of Split, Croatia)

Real-time 3D Reconstruction Using ZED Mini Camera

Stipe Živaljić, Marko Mandić, Luka Kraljević, Mladen Russo (University of Split, Croatia)

Thursday, September 21, 11:00-12:30 (TRAMONTANA)

PANEL DISCUSSION: AI FROM UNIVERSITY TO LOCAL IT

In this panel discussion, we will delve into the journey of Artificial Intelligence (AI) from university to its practical implementation in local IT industries supported by regional government. Throughout the discussion, we will address the challenges and opportunities of implementing AI in local IT industries, including data availability, talent acquisition, and ethical considerations. We will also share best practices for organizations looking to adopt AI technologies, focusing on data management, model selection, and integration with existing IT infrastructure. There will be showcased ways of implementation of AI in local IT industries, highlighting the benefits gained and the lessons learned.

MODERATOR:

Damir Brčić, Digitalna Dalmacija

COORDINATORS:

Saša Mladenović, University of Split, PMF

Luka Farkaš, ATOS

Ivan Biliškov, Codeasy/Necogi

Friday, September 22, 16:30-17:30 (LEVANT)

WESC: ERICSSON NIKOLA TESLA SUMMER CAMP 2023 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:

Dinko Židić, Researcher

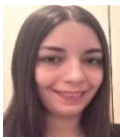
Ericsson Nikola Tesla d.d., Split



Dinko Židić received a bachelor's degree and master's degree in computer science from the Faculty of Electrical Engineering, Mechanical Engineering, and Naval Architecture, University of Split, Croatia in 2019 and 2021. During the last two years of his study, he worked as a student helper at Research Department in Ericsson Nikola Tesla, Split and gain knowledge about spatio temporal data analytics and storage solutions, cloud microservice architecture, along with the concept of Digital Twin. Today, he works as a Researcher at Ericsson Nikola Tesla.

Jelena Čulić Gambiroža, Researcher

Ericsson Nikola Tesla d.d., Split



Jelena Čulić Gambiroža is currently employed as a Researcher at Ericsson Nikola Tesla, Split, Croatia. She received her bachelor and master's degree in Computer Science from Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split, Croatia, in 2013 and 2015, respectively. She is currently pursuing the PhD degree at the University of Split. Her research interests include Big Data challenges in Internet of Things (IoT) as well as Data analytics including Statistical Methods and Machine Learning.

Should I swim or should I go?

Team members: Adriana Guteša, Petra Dadić

Mentor(s): Dinko Židić, Jelena Čulić Gambiroža, Slaven Jozić

Hot and Cold

Team members: Petra Zelić, Petra Stupalo, Josip Maretić

Mentor(s): Jelena Čulić Gambiroža, Ana Čulić, Dinko Židić, Sandro Nižetić

Remote Sensing in e-Environment: Chlorophyll prediction

Team members: Lucija Domić, Ivona Grbeša Dragun, Mateo Čatipović

Mentor(s): Veronika Ozretić Vidak, Mislav Maretić

Urban Heat Islands in e-Environment

Team members: Hrvoje Čukušić, Jurica Matošić, Marko Mijoč, Matea Vučemilović-Vranjić

Mentor(s): Veronika Ozretić Vidak, Mislav Maretić

Carbon stocks in e-Environment

Team members: Domagoj Martinović, Nikola Metličić, Ana Vučić

Mentor(s): Naomi Munitić, Veronika Ozretić Vidak

e-Environment Crowdsourcing

Team members: Jakov Bejo, Marko Kusačić, Marin Novaković, Marija Novokmet

Mentor(s): Dario Carić, Luka Prusac

ESG Functionalities in e-Environment

Team members: Ilario Batistić, Franka Katić, Jakov Milić, Dina Vrandečić

Mentor(s): Lucia Jurković, Marija Pajdek

Friday, September 22, 17:30-18:00 (LEVANT)

WSEP: 12TH WORKSHOP ON SOFTWARE ENGINEERING IN PRACTICE

Topics: student will pitch their experience about used technology during ENT Summer Camp 2023, and after provided pitches will be common discussion about required knowledge for technology applying and recommendations for further usage.

