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GENERAL CO-CHAIRS MESSAGE

Dear participants and colleagues, it is our pleasure to welcome you to SoftCOM 2017 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.

Current and emerging information and communication technologies are key drivers of the information society and economy. We are together building a society where every person and every industry is empowered to reach their full potential. With both evolving and new services we are enabling people to collaborate, innovate, learn, participate in ways we never thought possible. Through joint research and technology advancement we are opening ground for new discoveries. We can together deliver growth and prosperity based on greater social cohesion and environmental sustainability, holding the potential to truly shape the future and leave a positive legacy for generations to come.

The 25th International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2017), 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 in a special occasion of the silver anniversary conference.

Welcome!

Dr. Sinisa Krajnovic, Ericsson AB

Prof. Dinko Begusic, University of Split - FESB

TEHNIICAL PROGRAM CHAIRS MESSAGE

The 25th Conference on Software, Telecommunications and Computer Networks (SoftCOM 2017) will be held in attractive ambience of the Radisson Blu Resort Split hotel, Split, Croatia, September 21 to 23.

Researchers and experts from industry, research institutes and universities from 47 countries all around the world have submitted in total 211 submissions for presentation at SoftCOM 2017. Submitted papers have been reviewed by more than 250 scientists from universities, institutes and ICT companies. 104 accepted papers have been carefully selected based on their contribution, relevance, conceptual clearness and overall quality. 49% of submitted papers have been recommended for presentation within the technical program.

The technical conference program features eight general conference sessions, five symposia, two special sessions, and one workshop. The symposia have been dedicated to the following topics: Smart Environments and IoT Technologies, Symposium on Ad Hoc and Sensor Networks, Environmental Electromagnetic Compatibility, Green Networking and Computing, and Symposium on Information Security and Intellectual Property. The special sessions are dedicated to hot topics including: QoS in Wired and Wireless Networks, and Advanced Educational Technologies. The Workshop on IoT and Elderly Friendly Cities and Healthy Ageing Services has been organized by the research group from the University of Salento, Italy.

In conjunction with the SoftCOM 2017 conference a professional 6th Workshop on Software Engineering in Practice has been organized by the research group from Ericsson Nikola Tesla company.

Besides that a Business Forum will be organized featuring invited talks, workshops and round tables with participation of managers, experts, and institutions' representatives. A round table on Information Security and Intellectual Property HAKOM (Croatian National Authority for Network Industries).

On behalf of the 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.

Program Committee Co-chairs

Nikola Rozic, Pascal Lorenz

SoftCOM 2017 COMMITTEES

TECHNICAL PROGRAM COMMITTEE

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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
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SoftCOM 2017 PROGRAM OUTLINE

Thursday, September 21, 2017 (location: **Hotel Radisson Blu**)

08.00 – 19.00 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

Lunch time

14.30 - 16.00 Technical program, Professional program, Business forum

16.00 - 16.30 Coffee break

Friday, September 22, 2017 (location: **Hotel Radisson Blu**)

08.00 - 11.00 Registration

09.00 - 10.30 Technical program, Professional program, Business forum

10.30 - 11.00 Coffee break

11.00 - 12:30 Opening ceremony, Keynote speech

Conference Luncheon

14.30 - 18.00 Registration

14.30 - 16.00 Technical program, Professional program, Poster Session, Business forum

16.00 - 16.30 Coffee break

16.30 - 18.00 Technical program, Professional program, Business forum

18.15 Bus transfer to Port of Split

18.30 – 19.30 Guided Tour in Split

19.30 – 21.30 Welcome Party in Split

Saturday, September 23, 2017 (location: **Hotel Radisson Blu**)

08.00 - 10.30 Registration

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

Lunch

13.30 – 18.30 Conference Trip

KEYNOTE / INVITED SPEAKERS

KEYNOTE SPEECH

Friday, September 22
11:00-12:00 (GRAND BALLROOM)

Sandor Albrecht, PhD

*Ericsson Research,
Stockholm, Sweden*



Smart contract, an important building block of adaptable and dynamic networks

Information and communication technology is radically transforming business and our society. Today, there are already many more computing gadgets in the world than there are people. In a few years from now, almost everything we manufacture will have a built-in microprocessor and be connected to the Internet. However, considering the scale of IoT, we need to change the way we think about networks. There is a great need to automate as many network management tasks as possible; ultimately creating an environment where dynamic and automated networks and services will adapt to devices, instead of having them adapt to their environments as they do today. Ultimately, we envision networks and service even being able to negotiate business agreements for Internet access without human intervention. This talk will give a short introduction to smart contract and blockchains, explaining how such technologies can be used to create dynamic networks that can automatically adapt and allow devices to seamlessly connect to the Internet. The talk will explain how smart contracts and blockchains could be used to automate identity- and policy management across networks to simplify network management – and ultimately offer global Internet access.

Sandor Albrecht

The Director of Research Area Digital Services Design, meaning he leads teams that explore new ways of connecting human beings and things, all in the pursuit of making it more enjoyable to work and live in a sustainable world. Based in Stockholm nowadays, he began his Ericsson career in Hungary in 1999 as an R&D project manager. He moved to Sweden in 2010 as Head of Technology Strategy for IP and packet transport evolution. He is an entrepreneur inside Ericsson's global organization. As founder and Head of Ericsson Garage, which has ten centres of innovation and incubation around the world, he sees to it that Ericsson encourages fresh ideas and invests in the right future for customers and partners. He received his Master of Science in Electrical Engineering from Budapest University of Technology and Economics in 1993, and his PhD from the same institution in 2004. He also holds a Master of Advanced Science from the University of British Columbia in Canada and holds a Master's of Business Administration from Central European University Business School, Budapest, Hungary.

Einar Broch Johnsen, PhD

Department of Informatics,
University of Oslo,
Norway

**Designing Resource-Aware Applications for the Cloud using Formal Methods**

Deployment on the cloud gives software designers far reaching control over the resource parameters of the execution environment, such as the number and kind of processors, the amount of memory and storage capacity, and the bandwidth. In this context, designers can also control their software's trade-offs between the incurred cost and the delivered quality-of-service. Resource-aware services, which are designed for scalability, can even change these parameters dynamically, at runtime, to meet their service-level agreements. But how can we ensure that we made good design decisions for such services, before they are actually deployed? In this talk, we discuss how semantics and formal methods can be used to model and reason about resource-aware services and their service contracts, illustrated

by work on executable modelling and analysis of virtualized services in the EU project Envisage.

Einar Broch Johnsen

The professor at the Department of Informatics, University of Oslo. His research interests include programming models and methodology; program specification and modeling; formal methods and associated theory; lightweight analysis, type systems, testing; as well as deductive verification and formal logic. He is active in formal methods for distributed and concurrent systems, including object-oriented and concurrent languages, manycore computing, and cloud computing. He is one of the main developers of the ABS modeling language and the coordinator of the EU FP7 project Envisage on formal methods for cloud computing (2013-2016). Einar Broch Johnsen is the deputy director of the Sirius Centre for research driven innovation on scalable data access.

Adnan Al-Anbuky, PhD

AUT University,
Auckland, New Zealand

**IoT-Based WSN: Softwarization and Virtualization Towards CPS Intelligence**

Progression of Internet of Things (IoT) and Wireless Sensor Networks (WSN) are leading into the more comprehensive and integrated organization of the Cyber Physical Systems (CPS). The area of CPS goes beyond the functions of sensor-actuator systems where the system objective is the efficient data collection, transportation and delivery. It also goes beyond the IoT where physical things are remotely interacted with. Cyber-physical systems (CPS) are "engineered systems that are built from, and depend upon, the seamless integration of computational algorithms and physical components. Their pervasive operation is governed by the key pillars relevant to wireless sensor-actuator network, Internet of Things IoT, cloud and embedded computing, and intelligence enabling technologies. Timing and

synchronization among the system components are of vital importance in coordinating the actions with the events of a highly complex and distributed system. Functional Verification is of another vital importance to ensure that the software behaves as required. Softwarization and virtualization of IoT based WSN systems plays important role in future of CPS design. The field is directly associated with wide range of applications such as transportation, farming, horticulture, health, manufacturing, to name few. The talk will discuss the generic conceptual architecture for Cyber Physical System with emphasis on the degree of freedom IoT based WSN offers for softwarization, edge computing and network functions virtualization. This will lead into discussing the layered architecture for defining the WSN-SDN initiative. Examples on use-cases relevant to vehicular network and shared spaces will also be discussed.

Adnan Al-Anbuky

The full professor at AUT and direct the SeNSE research lab. His current research area is around the dynamic interaction of the WSN with the physical phenomenon in capturing the critical events taking into consideration the IoT and cloud support. Recently, the involvement in projects like public space ambient intelligence PSAmI and traceability of food condition during logistics has encouraged the contribution towards the concepts of Cyber-Physical Systems and smart cities. They both involve federated sensor networks, IoT and Big-Data management. Adnan is a member of the editorial board of number of international journals and scientific groups. He is actively contributing to the organization or operation of numerous local and international events and conferences. He has delivered number of keynote talks and has numerous conference and journal peer reviewed publications.

INVITED SPEAKER IS3

Thursday, September 21
14:00-14:30 (RUZMARIN)

Murali Haran, PhD

*Pennsylvania State University,
Pennsylvania, USA*

**Computational methods for fitting statistical models to spatial data**

Spatial data arise in many subjects, including disease modeling, environmental science, mining and engineering problems. Fitting statistical models to such data can be computationally challenging. I will describe algorithms that efficiently fit statistical models called Gaussian random field models to large spatial data sets. This is based on joint work with Yawen Guan (Statistical and Applied Mathematical Sciences Institute, North Carolina, USA), and John Hughes (University of Colorado-Denver, USA).

Murali Haran

The professor of statistics at Penn State. He obtained his PhD in statistics from the University of Minnesota and his BS in computer science from Carnegie Mellon University. His primary methodological research interests are statistical computing (Markov chain Monte Carlo methods), models for spatial data, and statistical methods for analyzing complex computer models. Much of his work is motivated by applications in the environmental sciences, including climate science research and infectious disease modeling.

INVITED SPEAKER IS4

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

Dražen Lučić

HAKOM - Croatian Regulatory Authority for Network Industries, Croatia

**Regulatory Challenges Due to Security and Privacy Requirements for Internet of Things**

Contemporary and future regulatory challenges due to security and privacy requirements for Internet of Things are elaborated. Internet of Things, as a vital element of Smart City concept, has been analysed in the context of General Data Protection Regulation. Possible negative impact of General Data Protection Regulation on implementation of new technologies and services in the mobile communication networks has been stressed out. A short business analysis for implementation of the new services based on 5G New radio technology and Internet of Things has been carried out based on security and privacy as the main parameters for market regulation.

Keywords: regulation; Internet of Things; Smart City, General Data Protection Regulation arise in many subjects, including disease modeling, environmental science, mining and engineering problems. Fitting statistical models to such data can be computationally challenging. I will describe algorithms that efficiently fit statistical models called Gaussian random field models to large spatial data sets. This is based on joint work with Yawen Guan (Statistical and Applied Mathematical Sciences Institute, North Carolina, USA), and John Hughes (University of Colorado-Denver, USA).

