



## ICAT 2019

XXVII International Conference on Information,  
Communication and Automation Technologies

October 20-23, 2019, Sarajevo, Bosnia & Herzegovina

# Conference program

Monday, 21.10.2019		
9:00 –	Registration – Hotel Bosnia	
9:30 – 10:00	Opening Ceremony	
10:00 – 11:00	Keynote Speaker: Antonella Ferrara, University of Pavia, Italy <b>Modern Sliding Mode Control with Applications</b>	
11:00 – 11:30	Coffee Break	
11:30 – 12:30	Keynote Speaker: Nicola Marchetti, Trinity College Dublin, Ireland <b>Principles and Practice of Self-Organization in 6G Networks</b>	
12:30 – 13:30	Lunch	
13:30 – 15:00	<b>Special session – Blockchain technology and its application</b> Invited speaker: Kamil Salakhiev, CEO at Soramitsu Labs Session chairs: (Assis. Prof. Dr. Muhamed Turkanović, Assis. Prof. Dr. Aida Kamišalić Latifić, Assis. Prof. Dr. Marko Hölbl), University of Maribor, Faculty of Electrical Engineering and Computer Science, Slovenia	
15:00 – 15:30	Coffee Break	
15:30 – 17:00	<b>Session 1 – Control Systems and Robotics</b> Session chair: Lejla Banjanović-Mehmedović	<b>Session 2 – Communication and Networking</b> Session chair: Miralem Mehić
20:00 – 22:00	Welcome Reception – Enjoy Sarajevo – Dom Mladih Skenderija	
Tuesday, 22.10.2019		
9:00 –	Registration – Hotel Bosnia	
10:00 – 11:00	Keynote Speaker: Tijana Milenković, University of Notre Dame, USA <b>Improving human health by analyzing biological or social networks</b>	
11:00 – 11:30	Coffee Break	
11:30 – 13:00	<b>Session 3 – Signal and Image Processing</b> Session chair: Emir Sokić	<b>Session 4 – Data Science and Optimization</b> Session chair: Samim Konjicija
13:00 – 14:00	Lunch	
14:00 – 15:30	<b>Session 5 – Smart Technologies and Power Systems</b> Session chair: Mirza Batalović	<b>Session 6 – Artificial Intelligence, Machine Learning and Computer Graphics</b> Session chair: Razija Turčinhodžić
15:30 – 16:00	Coffee Break	
16:00 – 17:00	<b>Round table: Underwater robotics: on architectures and technologies</b> Moderator: Kemal A. Delic, Hewlett-Packard Co/DxC Technologies Participants: Prof. Zoran Vukic – Croatia Prof. Gianluca Antonelli – Italy Prof. Bill Kirkwood – USA Prof. Mandar Chitre – Singapore	
19:00 – 21:00	Gala Dinner – Hotel Bosnia	