MODERATOR: Darko Huljenić, PhD, Ericsson Nikola Tesla d.d., Zagreb



Biography: Dr. Darko Huljenić received his Ph.D. degrees from the University of Zagreb, Croatia, in 2001. He has been with Ericsson Nikola Tesla since 1984. His current position is Director of Research Unit. He expanded company research cooperation with the major Croatian Universities as well as some international research institution's. His main interests are open network architecture, software development methodologies and service oriented architecture. Dr. Huljenic holds a position of associate professor at the University of Zagreb, at the Faculty of Electrical Engineering and Computing.

no	Student	Technology
1	Petra Zelić	Python, Tensorflow
2	Petra Dadić	Python, Tensorflow
3	Jakov Bejo	React Native
4	Marko Kusačić	React Native
5	Illario Batistić	ReactJS, chart.js
6	Franka Katić	ReactJS, chart.js
7	Jakov Milić	ReactJS, chart.js
8	Dina Vrandečić	ReactJS, chart.js
9	Hrvoje Čukušić	Jupyter Notebook, SNAP, SnapPy, Pandas, NumPy, Visual Studio Code, Python, Matplotlib, Sklearn
10	Jurica Matošić	Python

Friday, September 22, 14:30-16:00 (MAESTRAL)

WORKSHOP ON DEVELOPMENT OF OPTICAL COMMUNICATION NETWORKS

The experts from the regulatory agency and leading companies will present the actual topics in development of optical communication networks in Croatia and abroad. After the presentation a panel discussion will be held.

Regulatory framework and Very High Capacity Networks (VHCN) Development Indicators in the Republic of Croatia

Mladen Sikirica, Head of Market Economy Department
HAKOM (Croatian Regulatory Authority for Network Industries)

FWA solution as an alternative to the fixed access network

Damir Brešković, Krešimir Leko, Damir Jurak, Access network strategy and Planning Department
Hrvatski Telekom

NP-BBI network - Challenges of submarine cable links planning

Ivica Meštrović, NP-BBI Expert
Odašiljači i veze d.o.o.

Capacitated fiber network design algorithm

Marija Čagalj, Business Process Development Expert, Hrvatski Telekom d.d.
Željko Deljac, Data scientist
Siniša Štifić, Project manager

PANEL DISCUSSION: DIGITAL TRANSFORMATION – THE RISE OF EDIHs

European Digital Innovation Hubs play a crucial role in accelerating Europe's digital transformation. EDIHs core mission is to build up the digital capacities of SMEs and public sector organisations by providing access to technical expertise and testing opportunities, enabling them to 'test before invest'. Today we will have opportunity to hear how EDIH support is functioning in Croatia, which services 4 of Croatian EDIHs can offer and we will finish the session with round table discussion with EDIHs representatives giving concrete example of use of different advanced technologies to boost digital transformation of Croatian companies and public sector. It is my pleasure to welcome representative of Ministry of Economy and Sustainable Development, Mr Damir Medved, director of EDIH Adria, Dr Anja Barešić, coordinator of EDIH AI4Health, Mr Hrvoje Džapo from CROBOHUB++ and Tadej Slapnik from JURK EDIH.

MODERATOR:

Ivana Vuka, University of Split



Biography: Ivana Vuka is the head of the Technology Transfer Office at the University of Split. He has many years of experience in advising and mentoring entrepreneurs and researchers related to intellectual property management and business development, as well as experience in managing national innovation support programs and technology transfer. She participated in the preparation and implementation of numerous national and EU projects, and is currently the project manager of the European Entrepreneurial Network, in which she has the role of Ambassador for Intellectual Property, and the ERA FABRIC project, in which she leads a work package aimed at better connecting stakeholders in regional innovation ecosystems. She organized a number of events, workshops and trainings for entrepreneurs and researchers.

the education of children and citizens, leads the educational activities within the Drenova Community Centre, where he holds courses on the sustainable community development and smart cities, application of artificial intelligence in citizen science projects and promotion of citizen energy.