TECHNICAL PROGRAM: GENERAL CONFERENCE

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

S1: SOFTWARE BASED SYSTEMS AND SERVICES

Chair: Damir Pintar (University of Zagreb, Croatia)

Symptoms investigation by means of Formal Concept Analysis for enhancing medical diagnoses

Christian Săcărea, Diana Șotropa and Diana Troanca (Babeș-Bolyai University, Romania)

Network analysis of evolving software-systems

Sanja Grbac Babić and Tihana Galinac Grbac (University of Rijeka and Faculty of Engineering, Croatia)

A Linear Approach to Distributed Database Optimization Using Data Reallocation

Adrian Sergiu Darabant, Viorica Varga and Leon Tambulea (Babeș-Bolyai University, Romania)

Business Models and Value Oriented Service Design Elements in Ecosystem Architecture

Darije Ramljak (IBM, Croatia)

Conceptual Graphs Based Modeling and Querying of XML Data

Andrea Molnar, Viorica Varga and Christian Săcărea (Babeș-Bolyai University, Romania)

A Formal Model of Cloud-Deployed Software and its Application to Workflow Processing

Einar Broch Johnsen, Ka I Pun and Silvia Lizeth Tapia Tarifa (University of Oslo, Norway)

Thursday, September 21, 14:30 - 16:00 (PALMA II)

S2: OPTICAL SYSTEMS

Chair: Kidsanapong Puntsri (Rajamangala University of Technology Isan, Thailand)

A Novel Application of Temperature Monitoring Using an Optical Fiber Sensor based on Time Offset

Amira Zrelli and Tahar Ezzeddine (ENIT, Tunisia)

Slow Light and Dynamic Buffer Capability in two different Photonic Crystal Waveguides

Zaineab Gharsallah (ENIT-Syscom, Tunisia), Monia Najjar Bounouh (Syscom, Tunisia) and Vijay Janyani (Malaviya National Institute of Technology, India)

Pilot-aided Phase Noise and Carriers Frequency Offset Compensation for Coherent Optical UPMC PON

Kidsanapong Puntsri (Rajamangala University of Technology Isan, Thailand)

Dynamic software updating of OLTs without service interruption

Takumi Harada, Hirotaka Ujikawa, Manabu Yoshino, Noriyuki Oota, Ken-Ichi Suzuki and Akihiro Otaka (NIT, Japan)

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

S3: SIGNAL PROCESSING

Chair: Miljenko Mikuc (University of Zagreb, Croatia)

Core Number Optimization Based Scheduler to Order/Map Hardware/Software Applications

Asma Rebaya, Imen Amari, Kaouther Guesmi (National School of Engineering of Tunis, Tunisia) and Salem Hasnaoui (National School of Engineering of Bizerte, Tunisia)

Efficient Lossless Compression of CAN Traffic Logs

Andras Gazdag, Levente Buttyan and Zolt Szalay (Budapest University of Technology and Economics, Hungary)

Applying the Multiclass Classification Methods for the Classification of Online Social Network Friends

Nikolina Sever (Multicom d.o.o, Croatia), Luka Humski, Juraj Ilić, Zoran Skocir, Damir Pintar and Mihaela Vranić (University of Zagreb, Croatia)

Performance Evaluation of MATLAB/Simulink Models for Fitting Embedded Multicore Systems

Kaouther Guesmi, Asma Rebaya, Imen Amari and Salem Hasnaoui (SYSCOM, ENIT, University Tunis El Manar, Tunisia)

Pushing the Envelope: Beyond Two Billion IP Routing Lookups per Second on Commodity CPUs

Marko Zec and Miljenko Mikuc (University of Zagreb, Croatia)

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

S4: WIRELESS COMMUNICATIONS I

Chair: Zoran Blažević (University of Split, Croatia)

Optimization of 60 GHz MIMO antenna by adding ground stub to reduce mutual coupling for WPAN applications

Syrine Lahmadi and Jamel Bel Hadj Tahar (National Engineers School, Tunisia)

Performance Analysis of Pulse Position based Chirp Spread Spectrum technique for Multiple Access

Ádám Knapp and László Pap (Budapest University of Technology and Economics, Hungary)

On Outage Probability of Two-way Relaying Data Transmission and Energy Harvesting

Nouha Dahi and Noureddine Hamdi (National Engineering School of Tunis, Tunisia)

UWB Channel Measurements for Short Range

David Veit, Erich Leitgeb, Franz Teschl (Graz University of Technology, Austria) and Thomas Gigl (Maxim Integrated GmbH, Austria)

In-service Testing OFDM Error Floor by Constellation Analysis

Adriana Lipovac (University of Dubrovnik, Croatia), Sibila Isak-Zatega (BH Telecom, Bosnia and Herzegovina) and Pamela Njemčević (University of Sarajevo, Bosnia and Herzegovina)

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

S5: WIRELESS COMMUNICATIONS II

Chair: Joško Radić (University of Split, Croatia)

Performance Analysis of Up-link and Down-Link Mixed RF/FSO Links with Multiple Relays

Chadi Abou-Rjeily (Lebanese American University, Lebanon)

Joint Channel Network Coding for Multiple Access Relay Channel with Correlated sources

Zid Youssef (University of Carthage, Tunisia), Sonia Ammar (University of Tunis Elmanar, Tunisia) and Ridha Bouallegue (University of Carthage, Tunisia)

Level Crossing Rate of Macrodiversity System with Three Microdiversity Receivers over Shadowed Weibull Fading Channel

Dragana Krstić, Mihajlo Stefanović, Suad Suljivic (University of Niš, Serbia) and Siniša Minić (University of Priština, Kosovo)

Rising Edge Detection used as TOA estimator for Mode S Signals with Multipath Propagation

Stephan Bernhart, Erich Leitgeb (University of Technology Graz, Austria), Ulrich Feichter and Gerhard A. Hofbauer (ADB Safegate Graz, Austria)

Link level performance prediction of MIMO PIC receivers through QR decomposition of channel matrix

Asif Khan, Aftab Khan, Irfan Ullah and Shahid Khattak (COMSATS Institute of Information Technology, Pakistan)

Saturday, September 23, 08:30 - 10:00 (PALMA II)

S6: WIRELESS COMMUNICATIONS III

Chair: Marcelo S. Alencar (Federal University of Campina Grande, Brazil)

Hybrid ML-MMSE Adaptive Multiuser Detection Based on Joint Channel Estimation in SDMA-OFDM Systems

Uğur Yeşilyurt and Ozgur Ertug (Gazi University, Turkey)

A Smart Tone Reservation scheme for reducing the high PAPR of the FBMC/OQAM Signal

Laabidi Mounira and Ridha Bouallegue (University of Carthage, Tunisia)

Genetic Algorithm Optimization Applied to the Project of MIMO Systems

Marcelo S. Alencar (Federal University of Campina Grande, Brazil), Waslon Terlizzie Araujo Lopes (Federal University of Paraiba, Brazil) and Israel Leal (Federal University of Campina Grande, Brazil)

Saturday, September 23, 10:30 - 12:00 (PALMA II)

S7: VIRTUALIZATION AND SOFTWARE DEFINED NETWORKS

Chair: Darko Huljenić (Ericsson Nikola Tesla, Croatia)

Enhancing VNF's performance using DPDK driven OVS user-space forwarding

Djani Vladislavic (Ericsson Nikola Tesla, Croatia), Julije Ozegetic (University of Split, Croatia) and Darko Huljenić (Ericsson Nikola Tesla, Croatia)

FlowVista: Low-bandwidth SDN monitoring driven by business application interaction

Bartłomiej Siniarski, Declan Delaney and John Murphy (University College Dublin, Ireland)

Virtual data planes for easy creation and operation of end-to-end virtual networks

Naoki Oguchi and Motoyoshi Sekiy (Fujitsu Laboratories Ltd., Japan)

Saturday, September 23, 10:30 - 12:00 (KAKTUS)

S8: CODING

Chair: Joško Radić (University of Split, Croatia)

Low Complexity ADMM-LP based Decoding Strategy for LDPC Convolutional Codes

Hayfa Ben Thameur (University of Carthage, Tunisia), Bertrand Le Gal (Bordeaux University, France), Nadia Khouja, Fethi Tlili (University of Carthage, Tunisia) and Christophe Jegou (Bordeaux University, France)

Towards Authenticated Network Coding for Named Data Networking

Ryma Boussaha, Yacine Challal, Malika Bessedik (National Higher School of Computer Engineering, Algeria) and Abdelmadjid Bouabdallah (Universite de Technologie - Compiègne, France)

Low Complexity Rate Compatible Puncturing Patterns Design for LDPC Codes

Fulvio Babich, Matteo Noschese, Alessandro Soranzo and Francesca Vatta (University of Trieste, Italy)

On the error statistics of turbo decoding for hybrid concatenated codes design

Fulvio Babich and Francesca Vatta (University of Trieste, Italy)

SYMPOSIA

SYM1: SYMPOSIUM ON SMART ENVIRONMENTS AND IoT

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

SYM1/I: Symposium on Smart Environments and IoT I

Chair: Maja Stella (University of Split, Croatia)

Cooperative localization based on an evolved variational Message passing algorithm

Kaouthar Hedhly, Mohamed Laaraiedh, Fatma Abdelkefi and Mohamed Siala (University of Carthage, Tunisia)

Smart Probabilistic Approach with RSSI Fingerprinting for Indoor Localization

Wafa Njima (Carthage University, Tunis, Tunisia), Iness Ahriz (CEDRIC/LAETITIA, CNAM, France), Rafik Zayani (Carthage University, Tunis, Tunisia), Michel Terré (CEDRIC/LAETITIA, CNAM, France) and Ridha R. Bouallegue (Carthage University, Tunis, Tunisia)

How much can we trust RSSI for the IoT indoor location-based services?

Ivana Nizetic Kosovic (Ericsson Nikola Tesla, Croatia), Biljana Stojkoska (University "Ss Cyril and Methodius", Macedonia) and Tomislav Jagušć (University of Zagreb, Croatia)

Asymmetric multiprocessing techniques in smart devices: application in a drone navigation system

Laura Nao (Scuola Superiore Sant'Anna di Pisa, Italy), Pierluigi Passaro (Phoenixsoftware Srl, Italy), Egidio Gioia (Arrow electronics Inc., Italy) and Matteo Petracca (Scuola Superiore Sant'Anna di Pisa, Italy)

Geospatial Publish / Subscribe Systems for the Internet of Things

Ivan Livaja (Veleučilište u Šibeniku, Croatia), Dejan Skvorc and Kresimir Pripuzic (University of Zagreb, Croatia)

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

SYM1/II: Symposium on Smart Environments and IoT II

Chair: Luigi Patrono (University of Salento, Italy)

Real-time Localization and Visualization of a Sound Source for Virtual Reality Applications

Ahmet Kose, Aleksei Tepljakov and Sergei Astapov (Tallinn University of Technology, Estonia)

Human Emotions Classification using Bag-of-Words Method on Single Electrode Brain Computer Interface

Pero Bogunovic and Ljiljana Šerić (University of Split, Croatia)

Enhanced Architecture for SHM System Based on Optical Sensor and WSN

Amira Zrelli and Tahar Ezzeddine (ENIT, Tunisia)

Wearable and Autonomous Computing for Future Smart Cities: Open Challenges

Domenico Balsamo, Geoff V. Merrett, Bahareh Zaghari, Yang Wei, Sarvapali Ramchurn, Sebastian Stein, Alex S. Weddell and Steve Beeby (University of Southampton, United Kingdom)

SYM2: SYMPOSIUM ON AD HOC AND SENSOR NETWORKS

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

SYM2/I: Symposium on Ad Hoc and Sensor Networks I

Chair: Petar Šolić (University of Split, Croatia)

Efficient Route Discovery Using Channel Adaptive Probabilistic Broadcasting in Zigbee Wireless Sensor Networks