<b>Special session on Blockchain Technology and Its Application</b>	
<b>Monday, 13:30</b>	
1.	<b>Simple blockchain for business;</b> Kamil Salakhiev, Project manager at Soramitsu: Hyperledger Iroha
2.	<b>Analysis of Fault Tolerance in Permissioned Blockchain Networks;</b> Blaž Podgorelec, Vid Keršič, Muhamed Turkanović
3.	<b>Multi-Agent Architecture for Peer-to-Peer Electricity Trading based on Blockchain Technology;</b> Yeray Mezquita, Amin Shokri Gazafroudi, Aida Kamišalić, Miadreza Shafie-Khah, Hannu Laaksonen, Juan Corchado
4.	<b>Blockchain Based Variability Management Solutions for Fog Native Open Source Software;</b> jörn Holste, Vlado Stankovski, Petar Kochovski, Antonio Puliafito, Philippe Massonet
<b>Session 1 – Control Systems and Robotics</b>	
<b>Monday, 15:30</b>	
1.	<b>Double Loop Fuzzy Neural Super-Twisting Sliding Mode Control of Micro Gyroscope;</b> Juntao Fei, Zhilin Feng
2.	<b>Experiment of Sliding Mode Control with Nonlinear Sliding Surface Design for a 3-DOF Helicopter Model;</b> Umit Mufit Guzey, Engin Hasan Copur, Sinan Özcan, Ahmet Çağrı Arıcan, Bedrettin Mahmut Kocagil, Metin U. Salamci
3.	<b>Controller Design for a Nonlinear 3 DOF Helicopter Model Using Adaptive Sliding Surfaces;</b> Fatma Kara, Metin U. Salamci
4.	<b>FPGA based Hexapod Robot Navigation using Arbitration of Fuzzy Controlled Behaviors;</b> Lejla Banjanović-Mehmedović, Adnan Husejnović
<b>Session 2 – Communication and Networking</b>	
<b>Monday, 15:30</b>	
1.	<b>An Alternative Approach in Derivation of Nakagami-m Distribution;</b> Almir Marić, Vlatko Lipovac, Pamela Njemcević, Enio Kaljić
2.	<b>Scalable Cache-Based Address Resolution Protocol Handling in Software-Defined Networks;</b> Matej Groma, Tomas Boros, Pavol Helebrandt
3.	<b>DoS attack mitigation in SDN networks using a deeply programmable packet-switching node based on a hybrid FPGA/CPU data plane architecture;</b> Enio Kaljić, Almir Marić, Pamela Njemcević
4.	<b>Implementation of Common Information Model in Public Enterprise Electric Utility of Bosnia and Herzegovina;</b> Adnan Fehratbegović
5.	<b>About the Connectivity of Xiaomi Internet-of-Things Smart Home Devices;</b> Miralem Mehić, Nejra Selimović, Dan Komosny
6.	<b>Allocation of Virtual Cache &amp; Virtual WAN Accelerator Functions for Cost-Effective Content Delivery Services;</b> Shinichi Kuribayashi
<b>Session 3 – Signal and Image Processing</b>	
<b>Tuesday, 11:30</b>	
1.	<b>Non-uniform sampling using synchronised ADCs;</b> Karel Dudacek
2.	<b>A New Method for Improving Content-Based Image Retrieval using Deep Learning;</b> Faruk Mustafić, Irfan Prazina, Vedran Ljubović
3.	<b>Design of Active Visual Marker for High Speed Object Tracking by Frame Subsampling;</b> Adnan Kreho, Jasmin Hadžajlić, Emir Sokić
4.	<b>Automatic Segmentation and Classification of Resistors in Digital Images;</b> Mia Muminović, Emir Sokić
5.	<b>A review of the image segmentation and registration methods in liver motion correction in C-arm perfusion imaging;</b> Hana Haseljić

**Session 4 – Data Science and Optimization****Tuesday, 11:30**

1.	<b>Credit Scoring Model Implementation in a Microfinance Context;</b> Ajša Terko, Emir Žunić, Dženana Đonko, Adnan Dželihodžić
2.	<b>School Timetable – suggestions for a more efficient representation and a solution for schools with shifts;</b> Samir Ribić, Razija Turčinhodžić, Edo Imamović, Emilija Zdilar
3.	<b>Innovative Usage of Online Platforms Analytics on Event Planning based on the Genetic Algorithm with Greedy Approach;</b> Sead Delalić, Adis Alihodžić, Elmedin Selmanović
4.	<b>Optimal City Selection and Concert Tour Planning Based on Heuristic Optimization Methods and the Use of Social Media Analytics;</b> Sead Delalić, Malek Chahin, Adis Alihodžić
5.	<b>Playground Algorithm as a New Meta-heuristic Optimization Algorithm;</b> Kemal Altlwkany, Samim Konjicija

**Session 5 – Smart Technologies in Power Systems****Tuesday, 14:00**

1.	<b>Detection of Defect Presence inside the Insulation of Cable Accessories through Changes in Cable Capacitance;</b> Mirza Batalović
2.	<b>Impact of Distributed Generation on Performance of Power Flow Methods;</b> Tarik Hrnjić, Izudin Džafić, Haris Ačkar, Senad Huseinbegović
3.	<b>Data Model for Three Phase Distribution Network Applications;</b> Tarik Hrnjić, Izudin Džafić, Haris Ačkar
4.	<b>Optimal capacitor placement in low voltage distribution grid;</b> Maja Muftić Dedović

**Session 6 – Artificial Intelligence, Machine Learning and Computer Graphics****Tuesday, 14:00**

1.	<b>Application of Deep Learning Based Object Detection on Unmanned Aerial Vehicle;</b> Burak Ipek, Mustafa Akpınar
2.	<b>Data-driven approach for anomaly detection of real GPS trajectory data;</b> Emir Baručija, Amra Mujčinović, Berina Muhović, Emir Žunić, Dženana Đonko
3.	<b>Warehouse Demand Forecasting based on Long Short-Term Memory neural networks;</b> Kerim Hodžić, Haris Hasić, Emir Cogo, Željko Jurić
4.	<b>NeurIPS Conference Papers Classification Based on Topic Modeling;</b> Ajša Terko, Emir Žunić, Dženana Đonko
5.	<b>Survey of integrability of procedural modeling techniques for generating a complete city;</b> Emir Cogo, Irfan Prazina, Kerim Hodžić, Hana Haseljić, Selma Rizvić