Anja Barešić, Ruđer Bošković Institute, AI4Health.Cro EDIH



Biography: Anja Barešić, PhD is the coordinator of AI4Health.Cro EDIH, whose main goal is facilitation of uptake of innovative, AI-based solutions into the digital healthcare and medicine sector, with special focus on enabling testing opportunities for startups and public sector stakeholders. The consortium spans 16 partners from the academy, healthcare and technology sector, associations and regulatory bodies. She has over 15 years of experience in bioinformatics, and is currently leading a Bioinformatics group within Laboratory for Machine Learning and Knowledge Representation. Her research focuses on genomics research of inherited genetic diseases, with focus on the "dark side of the genome" and the potential of statistics and AI to obtain new biological knowledge for big data in medicine.

sensors, biomedical engineering, signal processing, and embedded systems. He participated in several research projects and industry collaborations in roles of researcher and project leader. He is currently a project coordinator of EDIH CROBOHUB++ project. He was a founder and head of FER Career Center from 2015 to 2022. He is a senior member of IEEE, IFMBE, and CROBEMPS. He served as a chair of IEEE Instrumentation and Measurement Society Chapter of IEEE Croatia Section 2009-2013, and is currently a co-chair of IEEE Engineering in Medicine and Biology Society (EMBS) Chapter of IEEE Croatia Section. In 2019 he was awarded IEEE Croatia Section Outstanding Educator Award for outstanding contribution to engineering education through connecting the academic sector and industry in the fields of student internships, career development and promotion of student entrepreneurial activities.

COORDINATORS:

Damir Medved, M.Sc., EDIH ADRIA



Biography: Damir Medved, M.Sc. is the director of EDIH ADRIA (European Digital Innovation HUB), whose main goal is to enable small entrepreneurs and local self-government units to speed up the digitization process of their organizations, speed up the innovation process, the opportunity to test ideas and solutions before starting the investment process and other related activities. He has more than 30 years of experience in managing complex projects, product development and business development. He is one of the initiators of the implementation of the Competence Center for Smart Cities in Rijeka. He actively participates in

Prof. Hrvoje Džapo, PhD, University of Zagreb



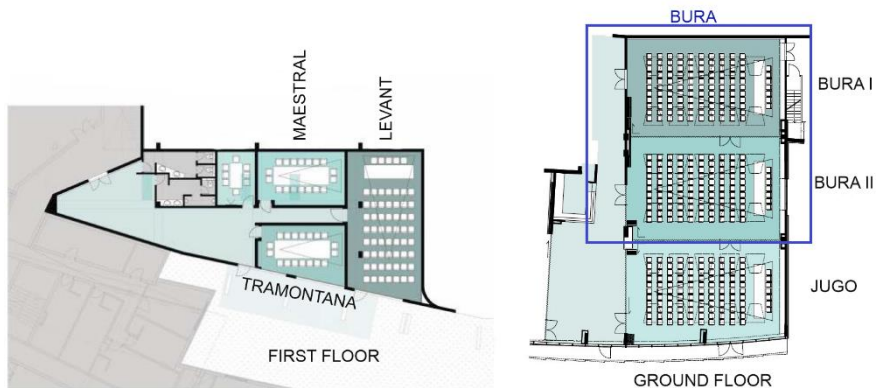
CROBOHUB++
Biography: Hrvoje Džapo is a Professor at the Faculty of Electrical Engineering and Computing University of Zagreb (FER). He received his PhD degree at FER in the field of electrical engineering in 2007. Areas of his research and teaching interests encompass measurement technologies,