Haitham Adarbah (Faculty of Foundation Studies Gulf College, Oman) and Shakeel Ahmad (Southampton Solent University, United Kingdom)

Gain Analysis of Cooperative Broadcast in Two-dimensional Wireless Networks

Keyvan Gharouni Saffar and Majid Khabbazian (University of Alberta, Canada)

Simulation and analysis of concurrent BLE Link Layer state machines running within the same physical device

András Balogh (Budapest University of Technology and Economics, Hungary) and Sándor Imre (Technical University of Budapest, Hungary)

Sensor Nodes Estimation for a Greenhouse Monitoring System Using Hierarchical Wireless Network

Hugo Sampaio and Shusaburo Motoyama (Faculty of Campo Limpo Paulista, Brazil)

Slot Assignment Protocol for Narrow Band Waveform for Tactical MANETs

Sana Saleem and Shoaib Ahmed Khan (National University of Sciences and Technology, Pakistan)

Thursday, September 21, 14:30 - 16:00 (KAKTUS)

SYM2/II: Symposium on Ad Hoc and Sensor Networks II

Chair: Petar Šolić (University of Split, Croatia)

Mobile Wireless Sensor Network Gateway: A Raspberry Pi implementation with a VPN backend to OpenStack

Eduard Luchian, Adrian Taut, Iustin-Alexandru Ivanciu, Gabriel Lazar and Virgil Dobrota (Technical University of Cluj-Napoca, Romania)

Cross-Layer Anomaly Detection in Industrial Cyber-Physical Systems

Hunor Sandor, Bela Genge, Pirooska Haller, Adrian-Vasile Duka and Bogdan Crainicu (Petru Maior University of Tirgu Mures, Romania)

Outlier Detection based on Data Reduction in WSNs for Water Pipeline

Aya Ayadi (Gabes University, Tunisia), Ghorbel Oussama (Sfax University, Tunisia), M. S. Bensaleh, Abdelfateh Obeid and Mohamed Abid (Digital Research Center (CRNS), Technopark Sfax, Tunisia)

Air and Noise Pollution Monitoring in the City of Zagreb by Using Mobile Crowdsensing

Martina Marjanovic, Sanja Grubesa and Ivana Podnar Zarko (University of Zagreb, Croatia)

SYM3: SYMPOSIUM ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY

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

SYM3/I: Symposium on Environmental Electromagnetic Compatibility I

Chairs: Dragan Poljak (University of Split, Croatia), Vesna Roje (University of Split, Croatia)

On Radiation Mechanism and Modeling of Dipole Antenna in Classical Electromagnetics

Dragan Poljak (University of Split, Croatia)

Selected Health and Law Issues regarding Mobile Communications

Peter Mandl, Pirmin Pezzei, Erich Leitgeb and David Veit (Graz University of Technology, Austria)

Electromagnetic analysis of adiabatic coaxial line with applied air gap

Zeljko Martinovic (COMBIS, Croatia), Martin Dadic and Roman Malaric (University of Zagreb, Croatia), Zarko Martinovic (Danieli Automation, Croatia)

Electric Field Radiated By a Dipole Antenna Above a Lossy Half Space: Comparison of Plane Wave

Approximation with the Modified Image Theory Approach
Anna Šušnjara, Dragan Poljak and Vicko Doric (University of Split, Croatia)

Multiple-folded Antenna Design for Maximizing Power Transfer Efficiency at 6.78 MHz

M. Škiljo, Z. Blažević, A. Grbavac, M. Kevo, M. Marović and K. Topić (University of Split, Croatia)

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

SYM3/II: Symposium on Environmental Electromagnetic Compatibility II

Chairs: Dragan Poljak (University of Split, Croatia), Vesna Roje (University of Split, Croatia)

On Wind Turbine Impedance Analysis via Different Approaches

Antonio Šunjerga (University of Split, Croatia), Farhad Rachidi (EPFL, Switzerland) and Dragan Poljak (University of Split, Croatia)

Computation of Carson Formulas Using Piecewise Quadratic Approximation

Ivan Krolo, Slavko Vujević and Tonči Modrić (University of Split, Croatia)

Comparison of Free Space, Perfect Ground and Fresnel's Equation Models to Determine Electric Field Radiated by a Base Station Antenna

Marin Galić (Centar za Mjerenja u Okolisu, Croatia), Dragan Poljak and Vicko Doric (University of Split, Croatia)

Electromagnetic modeling of the GPR response to the pipe system set in the concrete slab

Ivan Luburić, Zvonimir Perić and Silvestar Šesnić (University of Split, Croatia)

Temperature Increase in the Extracted and Compound Eye Models

Mario Cvetković, Hrvoje Dodig and Dragan Poljak (University of Split, Croatia)

SYM4: SYMPOSIUM ON INFORMATION SECURITY AND INTELLECTUAL PROPERTY (ISIP)

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

SYM4/I: Symposium on Information Security and Intellectual Property I

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

Rule-Based System for Data Leak Threat Estimation

Marin Vukovic, Damjan Katusic and Renato Soic (University of Zagreb, Croatia), Mario Weber (Croatian Post and Electronic Communications Agency, Croatia)

Neuro-Fuzzy and Genetic-Fuzzy based approaches in Intrusion Detection: Comparative Study

Imen Gaied, Farah Jemili and Ouajdi Korbaa (MARS Laboratory, Tunisia)

Duty of independence under Data Protection Law

Dinka Šago and Ivan Vukusic (University of Split & Faculty of law, Croatia)

Bankruptcy and Rising Security of Business Continuity Prediction Using Financial Information Analysis in Terms Of Small and Medium Enterprises (SME) Growth and Volatility of its Financial Items

Marija Boban (University of Split & Faculty of law, Croatia) and Toni Šušak (University of Split Faculty of Economics & University Centre of Professional Studies Split, Croatia)

The role of Al Jazeera and Anadolu Agency in creating new geopolitical concepts in the Southeast Europe

Jurica Botić (Ministry of Science and Education, Croatia)

Maritime terrorism

Tonči Prodan (University of Split, Croatia)

Consumer Protection Rights in Digital economy in Croatia

Vlatka Ružić and Branislav Šutić (Polytechnics Nikola Tesla u Gospić, Croatia)

SYM5: SYMPOSIUM ON GREEN NETWORKING AND COMPUTING

Saturday, September 23, 08:30 - 10:00 (AGAVA)

SYM5/I: Symposium on Green Networking and Computing I

Chair: Josip Lorincz (University of Split, Croatia)

Characterization of Low Voltage Access Network for Narrowband Powerline Communications

Raja Alaya and Rabah Attia (University of Carthage, Tunisia)

Experimental Energy Profiling of Energy-Critical Embedded Applications

Kameswar Rao Vaddina, Florian Brandner and Gerard Memmi (Telecom ParisTech, France), Pierre Jouvelot (MINES ParisTech, France)

Performance Analysis of Adaptive Modulation in Underwater Visible Light Communications

Imen Sahnoun (SupCom, Tunisia), Imran Shafique Ansari (Texas A&M University at Qatar (TAMUQ), Qatar), Mohamed M. Abdallah (Hamad Bin Khalifa University (HBKU), Qatar) and Khalid A. Qaraqe (Texas A&M University at Qatar, USA)

ECG Biometric Template Protection Based on Secure Sketch Scheme

Emna Kalai (SERCom Laboratory, Tunisia), Adel Benzina (LISI Lab, INSAT, Tunisia) and Rabah Attia (University of Carthage, Tunisia)

Saturday, September 23, 10:30 - 12:00 (AGAVA)

SYM5/II: Symposium on Green Networking and Computing II

Chair: Josip Lorincz (University of Split, Croatia)

Comparative Experimental Analysis of the Quality-of-Service and Energy-Efficiency of VMs and Containers' Consolidation for Cloud Applications

Ismael Cuadrado-Cordero (IMT-A, INRIA, LS2N, France), Anne-Cecile Orgerie (CNRS, IRISA, France) and Jean-Marc Menaud (IMT-A, INRIA, LS2N, France)

Investigation of Induced CRAH Bypass for Air-Cooled Data Centers Using Computational Fluid Dynamics

Hamza Salih Erden (Istanbul Technical University, Turkey)

Measurement of temperature inside Open TEM-cell with thermal camera

Kresimir Malaric, Roman Malaric and Josip Herceg (University of Zagreb, Croatia)

SYM6: SYMPOSIUM ON SECURITY AND DATA FORENSICS

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

SYM6/I: Symposium on Security and Data Forensics I

Chair: Toni Perković (University of Split, Croatia)

Introducing GAMfIS: A Generic Attacker Model for Information Security

Daniel Fraunholz, Simon Duque Antón and Hans Dieter Schotten (German Research Center for Artificial Intelligence, Germany)

Searchable Symmetric Encryption: Sequential Scan Can Be Practical

Máté Horváth and Istvan Vajda (Budapest University of Technology and Economics, Hungary)

Securing RPL-Based Internet of Things applied for water pipeline monitoring

Manel Elleuchi and Manel Boujelben (Digital Research Center (CRNS), Tunisia), Mohammed S. BenSaleh (King Abdulaziz City for Science and Technology, Kingdom of Saudi Arabi), Mohamed Abid (Digital Research Center (CRNS), Tunisia)

Secure Management of an Internet Voting System: a Case Study for Land Reclamation Authority

Chiara Taddia, Gianluca Mazzini, Denis Ferraretti, Mirko Pastorelli and Stefania Nanni (Lepida SpA, Italy)

Saturday, September 23, 08:30 - 10:00 (KAKTUS)

SYM6/II: Symposium on Security and Data Forensics II

Chair: Toni Perković (University of Split, Croatia)

Analysis of Mirai Malicious Software

Hamdija Sinanović and Sasa Mrdovic (University of Sarajevo, Bosnia and Herzegovina)

The Approach of SWIM Data Sharing Based on Multi-Dimensional Data Encryption

Zhijun Wu, Liang Liu, Changcan Yan, Jia Xu and Jin Lei (Civil Aviation University of China, P.R. China)

The role of blockchain and IoT in recruiting participants for digital clinical trials

Fabio Angeletti, Ioannis Chatzigiannakis and Andrea Vitaletti (Sapienza University of Rome, Italy)

Steganography using local colour statistics

Tomislav Jurin, Barbara Dzaja and Tonko Kovacevic (University of Split, Croatia)

WORKSHOP ON IoT AND ELDERLY FRIENDLY CITIES AND HEALTHY AGEING SERVICES

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

Workshop on IoT Elderly Friendly Cities and Healthy Ageing Services I

Chair: Luigi Patrono (University of Salento, Italy)

Combining IOT, Open Data and Messaging for Prevention of MCI/Frailty

Nicoletta Di Blas, Paolo Paolini and Giulia Plotti (Politecnico di Milano, Italy)

An ICT platform to detect frailty risk and propose intervention

Alessandro Vercelli and Innocenzo Rainero (University of Torino, Italy), Mathew Summers (University of the Sunshine, Australia), Ludovico Ciferri (International University of Japan, Japan), Helios De Rosario (Universitat Politècnica de València, Spain), Rainer Wieching (University Siegen, Germany), Stephan Bandelow (Loughborough University, United Kingdom), Marco Bazzani (Istituto Superiore Mario Boella, Italy), Georg Aumayr (Johanniter International, Austria)

An Innovative Approach for Elderly Behavioral Analysis by Adopting Enabling IoT Technologies

Aitor Almeida and Ruben Mulero (University of Deusto, Spain), Luigi Patrono, Piercosimo Rametta and Ilaria Sergi (University of Salento, Italy)

IoT and Smart City Services to Support Independence and Wellbeing of Older People

Nicola Bryant, Nikki Spencer and Annette King (Birmingham City Council Birmingham, UK), Phil Crooks, Jude Deakin and Stuart Young (Etive Technologies Birmingham and Edinburgh, UK)

An Innovative Approach for monitoring Elderly behavior by detecting Home Appliance's usage

Luigi Patrono, Patrizio Primiceri, Piercosimo Rametta, Ilaria Sergi and Paolo Visconti (University of Salento, Italy)

Configurable Interactive Environment for Hybrid Knowledge- and Data-Driven Geriatric Risk Assessment

Vladimir D. Urošević (Belgrade University Faculty of Organizational Sciences & Belit Ltd. Belgrade, Serbia), Paolo Paolini (Politecnico di Milano, Italy) and Christos Tatsiopoulos (Independent Researcher, Greece)

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

Workshop on IoT Elderly Friendly Cities and Healthy Ageing Services II

Chair: Luigi Patrono (University of Salento, Italy)

Multi-modal input devices for Active and Healthy Ageing

Chiara Cogerino, Giovanni Rosso, Ilaria Bosi, Antonella Frisiello and Marco Bazzani (Istituto Superiore Mario Boella, Italy)

Smart Home Medication Reminder System

Milan Ramljak (University of Split & Ericsson Nikola Tesla, Croatia)

Understanding needs and requirements of target group. Systematic perspective on interaction between system and environment

Georg Aumayr, Doris Bleier, Gerhard Chroust and Nadine Sturm (Johanniter Austria Research and Education (JOAFG), Austria)

Exploiting an IoT local middleware for the orchestration of mobile device sensors to detect outdoor and indoor user positioning

Alessandro Fiore, Adriana Caione, Luca Mainetti, Luigi Manco and Roberto Vergallo (University of Salento, Italy)

Application of the Behaviour Change Wheel Framework to the development of interventions within the City4Age project

Artur Direito (University College London, United Kingdom), Emily I M Collins (University of Bath, United Kingdom), Susan Michie and Carmen Lefevre (University College London, United Kingdom)

SS: SPECIAL SESSIONS

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

SS1: Special Session on Advanced Educational Technologies

Chair: Ani Grubišić (University of Split, Croatia)

Evaluation of quiz using a statistical calculation in Learning Management System

Matea Markić (University of Mostar, Bosnia and Herzegovina)

Learner and Course Dashboards for intelligent learning management systems

Tomislav Volarić and Hrvoje Ljubic (University of Mostar, Bosnia and Herzegovina)

Experimental verification of the effectiveness of learning and teaching using intelligent tutoring system in secondary school education

Petra Ognjenović (High School of Economics, Croatia)

Tree and word embedding based sentence similarity for evaluation of good answers in Intelligent Tutoring System

Emil Brajković and Daniel Vasić (University of Mostar, Bosnia and Herzegovina)

Investigating Educational Attractors and Life Tracks in e-Learning Environments Using Formal Concept Analysis

Sanda Dragoş, Christian Săcărea and Diana Şotropa (Babeş-Bolyai University, Romania)

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

SS2: Special Session on QoS in Wired and Wireless Networks

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

Quality-aware network dimensioning for the VoIP service

Janusz Henryk Klink (Wrocław University of Science and Technology, Poland) and Tadeus Uhl (Maritime University of Szczecin, Poland)

Performance of AdaBoost classifier in recognition of superposed modulations for MIMO TWRC with physical-layer network coding

Wassim Ben Chikha, Slim Chaoui and Attia Rabah (Tunisia Polytechnic School, Tunisia)

Optimization of a New Structure Patch Antenna for MIMO And 5G Applications

Faleh Souhir and Jamel Bel Hadj Tahar (National Engineers School Of Sousse, Tunisia)

Delay-Quality tradeoff for video streaming over MANET using Network Coding (DQNC)

Olfa Ben Rhaïem and Lamia Chaari Fourati (Digital Research Center of SFAX (CRNS), Tunisia)

WICT: WORKSHOP ON INFORMATION AND COMMUNICATION TECHNOLOGIES

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

WICT/I: Workshop on Information and Communication Technologies I

Chair: Julije Ozegovic (University of Split, Croatia)

Enhanced Scheduling Algorithm for LTE Networks
Renê de Oliveira, Lourival A. Gois and Augusto Foronda
(Technological University of Parana, Brazil)

Coexistence of G.fast and VDSL2 systems in copper access networks
Zeljko Ilic (University of Zagreb, Croatia), Vedran Mikac (Sunhill Technologies GmbH, Germany), Marin Šilić (University of Zagreb, Croatia), Goran Jurin and Velimir Svedek (Croatian Post and Electronic Communications Agency, Croatia)

Impact of Node Mobility at Underwater WSN
Elma Zanaj, Indrit Enesi and Jetmir Lumi (Polytechnic University of Tirana, Albania), Blerina Zanaj (Agricultural University of Tirana, Albania)

Enhancing knowledge and producing verifiable results with on-line quizzes
Ivan Slapničar and Šimun Anđelinović (University of Split, Croatia)

Videonet: Cloud Videomanagement Service for the Public Administrations
Chiara Taddia and Gianluca Mazzini (Lepida SpA & University of Ferrara, Italy)

New Algorithm for VPN Creation
Srecko Krile (University of Dubrovnik, Croatia)

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

WICT/II: Workshop on Information and Communication Technologies II

Chair: Julije Ozegovic (University of Split, Croatia)

Using Pattern Structures for Mining Student Behaviour in E-learning Platforms on specific Triggers
Diana Troanca, Christian Săcărea and Sanda Dragos (Babeş-Bolyai University, Romania)

Robust Optimized Load Balancing Algorithm In Cloud Computing
Meriam Essaies and Nabil Tabbane (University of Carthage, Tunisia)

A Simulated Annealing Scheduler In Vehicular Cloud Computing
Meriam Essaies and Nabil Tabbane (University of Carthage, Tunisia)

Principles of an Internet Voting System for Public Administrations
Denis Ferraretti, Chiara Taddia, Mirko Pastorelli, Stefania Nanni and Gianluca Mazzini (Lepida SpA & University of Ferrara, Italy)

The challenges of delivering centralized e-government services
Kussai Shahin, Gianluca Casati and Gianluca Mazzini (LepidaSpa, Italy)

Design of FTTH Optical Access Networks
Josip Babić, Suzana Propadalo and Iva Radoš (Ericsson Nikola Tesla Servisi, Croatia)

Thursday, September 21, 14:30-16:00
(RUZMARIN)

WICT/III: Workshop on Information and Communication Technologies III

Chair: Matko Šarić (University of Split, Croatia)

FEM Analysis of a PCB Integrated Resonant Wireless Power Transfer
Zarko Martinovic (Danieli Automation, Croatia), Martin Dadić and Roman Malaric (University of Zagreb, Croatia), Zeljko Martinovic (COMBIS, Croatia)

Transparent Encryption for Cloud-based Services
Gergő Ládi (Budapest University of Technology and Economics, Hungary)

Analysis of an open Source Network Access Control Tool in Corporate Network Setting
Ali Tekeoglu (SUNY Polytechnic Institute, USA)

Task Scheduling in Mobile Cloud Computing using an Enhanced Artificial Bee Colony Optimization Algorithm
Nima Jafari Navimipour, Sara Tabaghchi Milan and Farnaz Sharifi Milani (Tabriz Branch, Islamic Azad University, Iran)

Implementation of Event Sequence Array API in Event-Driven Real-Time Systems
Nikola Kuzmanic (Ericsson Nikola Tesla d. d., Croatia) and Matko Šarić (University of Split, Croatia)

Wearable obstacle detection device for visually impaired people
Ivan Ivandic and Matko Šarić (University of Split, Croatia)

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

P1: POSTER SESSION

Chair: Matko Šarić (FESB, University of Split, Croatia)

Elastic secure cloud storage: trust and data protection with client-side encryption in multi-cloud environment
Sabine Delaitre and Óscar Béjar Mosull (Wellness Telecom, Spain)

TUTORIALS

TUTORIAL T1

Thursday, September 21

09:00-10:30, 11:00-12:30 (OLEANDAR)

Benedek Kovacs, PhD

Budapest University of Technology and Economics, Hungary

5G Technologies and Use Cases

Abstract: Exploring and exploiting the full potential of connectivity is one big challenge the Telecommunication Operators have today. New technologies, commonly referenced as 5G and IoT technologies are enabling the Operators and their business partners to introduce new services. Compared to traditional generation changes, 5G is an evolution of the Telecommunication network in the direction to provide services not only to Subscribers but to other industries as well. We would like to focus on enabling technologies on the core network side such as network slicing, local breakout, edge computing. The state of art market trends mention at least three main categories of next generation networks, classified by their different purposes. The first one is the Enhanced Mobile Broadband, which is the evolution of the legacy 4G network to a network slice that provides all types of consumer services including VoIP calls, data connection (Internet), media content delivery, managed TV and other media related services. Another type of network is the one built for Massive Machine Type Communication serving the low complexity sensors deployed in high volume where the key requirements are the low cost of communication and power. The third one is Critical Machine Type Communication use cases which are characterized by higher availability, reliability and security, ultra-high latency in some cases. The above mentioned use cases and enabling technologies will be introduced, including challenges they raise.



Biography: Benedek Kovacs has graduated at the Budapest University of Technology and Economics as an Information Engineer and then completed by PhD in Mathematics focusing on Parameter Estimation of Stochastic Dynamic Systems at the same university. He has joined Ericsson in 2005 and he has been working in several roles, starting as a software and network tester, being a researcher, lead innovation manager of the Budapest R&D center and being responsible for different products as a system engineer. Now he is in the R&D Technology organization working on global projects, focusing currently on 5G technologies. His main focus is networks and innovation.

TUTORIAL T2

Thursday, September 21

09:00-10:30, 11:00-12:30 (PALMA I)

Ivan Slapničar, PhD

University of Split, FESB Split, Croatia

Introduction to Julia with Applications

Abstract: "Julia is a high-level, high-performance dynamic programming language for technical computing, with syntax that is familiar to users of other technical computing environments. It provides a sophisticated compiler, [distributed parallel execution](#), numerical accuracy, and an [extensive mathematical function library](#). Julia's Base library, largely written in Julia itself, also integrates mature, best-of-breed open source C and Fortran libraries for [linear algebra](#), [random number generation](#), [signal processing](#), and [string processing](#). In addition, the Julia developer community is contributing more than 1300 [external packages](#) through Julia's built-in package manager at a rapid pace. [Julia](#), a collaboration between the [Jupyter](#) and Julia communities, provides a powerful browser-based graphical notebook interface to Julia. Julia programs are organized around [multiple dispatch](#); by defining functions and overloading them for different combinations of argument types, which can also be user-defined." (from <http://julialang.org>).

In this tutorial we will cover basics of Julia principles and usage and, time permitting, few advanced examples of application of numerical linear algebra methods in data mining and signal processing.