Tadej Slapnik, CEO Hashnet, AI & GAMING (JURK) EDIH



Biography: Tadej Slapnik is CEO at HashNET Slovenia, CEO and founder of World Metaverse Council, CEO at Cotrugli Business School Slovenia, Chairman of Organising Committee of European Blockchain Week, former State Secretary in the Cabinet office of the Prime Minister and former Member of Parliament of the Republic of Slovenia. He is Expert at UN/CEFACT, Expert Panel member at European Blockchain Observatory and Forum, Member of Technical Working Group at European Blockchain Partnership, Project lead at SI-Chain - blockchain service infrastructure in Slovenia. Tadej is actively involved in promotion, development and smart regulation of blockchain technology for achieving Sustainable Development Goals at national, European and global level.

FLOOR PLAN OF HOTEL AMPHORA AND GENERAL INFORMATION



ABOUT

The 31st International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2023) will be held on September 21-23 in Split, Croatia.

ELECTRONIC PROCEEDINGS

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

LANGUAGE

The Conference language is English.

SECRETARY

Katarina Radoš
FESB Split
University of Split
R. Boškovića 32
21000 Split, Croatia
Tel: +385 21 305 795
Fax: +385 21 305 655
E-mail: softcom@fesb.hr

SOCIAL PROGRAM



Guided tour in Diocletian's Palace

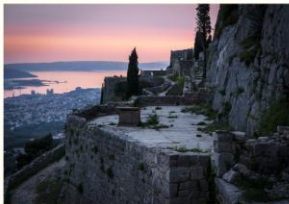
Split is the largest city on the Croatian coast of the Adriatic Sea with a population of 180000. The visit of Split can offer the travelers an extraordinary city tour without any need to take buses to reach the center. Even today as you pass along the south promenade of the Palace, you can feel Diocle's spirit. You can also feel the light breeze blowing from the sea as it seems to be playing through the openings of the Cryptoporticus, welcoming to this town, travelers for whom as Diocles said, there will always be a bed, food and drink, music and the presence of God.

Friday, September 22, 18:00-20:00

Evening in a City port of Split Sailing club Labud

The sailing club Labud has been established in 1924 as the first sailing club in Split. In 1927 the club has organized the first regatta of Mrduja. Since then it has been organized every year as the oldest regatta in this part of Europe. The sailing club Labud is situated in the western part of the City port of Split. The social event will be organized in the premises of the sailing club Labud, surrounded with sailing boats, including buffet and local music ambient.

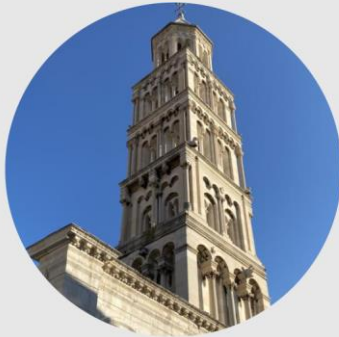
Friday, September 22, 20:00-22:00



Conference Trip on Fortress of Klis

The Klis Fortress is a medieval fortress situated above a village bearing the same name, near Split, Croatia. From its origin as a small stronghold built by the ancient Illyrian tribe Dalmatae, becoming a royal castle that was the seat of many Croatian kings, to its final development as a large fortress during the Ottoman wars in Europe, Klis Fortress has guarded the frontier, being lost and re-conquered several times throughout its more-than-two-thousand-year-long history. Due to its location on a pass that separates the mountains Mosor and Kozjak, the fortress served as a major source of defense in Dalmatia. As a part of the conference trip the participants will also have an opportunity to visit Olive museum which is a part of the Stella Croatica complex nearby Klis fortress.

Saturday, September 23, 11:00-16:00



SoftCOM 2023 Split, Croatia

International Conference on Software,
Telecommunications and Computer Networks
www.fesb.hr/Softcom