TIMETABLE A: TECHNICAL PROGRAM

Hotel Radisson Blu, Split, Thursday, September 21			
Time/Hall	PALMA II	KAKTUS	AGAVA
08:00	REGISTRATION*		
09:00–10:30	SYM1/I: Symposium on Smart Environments and IoT I	S1/I: Software based systems and services I	SYM3/I: Symposium on Environmental Electromagnetic Compatibility I
10:30–11:00	Coffee Break		
11:00–12:30	SYM1/II: Symposium on Smart Environments and IoT II	SYM2/I: Symposium on Ad Hoc and Sensor Networks I	SYM3/II: Symposium on Environmental Electromagnetic Compatibility II
12:30–14:00	Lunch		
14:00–14:30	Invited Talk (OLEANDAR): Adnan Al-Anbuky (AUT University, New Zealand), <i>IoT-Based WSN: Softwarization and Virtualization Towards CPS Intelligence</i>		Invited Talk (RUZMARIN): Murali Haran (Pennsylvania State University, USA), <i>Computational Methods for Fitting Statistical Models to Spatial Data</i>
14:30–16:00	S2: Optical Systems	SYM2/II: Ad Hoc and Sensor Networks II	S1/II: Software based systems and services II
16:00–16:30	Coffee Break		

Hotel Radisson Blu, Split, Friday, September 22			
Time/Hall	PALMA II	KAKTUS	AGAVA
09:00–10:30	S3: Signal Processing	Workshop on IoT and Eldery Friendly Cities and Healthy Ageing Services I	RT1: Round Table on Information Security and Intellectual Property (ISIP)
10:30–11:00	Coffee Break		
11:00–12:30	OPENING CEREMONY (GRAND BALLROOM)		
	Keynote Speech (GRAND BALLROOM): Sandor Albrecht (Ericsson Research), <i>Smart Contract, an important building block of an adaptable and dynamic networks</i>		
12:30–14:30	Conference Luncheon		
14:30–16:00	S4: Wireless Communications I	Workshop on IoT and Eldery Friendly Cities and Healthy Ageing Services II	SS1: Special Session on Advanced Educational Technologies
16:00–16:30	Coffee Break		
16:30–18:00	S5: Wireless Communications II	SYM6/I: Symposium on Security and Data Forensics I	SS2: Special Session on QoS in Wired and Wireless Networks
18:15	Bus Transfer to Port of Split		
18:30–19:30	Guided Tour in Split		
20:00–21:30	Welcome Party in Split		

Hotel Radisson Blu, Split, Saturday, September 23			
Time/Hall	PALMA II	KAKTUS	AGAVA
08:30–10:00	S6: Wireless Communications III	SYM6/II: Symposium on Security and Data Forensics II	SYM5/I: Symposium on Green Networking and Computing I
10:00–10:30	Coffee Break		
10:30–12:00	S7: Virtualization and Software Defined Networks	S8: Coding	SYM5/II: Symposium on Green Networking and Computing II
12:00–13:30	Lunch		
13:30–18:30	Conference Trip		

* Registration: Thursday (08:00 – 19:00), Friday (08:00 – 11:00), (14:30 – 18:00), Saturday (08:00 – 10:30)

TIMETABLE B: WORKSHOPS, TUTORIALS, BUSINESS FORUM

Hotel Radisson Blu, Split, Thursday, September 21			
Time/Hall	RUZMARIN	OLEANDAR	PALMA I
09:00–10:30	WIICT/I: Workshop on ICT I	Tutorial T1/I (B. Kovacs) <i>5G Technologies and Use Cases</i>	Tutorial T2/I (I. Slapnicar) <i>Introduction to Julia with Applications</i>
10:30–11:00	Coffee Break		
11:00–12:30	WIICT/II: Workshop on ICT II	Tutorial T1/II (B. Kovacs) <i>5G Technologies and Use Cases</i>	Tutorial T2/II (I. Slapnicar) <i>Introduction to Julia with Applications</i>
12:30–14:00	Lunch		
14:00–14:30	Invited Talk (OLEANDAR): Adnan Al-Anbuky (AUT University, New Zealand), <i>IoT-Based WSN: Softwarization and Virtualization Towards CPS Intelligence</i>		Invited Talk (RUZMARIN): Murali Haran (Pennsylvania State University,USA), <i>Computational Methods for Fitting Statistical Models to Spatial Data</i>
14:30–15:00	Nokia solutions for improving base stations energy efficiency (D. Giljević)	Workshop: Doctoral Education in ICT	Tutorial T3 (D. Poljak) <i>Computational Electromagnetics: Applications in Electromagnetic Compatibility, Bioelectromagnetics and Magnetohydrodynamics</i>
15:00 – 16:00	WIICT/III: Workshop on ICT III		
16:00–16:30	Coffee Break		

Hotel Radisson Blu, Split, Friday, September 22			
Time/Hall	RUZMARIN	OLEANDAR	PALMA I
09:00–10:30	WSEP: Workshop on Software Engineering in Practice	Reinventing the Mainframe with Open Source and Pervasive Encryption (D. Soldo)	Tutorial T4 (A. Hirata) <i>Human Safety and Medical Application of Electromagnetic Fields: Role of Computational Modeling</i>
10:30–11:00	Coffee Break		
11:00–12:30	OPENING CEREMONY (GRAND BALLROOM)		
	Keynote Speech (GRAND BALLROOM): Sandor Albrecht (Ericsson Research), <i>Smart Contract, an important building block of an adaptable and dynamic networks</i>		
12:30–14:30	Conference Luncheon		
14:30-15:00	Invited Talk (RUZMARIN): Einar Broch Johnsen (University of Oslo, Norway), <i>Designing Resource-Aware Applications for the Cloud using Formal Methods</i>	Invited Talk(OLEANDAR): Dražen Lučić (HAKOM, Croatia), Regulatory Challenges Due to Security and Privacy Requirements for Internet of Things	Poster / Demo Session
15:00–16:00	Panel: Telco meets ICT	SYM4/I: Symposium on Information Security and Intellectual Property I	
16:00–16:30	Coffee Break		
16:30–18:00	Dynamic Innovation Panel Discussion	Workshop on Digital Marketing	Tutorial T5 (N. Cvetkovic) <i>Application of Green's Function to Analysis of Grounding Systems Placed in Nonhomogeneous Soils</i>
18:15	Bus Transfer to Port of Split		
18:30–19:30	Guided Tour in Split		
20:00- 21:30	Welcome Party in Split		

Hotel Radisson Blu, Split, Saturday, September 23			
Time/Hall	RUZMARIN	OLEANDAR	PALMA I
08:30–10:00	WESC: Ericsson Summer Camp 2017 Workshop	Tutorial T7/I (P. Lorenz) <i>Architectures of Next Generation Wireless Networks</i>	Tutorial T6/I (A. Giannopoulos) <i>Finite-Difference Time-Domain: From basic principles to realistic ground penetrating radar modelling</i>
10:00–10:30	Coffee Break		
10:30–12:00	Functionality, development and production of an automotive electronics device (N. Morić)	Tutorial T7/II (P. Lorenz) <i>Architectures of Next Generation Wireless Networks</i>	Tutorial T6/II (A. Giannopoulos) <i>Finite-Difference Time-Domain: From basic principles to realistic ground penetrating radar modelling</i>
12:00–13:30	Lunch		
13:30–18:30	Conference Trip		



Biography: Ivan Slapničar was born on 13 July 1961. He received his BSc in 1984, his MSc in 1988 in Mathematics from the University of Zagreb, Croatia, and PhD (dr. rer. nat.) in Mathematics in 1992 from the Fernuniversität Hagen, Germany, with summa cum laude. He is Professor and Head of the Chair for Mathematics at the Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture at the University of Split. His research interests include linear algebra, numerical linear algebra and applications.

Professor Slapničar was Visiting Professor at the Utah State University in 2001/02, Visiting Researcher at TU Berlin with the FP7 People "Marie Curie" Intra-European Fellowship in 2009/10, and Fulbright-Schuman International Educator/Lecturer at MIT in 2014, where he worked closely with the Julia group. In June 2016 he taught GIAN Course "Modern Applications of Numerical Linear Algebra" at IIT Indore, India, which was entirely prepared in Julia. To date Professor Slapničar has published more than 20 journal papers in the area of operator theory, linear algebra, numerical linear algebra and applications and was PI in several national scientific grants.

TUTORIAL T3

Thursday, September 21

14:30-16:00 (PALMA I)

Dragan Poljak, PhD

University of Split, FESB Split, Croatia

Computational Electromagnetics: Applications in Electromagnetic Compatibility, Bioelectromagnetics and Magnetohydrodynamics

Abstract: The presentation starts with some general aspects of computational electromagnetics and electromagnetic compatibility (EMC). The introduction outlines some well-established analytical and numerical methods. First, a crash-course on the theory of thin wire antennas and related numerical methods for solving various integral equations in both frequency and time domain will be discussed. Applications pertaining to dipoles, Yagi-Uda arrays and logarithmic-periodic dipole antennas (LPDA) will be given. Furthermore, applications pertaining to air traffic control and ground penetrating radar (GPR) are presented. Furthermore, full wave (antenna) models for various thin wire structures, from rather simple to realistic complex geometries, will be presented. This will be followed by analysis of overhead and buried transmission lines, respectively, which will be undertaken out using both rigorous full wave models and approximate transmission line (TL) approach. Particular attention will be focused to the study of PLC (Power Line Communications) configurations and modeling of lightning channel. The transient analysis of realistic grounding systems, with particular emphasis to wind turbines, will be undertaken, as well. Then Tutorial will tackle the human exposure to non-ionizing electromagnetic fields. Low frequency, high frequency and transient exposures related to possible adverse health effects will be outlined. Some biomedical application of electromagnetic fields, with particular emphasis on transcranial magnetic stimulation (TMS) and nerve fiber stimulation, will be also covered. Furthermore some stochastic analysis methods applied to area of GPR and human exposure to electromagnetic fields will be presented. The presentation will end up with some topics in magnetohydrodynamics pertaining to the modeling of plasma physics phenomena for the application in thermonuclear fusion.



Biography: Dragan Poljak was born on 10 October 1965. He received his BSc in 1990, his MSc in 1994 and PhD in electrical engineering in 1996 from the University of Split, Croatia. He is the Full Professor at Department of Electronics, Faculty of electrical engineering, mechanical engineering and naval architecture at the University of Split, and he is also Adjunct Professor at Wessex Institute of Technology. His research interests include frequency and time domain computational methods in electromagnetics, particularly in the numerical modelling of wire antenna structures, and numerical modelling applied to environmental aspects of electromagnetic fields. To date Professor Poljak has published nearly 200 journal and conference papers in the area of computational electromagnetics, seven authored books and one edited book, by WIT Press, Southampton-Boston., and one book by Wiley, New Jersey. Professor Poljak is a member of IEEE, a member of the Editorial Board of the journal *Engineering Analysis with Boundary Elements*, and co-chairman of many WIT International

Conferences. He is also editor of the WIT Press Series *Advances in Electrical Engineering and Electromagnetics*. In June 2004, professor Poljak was awarded by the National Prize for Science. In 2013 he was awarded by the Nikola Tesla Prize for achievements in Technical Sciences. From 2011 to 2015 professor Poljak was the Vice-dean for research at the Faculty of electrical engineering, mechanical engineering and naval architecture. In 2011 professor Poljak became a member of WIT Board of Directors. In June 2013 professor Poljak became a member of the board of the Croatian Science Foundation.

Akimasa Hirata, PhD*Nagoya Institute of Technology, Japan***Human Safety and Medical Application of Electromagnetic Fields: Role of Computational Modeling**

Abstract: Computational techniques for human exposed to external electromagnetic fields have progressed significantly for human safety as public concerns have grown over the adverse health effects of environmental electromagnetic fields such as those created by power lines, mobile phones, etc. The role of the dosimetry is to relate the external field strength and induced electric field/power absorption, contributing to the rationale of the metric and limit for human protection that are set in the international standards/guidelines by IEEE and the International Commission on Non-Ionizing Radiation Protection (ICNIRP), which are mentioned by the World Health Organization. Both standards/guidelines have been revising the standards. In this tutorial, the role of the computational modeling has been explained in detailed. In addition, state-of-art computational techniques developed in safety assessment now become a powerful tool when quantifying induced electrical fields in medical application as well. Some examples of its clinical applications have also been presented.



Biography: Akimasa Hirata received the B.E. and Ph.D. degrees in communications engineering from Osaka University, Suita, Japan, in 1996 and 2000, respectively. He was a Research Fellow of the Japan Society for the Promotion of Science (JSPS Research Fellow) from 1999 to 2001, and also a Visiting Research Scientist at the University of Victoria, Canada in 2000. In 2001, he joined the Department of Communications Engineering, Osaka University as an Assistant Professor. In 2004, he joined Nagoya Institute of Technology where he is now a Full Professor. His research interests are in computational electromagnetics and thermodynamics in biological tissue, waveguide analysis, EMC and EMI, and computational techniques in electromagnetics. Dr. Hirata is an editorial board member of *Physics in Medicine and Biology*, a member of the main commission and a chair of project group of International Commission on Non-Ionizing Radiation Protection (ICNIRP), and a member of Administrative Committee and a subcommittee chair of IEEE International Committee on Electromagnetic Safety. He was also an Associate Editor of *IEEE Transactions on Biomedical Engineering* (from 2006 to 2012). Dr. Hirata won several awards including prizes for Science and Technology (Research Category 2011, Public Understanding Promotion Category 2014) by the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, Japan, and IEEE EMC-S Technical Achievement Award. He is a Fellow of Institute of Physics and IEEE.

Nenad Cvetković, PhD*University of Niš, Faculty of Electronic Engineering, Serbia***Application of Green's Function to Analysis of Grounding Systems Placed in Nonhomogeneous Soil**

Abstract: The presentation starts with general review of the grounding system importance in various technological systems like power facilities, telecommunication systems, or lightning protection system. It is followed by description of variously shaped ground non-homogeneities that may occur near grounding system and influence on them. Such non-homogeneities can be roads, vertical containers having semi-spherical bases with a lower one buried in the ground, pillar ground electrodes with concrete foundation, or large holes in the ground (e.g. ponds and small lakes) filled with water. One of the often used model of non-homogeneous ground is also that one which approximates ground with finite number of horizontal homogeneous layers. Afterwards, corresponding procedures consider approximation of existing ground non-homogeneities with variously shaped homogeneous domains, including semi-cylindrically and semi-spherically-shaped ones, of known electromagnetic characteristics will be presented. The procedures for analysing influence of above-mentioned grounding non-homogeneities based on the usage of the quasi-stationary Green's function and image theory will be presented. It will be followed by presentations of the procedures for deriving the Green's functions and some specific applications. The final part of the presentation will include presentation of published results obtained described procedure.



Biography: Nenad Cvetković was born in Niš, Serbia in 1970. He received the Dipl. ing, M.Sc. and Ph.D. degrees from the Faculty of Electronic Engineering of University of Niš in 1995, 2002 and 2009, respectively. He is an assistant professor at the Department of Theoretical Electrical Engineering, Faculty of Electronic Engineering of Niš. His research interests are numerical methods for electromagnetic field calculation, especially in transmission line and grounding systems analysis. As an author or co-author, he has published about one hundred papers in international journals or conference proceedings, one monograph dealing with grounding systems, and two textbooks. As a member of a local research teams, he was on study staying at the universities in Germany, USA and Croatia. Nenad Cvetković was a visiting lecturer at the MCAST College in Malta and member of examining committees for PhD Thesis at the Mälardalen University-Sweden, as well as at the University of Kragujevac-Serbia. Dr Cvetković is a reviewer for the COMPEL, IEEE Transactions on Electromagnetic Compatibility, and AEÜ journals. He is a member of the IEEE Electromagnetic Compatibility Society and the IEEE

Magnetics Society. From 2017, he is Chairman of the PES Conference on applied electromagnetic that is traditionally organized at the Faculty of Electronic Engineering, University of Niš, Serbia.

TUTORIAL T6

Saturday, September 23

08:30-10:00, 10:30-12:00 (PALMA I)

Antonis Giannopoulos, PhD

School of Engineering, University of Edinburgh, UK

Finite-Difference Time-Domain: From basic principles to realistic ground penetrating radar modelling

Abstract: Starting from Maxwell's Equations the development of the finite-difference time-domain method will be presented highlighting important developments in a few key areas such as absorbing boundary conditions using perfectly matched layers, the incorporation of dispersive media, realistic modelling ground penetrating radar antennas and responses from targets in complex environments. Finally, gprMax, an Open Source software package implementing the FDTD method will be briefly presented showcasing some examples from applications relating to modelling ground penetrating radar.



Biography: Antonis Giannopoulos is a Senior Lecturer at the School of Engineering, The University of Edinburgh, Edinburgh, UK. After graduating with a degree in Geology, specialising in applied Geophysics, from the Aristotle University of Thessaloniki, Greece he pursued a DPhil in Electronics at the University of York, UK, working on ground penetrating radar (GPR). His cross-disciplinary background spans the application of geophysical methods and primarily of GPR to engineering site investigation problems and non-destructive testing of infrastructure elements to computational electromagnetics and development of efficient numerical modelling processes for the finite-difference time-domain method. His main research efforts are focused primarily on the development and application of ground penetrating radar technologies. He is the original author and lead designer of gprMax, a full wave finite-difference time-domain electromagnetic simulator for ground penetrating radar which recently has undergone a lot of rapid expansion and redevelopment to expand its capabilities. He

has published over 100 papers in international journals and conference proceedings.

TUTORIAL T7

Saturday, September 23

08:30-10:00, 10:30-12:00 (OLEANDAR)

Pascal Lorenz, PhD

University of Haute Alsace, France

Architectures of Next Generation Wireless Networks

Abstract: Emerging Internet Quality of Service (QoS) mechanisms are expected to enable wide spread use of real time services such as VoIP and videoconferencing. The "best effort" Internet delivery cannot be used for the new multimedia applications. New technologies and new standards are necessary to offer Quality of Service (QoS) for these multimedia applications. Therefore new communication architectures integrate mechanisms allowing guaranteed QoS services as well as high rate communications.

The service level agreement with a mobile Internet user is hard to satisfy, since there may not be enough resources available in some parts of the network the mobile user is moving into. The emerging Internet QoS architectures, differentiated services and integrated services, do not consider user mobility. QoS mechanisms enforce a differentiated sharing of bandwidth among services

and users. Thus, there must be mechanisms available to identify traffic flows with different QoS parameters, and to make it possible to charge the users based on requested quality. The integration of fixed and mobile wireless access into IP networks presents a cost effective and efficient way to provide seamless end-to-end connectivity and ubiquitous access in a market where the demand for mobile Internet services has grown rapidly and predicted to generate billions of dollars in revenue.

This tutorial covers to the issues of QoS provisioning in heterogeneous networks and Internet access over future 5G wireless networks. It discusses the characteristics of the Internet, mobility and QoS provisioning in wireless, IoT and mobile IP networks. This tutorial also covers routing, security, baseline architecture of the inter-networking protocols and end to end traffic management issues.



Biography: *Pascal Lorenz (lorenz@ieee.org) received his M.Sc. (1990) and Ph.D. (1994) from the University of Nancy, France. Between 1990 and 1995 he was a research engineer at WorldFIP Europe and at Alcatel-Alsthom. He is a professor at the University of Haute-Alsace, France, since 1995. His research interests include QoS, wireless networks and high-speed networks. He is the author/co-author of 3 books, 3 patents and 200 international publications in refereed journals and conferences. He was Technical Editor of the IEEE Communications Magazine Editorial Board (2000-2006), Chair of Vertical Issues in Communication Systems Technical Committee Cluster (2008-2009), Chair of the Communications Systems Integration and Modeling Technical Committee (2003-2009), Chair of the Communications Software Technical Committee (2008-2010) and Chair of the Technical Committee on Information Infrastructure and Networking (2016-2017). He has served as Co-Program Chair of IEEE WCNC'2012 and ICC'2004, Executive Vice-Chair of ICC'2017, tutorial chair of VTC'2013 Spring and WCNC'2010, track chair of PIMRC'2012, symposium Co-Chair at Globecom 2007-2011, ICC 2008-2010, ICC'2014 and '2016. He has served as Co-Guest Editor for special issues of IEEE Communications Magazine, Networks Magazine, Wireless Communications Magazine, Telecommunications Systems and LNCS. He is associate Editor for International Journal of Communication Systems (IJCS-Wiley), Journal on Security and Communication Networks (SCN-Wiley) and International Journal of Business Data Communications and Networking, Journal of Network and Computer Applications (JNCA-Elsevier). He is senior member of the IEEE, IARIA fellow and member of many international program committees. He has organized many conferences, chaired several technical sessions and gave tutorials at major international conferences. He was IEEE ComSoc Distinguished Lecturer Tour during 2013-2014.*

BUSINESS FORUM

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

WSEP: SIXTH WORKSHOP ON SOFTWARE ENGINEERING IN PRACTICE

The software is everywhere around us. The significant growth of ICT products and solutions depends on the quality of the used software. The software is essential enabler of future usage and growth of networked society surrounded with 50 billion of connected devices. Are we ready for such mass software production and keeping the software product life cycle continuous? How are the current researches and used software engineering practice correlated and ready to take responsibility for such broad and demanding software usage with quality, security and energy efficiency demands? What are the software products in the “software-as-a-service” era? Are we aware of software architecture demands and software life-cycle management? What challenges in software engineering are the most critical? Let's take opportunity to discuss these software engineering challenges and exchange experience between researchers and practitioners. Prepare your view and share it with others. Be on the workshop during the SoftCOM 2017 conference.

MODERATOR:

Darko Huljenic, PhD, Ericsson Nikola Tesla d.d., Zagreb



Biography:

Dr. Darko Huljenic 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 Manager for Technology & Science relations. He established the research department at ENT and expanded its cooperation with the major Croatian Universities as well as some international research institutions. 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, in the Faculty of Electrical Engineering and Computing, Telecommunications Department.

Modeling a Software Infrastructure of the Education System Using Ontology

Stipe Celar, Karmen Klarin (University of Split, Croatia)

Method for Requirements Elicitation, Documentation and Validation

Srdjana Dragicevic (Airport Split, Croatia), Stipe Celar (University of Split, Croatia) and Mili Turic (VENIO INDICIUM, Croatia)

Vehicle On-board Diagnostics Emulator

Milan Ramljak ((University of Split and Ericsson Nikola Tesla d.d., Croatia)

WORKSHOP: DOCTORAL EDUCATION IN ICT

Confined to the Formation of Scholars? Doctoral education paths in a knowledge-based society

The PhD is the path to a scientific career. However, the number of available positions in academia is not growing at the same pace as the number of PhD holders, which is increasing steadily worldwide. As a consequence, the majority of people undertaking a PhD will end up in careers outside scientific research. Many are the universities around the world that have responded to professional shift establishing means to encourage and facilitate doctoral education that bridges research and professional development: industrial or professional doctorate programs. In the European doctoral landscape these programs have taken the form of doctoral schools and colleges which run parallel to the traditional doctorate. These new doctoral structures provoke questions about the implications of industrial doctorate in research, training, and pedagogy. This will be discussed during the presentation.

ORGANIZER:

Maria del Carmen Calatrava Moreno, Vienna office of Technopolis Group



Maria del Carmen Calatrava Moreno is a consultant at the Vienna office of Technopolis Group, and an external consultant of UNESCO.

She has a dual background in the fields of computer science and education science. She combines both fields in order to conduct analyses of higher education data. She has been involved in the development of computer-assisted analysis tools that allow for richer investigations of diverse data sources and that scale to large amounts of information. She has used such methods to analyze the production of interdisciplinary research in the context of new interdisciplinary doctoral structures. Currently, she is involved in a research project that, in cooperation with the universities of Helsinki (Finland), Oxford (United Kingdom) and Ramón

Llull (Spain), investigates the career and professional development of young researchers. This project aims to create knowledge and policies to improve junior researcher' career development.

María del Carmen holds a PhD in computer science from the Vienna University of Technology. In addition to her research activities, her interest in technology and innovation led her to obtain a second master's degree in Innovation in computer science, and she has lectured a course on the same subject at the TU Wien.

Further information can be found at <http://calatravamoreno.com>.

RT1: ROUND TABLE ON INFORMATION SECURITY AND INTELLECTUAL PROPERTY (ISIP)

Smart Cities, Information Security and IoT Challenges

Development of new technologies and the information society in general involves all aspects of life in the contemporary society and all aspects of activities. Today's surroundings of information and communication technologies and globalization processes has developed the Smart cities strategies which are focused on the quality of life, sustainable community development and energy efficiency through technology solutions. In addition, across the Europe, there are emerging smart islands that strive for self-sustaining economic development in many areas of life. Internet of things (furthermore IoT) refers to a networked interconnection of devices in everyday use that are often equipped with ubiquitous intelligence. It is based on processing of large quantities of data in order to provide useful information/service and enables an efficient regulatory policy in the area of IoT. One of the key challenges for the realization of the IoT includes security challenges, especially in the area of privacy and confidentiality among management of heterogeneities and limitations of network capacities. Those challenges will be based on information security management systems as well as on legal foundations. When considering the legal framework of security and privacy of the IoT, it has to be determined which model of regulation should be applied. Thereby, no traditional government regulation is actually appropriate for a global system such as IoT. The most important foundation consequently will be the regulatory foundations of European union (on the territory of EU) and, consequently building the model of self-regulation based partly on state and mostly on law international agreements which are to be considered as tools to govern the IoT.

KEYWORDS:

information security, internet of things, legislation, privacy, smart cities, smart islands

MODERATORS:

Marija Boban, PhD, University of Split Faculty of Law, Croatia

Mario Weber, MsC, HAKOM, Croatia

LANGUAGE:

English

PANEL SESSION: TELCO MEETS ICT

The evolution and convergence of technologies have blurred the lines that once separated telecom players from the world of information and communication technology (ICT), and the two sectors are on a collision course. With the advent of Internet of Things (IoT) this collision is even more eminent, as it requires a tight integration between telecom and ICT services. Today, many telecoms are actively trying to make use of their existing position and infrastructure scale to move beyond basic voice and data services and begin providing ICT services. The most prominent path in this direction goes over Mobile Edge Computing (MEC), which pushes the frontier of computing applications, data, and services away from centralized nodes to the logical extremes of the network. Due to its proximity to mobile subscribers, telecoms can offer a service environment with ultralow latency and high-bandwidth, as well as direct access to real-time radio network information that can be used by applications and services to offer context-related services. However, the convergence taking place is not a one-way street. A number of ICT players have already recognized opportunities to make a move into the telecoms space by designing substitutes for traditional telecom services, such as over-the-top application collaboration and IP-based communication applications. Additionally, modern ICT services such as Cloud Computing require communication products as integral parts of their offerings, and this is where 5G technology kicks in by providing ubiquitous and massive Internet access. Finally, as the boundaries between voice and data, mobile and fixed, telecoms and ICT begin to disappear, so does the collaboration between those two worlds straightest in order to provide efficient, reliable and secure services to end users.

PANELISTS:



Univ. Prof. Dr. Ivona Brandic, Vienna University of Technology

University Professor for High Performance Computing Systems at the Institute for Software Technology and Interactive Systems, TU Wien.



Dr. David de Oliveira Costa, NewMotion

Chief Technology Officer at NewMotion.



Dr. Albrecht Sandor, Ericsson Research

Director of Digital Services Design in Ericsson Research and founder of Ericsson Garage, a corporate technology and knowledge incubator.



Ms. Hrvoje Sukic, VIPnet d.o.o.

ICT and Security Director for Croatia and Macedonia region in VIPnet d.o.o. telecom operator.

MODERATOR:



Dr. Toni Mastelić, Ericsson Nikola Tesla d.d.

Innovation Coach at Ericsson for Unified Data Management

DYNAMIC INNOVATION PANEL DISCUSSION

How Innovative Companies Remove Innovation Barriers – Small to Large?

*"The scientists of today think deeply instead of clearly.
One must be sane to think clearly, but one can think deeply and be quite insane."*

— Nikola Tesla

Innovation is undergoing a consistent "boom" and is associated with science and other industries in the nineteenth century. Nowadays, the technical domains are still the most productive innovation fields to play in. Particularly, ICT – where it is the most attractive field for funding by the European innovation and research funding program, Horizon 2020. However, innovation goes beyond the idea itself, representing the process of discovering and creating values at large-scale (or scale-up), breaking into new/current markets and impacting society in a positive sense. Finally, innovations create new jobs, drive economic growth and ultimately change the way we live.

What is the path from idea to innovation? What are the success stories behind those circa 10% startups that actually succeed? What are the mechanisms for enabling innovations in corporations compared to those in smaller startup companies? In this panel, several locally based small to large (Corp.) scale companies will give their view on innovation barriers and how they dealt and removed them. Subsequently, we will reflect on this potpourri blend of innovation challenges via an expert panel discussion so we can make this more concrete for the audience and leverage the collective knowledge in the forum.

PANELISTS:

We invited several companies, from small startups to big enterprises, in order to cover the innovation barriers in all phases of company growth.

MODERATOR:

Marko Bervanakis, Ericsson Nikola Tesla d.d., Zagreb



Global New Business & Innovation Manager, Coach and Facilitator at Ericsson Nikola Tesla d.d. In the past he also worked in other Global Telecoms companies (both in Europe & in the Asia pacific region) as a technical trainer-educator, consultant, manager and innovation facilitator. Today, he also serves as a key team member in the organization and execution of Ericssons annual global Ericsson Innovation Awards challenge for University students. He has won several company Innovation awards and runs innovation workshops around the globe.

WORKSHOP ON DIGITAL MARKETING

Digital marketing – marketing for the new era based on Vision 2020 in ICT segment

Vision 2020 in ICT segment will bring many new positive things in all business segments. Industry 4.0 (the fourth industrial revolution) will be based mainly on this Vision. Marketing as one of the main issues of any business will also experience significant changes. Classical marketing will be partially or fully replaced with its digital version. Many people mix the terms of marketing and advertising. But those two terms are not the same – advertising is only one of many parts of marketing. Marketing has many parts such as products development, services development, market research, trade marketing, ... and advertising is the final and probably the most visible part of whole marketing. Probably because of this fact, many people mix these two terms. This workshop will give an explanation of the basic settings of classical marketing (as an introduction to digital marketing) and about the possibilities of developing products and services in this new digital world. The concepts of marketing plans and strategies will be explained in detail. Finally, the focus will be on advertising in the digital world - the use of social networks (LinkedIn, Twitter, Instagram, Google+, Facebook, Pinterest, Tumblr), the use of e-mail advertising, the use of web advertising, the importance of company websites and the special features of mobile advertising.

LECTURERS:

Igor Jurčić, HPT Mostar and University of Mostar, BiH

Igor Jurčić received his M.Sc.EE. from the University of Split, Croatia in 1999. Since 2015, Igor Jurčić is PhD candidate and researcher at the University of Split, Croatia. In 1997 he joined the HPT Mostar and since then, he has worked in mobile and fixed telecom divisions (now HT ERONET). He is lecturer in Optical Communications, Telecommunication Systems and Networks and Mobile Communications at the Faculty of Mechanical engineering and computing at the University of Mostar. He has published 15 papers in international conference proceedings, domestic journals and in international journals. Innovation Coach at Ericsson for Unified Data Management.

Ivan Radoš, HT Mostar and University of Mostar, BiH

Ivan Radoš received his Ph.D. from the University of Split, Croatia in 2012. In 1985 he joined the PTT (Post and Telecommunication) Tomislavgrad. Since 1992 he works at Department of Transmission Systems of the HT Mostar (Croatian Telecommunications). He is lecturer in Optical Communications, Telecommunication Systems and Networks and Mobile Communications at the Faculty of Mechanical engineering and computing at the University of Mostar. He has published 10 papers in international conference proceedings, 5 papers in domestic journals and 8 papers in international journals.

DURATION:

90-120 minutes

POTENTIAL PARTICIPANTS:

professionals, academics, researchers, students.

WESC: ERICSSON NIKOLA TESLA SUMMER CAMP 2017 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.



ORGANIZER: Saša Dešić, PhD, Research and Innovation Manager

Ericsson Nikola Tesla d.d., Zagreb

Dr. Saša Dešić received his PhD degree from the University of Zagreb, Croatia in 2004. He has been working as a teaching assistant in the Faculty of electrical engineering and computing and as a research engineer in Ericsson Nikola Tesla. Currently he is the head of the Research and Innovation unit in Ericsson R&D Centre in Croatia. His primary fields of interest include e-Health applications and software engineering practices. He holds a position of assistant professor at the University of Zagreb, in the Faculty of Electrical Engineering and Computing, Telecommunications Department. Dr. Dešić is main coordinator of Summer Camp.



MODERATOR: Goran Gašparović, Software Engineer

Ericsson Nikola Tesla d.d., Split

Diploma Engineer of Computer Science, University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture. Current position, Software Engineer at Ericsson Nikola Tesla, Research and Innovation Unit. Previously employed 2012-2015 as a PhD researcher on the Croatian National Science Foundation project MICROGRID at University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture. Thesis topic on energy planning and long-term optimization of energy systems with high share of renewable sources and storage capacity. Current research interests in Big Data and Analytics in telecommunications, including anomaly and fault detection and prevention, time-series analysis, machine learning concepts.

MCP ordering portal

Mentor(s): Ivo Šimić, Marija Vištica, Dino Poljak

Team members: Kristina Udovičić, Ivona Alković

Ericsson Node Player - EriNoP

Mentor(s): Zoran Mihajlović, Mario Piplović

Team members: Julija Ivanković, Josip Strinić

Elastic Network Functions

Mentor(s): Toni Mastelić, Ivana Nižetić Kosović, Đani Vladislavić

Team members: Andriana Baković, Marko Miljak

Holelens Dictionary

Mentor(s): Tomislav Kadežabek

Team members: Ana Ščulac, Ante Lojić Kapetanović

Smart Ericsson IoT City Transport Service

Mentor(s): Tonči Jukić, Goran Gašparović

Team members: Marina Šabić, Mario Raguž

Blockchain in e-Government

Mentor(s): Tonči Jukić, Goran Gašparović

Team members: Mirela Gospodinović, Gordan Viđak

INDUSTRIAL PRESENTATIONS

Friday, September 22, 09:00 – 10:30 (OLEANDAR)

Reinventing the Mainframe with Open Source and Pervasive Encryption

The IBM Mainframe has been a cornerstone of enterprise IT solutions for decades and it still remains the world's largest transaction server, despite all the technology shifts recently. The Mainframe, recently known as the IBM Z, is the foundation for the Hybrid Cloud, Microservices and Blockchain offerings and the center of IBM's Open Source ecosystem. This presentation will provide an overview of the current IBM Z Flagship model z14, which has been set to release in September 2017, and is the first machine ever to have data encrypted in every layer of the infrastructure, "in-flight" or "at-rest".

ORGANIZER:

**Danijel Soldo, Software Performance Analyst, IBM Z Linux Crypto Performance Evaluation
IBM Research & Development Germany**

Biography: *Danijel Soldo received his M.Sc. in Communication and Information Technology from the University of Split in 2014, with the master thesis research work done at the TU Vienna, which opened the world of Cloud Infrastructure and Software Performance for him. After one year of software development work at Ericsson Nikola Tesla in Split, Danijel decides to accept the challenge and move to Germany, and pursue his ambitions in the IBM Research & Development Center in Boeblingen. Today, he is a part of the Linux on IBM Z Performance Evaluation team and responsible for the Crypto part of the Linux stack.*

Thursday, September 21, 14:30 – 15:00 (RUZMARIN)

Nokia solutions for improving base stations energy efficiency

Reducing network greenhouse gas (GHG) emissions and energy consumption has not typically been a high priority for most operators over the years. Faced with dramatic changes in their business environment driven by increasing competition, declining average revenue per user (ARPU) and exploding demand for data services, most operator investments have focused on network capacity and performance to improve the customer experience.

The power utilities are on the front line and have stated aims to reduce the amount of carbon emitted per unit of energy generated. For example, Helen Oy as one of the largest energy companies in Finland states: "We aim to produce energy in a carbon-neutral way in 2050. Our intermediate target is to reduce carbon dioxide emissions by 20% and to increase the share of renewable energy to 20% by 2020".

Meanwhile, network equipment vendors are constantly introducing more energy efficient infrastructure. On average, each new base station generation reduces energy consumption by about 35 percent.

These two examples show that operators have an expanding range of options to reduce their network GHG emissions and energy consumption. Only by adopting the latest energy-saving and renewable energy technologies can ensure operators support to the emissions-reducing targets, that align with the Paris climate change agreement's stated goal of limiting global warming to 2°C. Hence, this presentation will introduce solutions of Nokia dedicated to the improvement of the energy-efficiency of telecom operator's network. The presentation will point out different concepts used for optimizing energy-efficiency of Nokia base stations and other network equipment.

ORGANIZER:

Darko Giljević, Account Manager in Nokia Networks



Darko Giljević, dipl. ing. el., Nokia Networks: "Graduated at Faculty of Electrical Engineering and Computing (FER) in Zagreb in 1998. Started business career at Pliva pharmaceutical company as an engineer for computer networks. Moving to Siemens in 2000 as Project leader in mobile networks R&D. Since 2005 working with Customer operations for telecom operators. With Nokia Siemens Networks merger in 2008 working as Account Manager with responsibility for local and telecom clients in the region."

Saturday, September 23, 10:30 – 12:00 (RUZMARIN)

CAN-IO:

Functionality, development and production of an automotive electronics device

The importance and effect of electronic devices in the automotive industry is continually growing. Learning how an actual automotive electronics device (in this case, the CAN-IO) functions, is developed and produced can help to better understand how theoretic principles from the fields of electronics, software and communication interfaces are applied to produce a working electronic device in a competitive, security-conscious, free market industry.

As an introduction, an overview of the company that manufactures the device and the automotive market within which it operates is given. The processes used to develop and produce the CAN-IO are presented next. The main focus is given to explaining the functionality of the CAN-IO device from the aspects of its hardware, software and communication interfaces. In conclusion, possible future developments are presented.

To develop and produce a profitable electronic device for the automotive industry, optimized, reliable, and proven designs and processes must be used. For non-safety critical applications, having a versatile inexpensive, and user-friendly device is an advantage.

ORGANIZER:

Nikola Morić, MRS Electronic

Biography: *Nikola Morić graduated at the Faculty of Electrical Engineering, Mechanical Engineering, and Naval Architecture in Split in 2012. He started his professional career as an R&D Engineer at CPK Automotive in 2013. He switched to MRS Electronic in 2016 where he works as a test engineer in the Product Verification and Validation department.*

Collaborative innovation myth on micro scale test

Innovation can not be collaborative, it is the private property of individual, while the research process depends on collaboration. These two are mixed but very different. Collaboration can be measured and guaranteed while innovation can not.

The presentation covers the basic concepts of collaborative open innovation network organization and talks about key stakeholder roles: Research organizations, R&D Companies, Large enterprises, Investors and other supporting organizations, in innovation to market process. The half-hour talk, will provide insights on networking possibilities through IRI innovation cluster backed up with real R&D project success stories and most common collaboration pitfalls.

ORGANIZER:

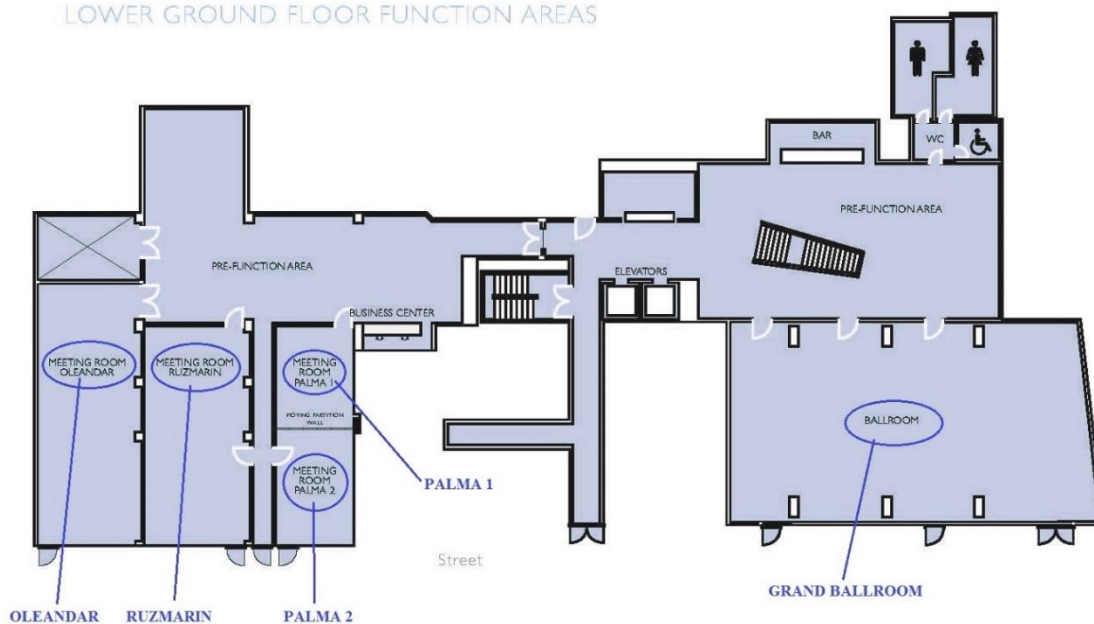
Goran Pavlov, Director, IRI centar d.o.o., Kaštela



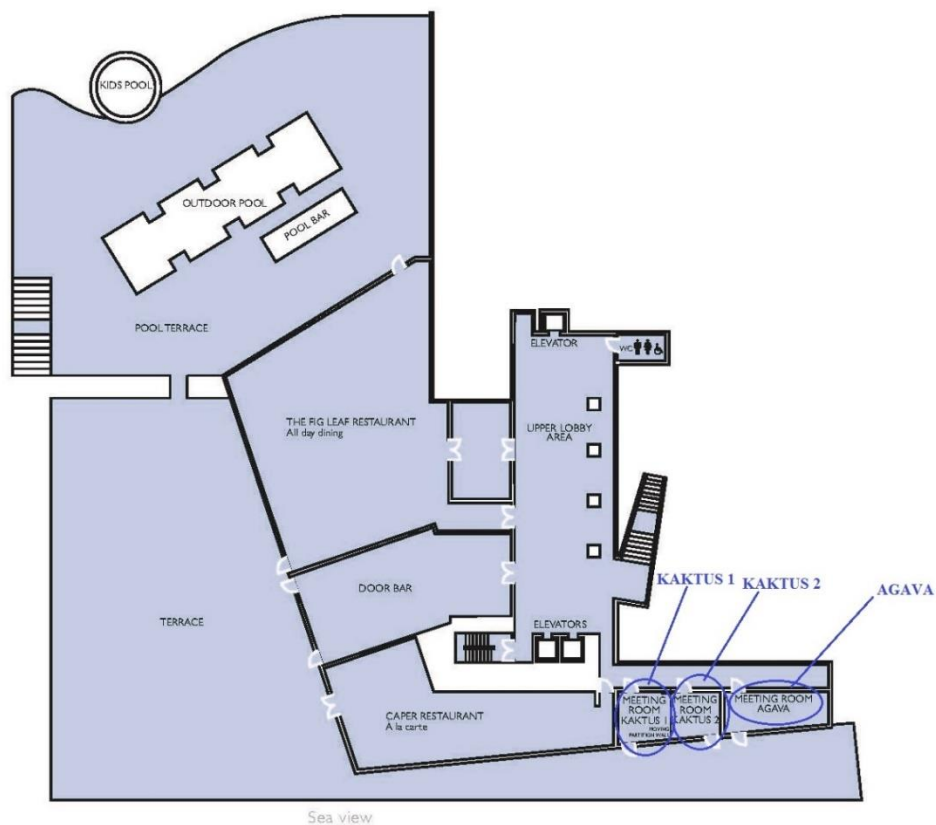
Goran Pavlov is an experienced project manager and business consultant with extensive experience in project fundraising for the business sector, public research sector and NGO sector. Topics of his technical expertise are: Electronics, Energetics and Information Technology. As one of the founders and lead coordinator of national open innovation cluster "IRI Cluster", his main professional focus is set on innovation in science and technology, best practice implementation, R&D project fund raising, intellectual property and business development.

HOTEL RADISSON BLU RESORT: FLOOR PLAN

LOWER GROUND FLOOR FUNCTION AREAS



FIRST FLOOR FUNCTION AREAS



GENERAL INFORMATION



SPLIT

VENUE

The 25th International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2017) will be held in Split.

Split is the largest city on the Croatian coast of the Adriatic Sea with a population of 180.000. The visit of Split can offer the travellers an extraordinary city tour without any need to take buses to reach the centre. 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, travellers for whom as Diocles said, there will always be a bed, food, drink, music and the presence of God.

TRAVELING TO SPLIT

Split can be reached by air: directly from Amsterdam, Brussels, Frankfurt, London, Lyon, Manchester, Munich, Paris, Vienna and via Zagreb from all world airports (for more information please visit Airport Split-Kastela); by ship: Split harbor is daily connected with Ancona. Ship connections are also available with Venice, Pescara and Bari.

WEATHER

In September the weather in Split is very nice, with an average temperature of about 20 degrees Celsius and the sea temperature is agreeable for swimming.

PROCEEDINGS

All participants will receive the Final Program and USB Proceedings when registering at the conference desk.

LANGUAGE

The Conference language is English.

REGISTRATION

Thursday, September 21: 08:00 – 19:00

Friday, September 22: 08:00 – 11:00, 14:30 – 18:00

Saturday, September 23: 08:00 – 10:30

ADMINISTRATOR

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