XV International Conference

SAUM 2021

Systems, Automatic Control and Measurements

SAUM 2021 CONFERENCE (Virtual)

09-10th September, Niš, Serbia

FINAL PROGRAM

SESSIONS OVERVIEW

Thursday, September 09, 2021		
Time	*Activities*	*Virtual place*
09:00 – 09:15	**Welcome speech**	Plenary Session
09:15 – 10:00	**Plenary Session**	Plenary Session
10:00 – 12:00	**Session A:** Information and Communication Technologies	Session A
10:00 – 12:00	**Session B:** Measurements and Instrumentation	Session B
12:00 – 14:00	**Session C:** System Identification and Modeling	Session C
12:00 – 14:00	**Session D:** Mechatronics and Robotics	Session D
14:00 – 16:00	**Session E:** Artificial Intelligence & Machine Learning	Session E
14:00 – 16:00	**Session F:** Renewable and Non-Conventional Energy Sources. Energy Systems	Session F

Friday, September 10, 2021		
Time	*Activities*	*Place*
10:00 – 14:00	**Project Session :** ERASMUS + and H2020 projects presentation	Room 1

Plenary Session, Session A, B, C, D, E, F – All authors will receive mails with links to join their sessions and plenary session. MS Teams will be used for the conference sessions.

Room 1 – 6th floor, Faculty of Mechanical Engineering (No.601)

CONTENT

Thursday 09th September 2021

Plenary session Thursday, 09th Spetember, 09:15 – 10:00 (local time)	
1	Aleksandar Rodić University of Belgrade, Mihajlo Pupin Institute, Robotics laboratory, Belgrade, Serbia **Research and development of a collaborative industrial humanoid supported by a cloud control architecture**
2	Stevan Stankovski, Gordana Ostojić, University of Novi Sad, Faculty of Technical Sciences, Serbia **Toward Smart Ecosystem in Industrial Automation**

Session A – Information and Communication Technologies Thursday, 09th Spetember, 10:00 – 12:00 (local time)	
1	Nenad Petrović, Maša Radenković, Stevica Cvetković, Dejan Rančić **Model-driven automated gMock test generation for automotive software industry**
2	Dejan Milić, Selena Vasić, Nenad Petrović, Suad Suljović, Vincent O. Nyangaresi **Outage probability of a simulated smart-city 5G MIMO system with L-branch SC receiver undergoing k-μ fading and Nakagami-m interference**
3	Igor Kocić, Petar Đekić, Aleksandra Milovanović, Dragan Antić, Saša S. Nikolić, Nikola Danković **Application of KEPServerEX Applications for Acquisition and Supervision of Production Processes**
4	Aleksandra Miroslav Cvetković, Vesna Blagojević, Jelena Manojlović **Outage Performance of RF Energy Harvesting System Enabled by UAV Relay**
5	Miloš Bogdanović, Nataša Veljković, Milena Frtunić Gligorijević, Darko Puflović, Leonid Stoimenov **Optimizing tag usage through means of semantic similarity measure – an approach for connecting open data portals**
6	Nenad Petrovic, Vasja Roblek, Nino Papachashvili **Decision Support Based on Data Mining for Post COVID-19 Tourism Industry**
7	Aleksandar M Milenković, Anđelija I Đorđević, Dragan S Janković, Aleksandar Spasić **Collaboration of the MEDIS.NET with the state radiological information system**

Session B – Measurements and Instrumentation Thursday, 09th Spetember, 10:00 – 12:00 (local time)	
1	Goran Miljković, Ivana Ranđelović, Dragan Denić, Jelena Jovanović **Contribution to the development of a pseudorandom position encoder with parallel reading**
2	Jelena R. Jovanović, Dragan B. Denić, Goran S. Miljković, Ivana S. Ranđelović **Novel Design of a Nonlinear ADC Used for Sensor Linearization**
3	Milan M. Simić, Dragan B. Živanović, Goran S. Miljković, Miroljub T. Pešić **Upgrading the Software Supported Method for Generation of Reference Signals for Testing the Electrical Power Quality Meters**
4	Dragan S. Jovanović, Milan Banić, Nikola Korunović **Experimental Assessment of Dynamic Stiffness in Rubber-metal Springs using Universal Testing Machine and Electrodynamic Shaker**
5	Lazar Dragan Jovanovic **Analyzing training performance and SPO2 measurements using mobile device and smart watch**
6	Mihai Olănescu, Miruna Periș, Adrian Suciu **The influence of visual feedback enhancing neuromuscular control developing strength and power**

Session C – System Identification, Modelling, Simulation, Control systems Thursday, 09th Spetember, 12:00 – 14:00 (local time)	
1	Branislav M Randjelovic, Ivana D Ilić, Saša S Nikolić, Vojislav V Mitić **Application of Homogenous Linear Recurrence Relations and Ordinary Generating Functions for Modeling Processes in Control Theory**
2	Jasmina Bogdanović Jovanović, Živojin Stamenković, Miloš Kocić, Jelena Petrović **Optimization of the Blade Pitch Angle for Variable Pitch Axial Flow Pumps**
3	S. Rosić, D. Stamenković, M. Simonović, M. Milošević **Impact of Maintenance Diagnostic Methods on Railway Traffic Safety**
4	Pancho Tomov, Emil Enchev, Lubomir Dimitrov **Development and automation of basic and auxiliary information activities in production**
5	Marko Perić +, Aleksandar Miltenović +, Damjan Rangelov +, Aleksandar Petrović **Overview of Digital Twin Technology for Industry 4.0**
6	Predrag Milorad Rajković, Slađana Dragan Marinković, Miomir S Stanković **Almost orthogonality of the polynomials by shifting of their zeros**
7	Stanko Stankov, Nikola Dankovic, Dragan Antic, Marko Milojkovic, Stanisa Peric, Nebojsa Jotovic **The Control System of the Fluid Transport Process**

Session D – Mechatronics & Robotics Thursday, 09th Spetember, 12:00 – 14:00 (local time)	
1	Ivana Milomir Terzic, Milica Milorad Todorovic, Valentina Slobodan Mladenovic, Dragan Dusan Seslija, Stanimir Radoslav Cajetinac **Modeling and simulation of 2D pneumatic manipulator controlled by Pulse Width Modulation**
2	Florin Popișter, Sergiu-Dan Stan, Victor Cobîlean, Alexandru Oarcea, Costan-Vlăduț Trifan **Mechanical design of a Monorail parallel robot with 6DOF**
3	Vukašin Pavlović, Miša Tomić, Milan Banić, Miloš Simonović, Miloš Milošević **Design and Control of Wire Tensioning System using Neural Network**
4	Miša Tomić, Nikola Vitković, Miloš Simonović, Miloš Milošević **Precise Speed Estimation of the Physically Connected off-Road Robotized Vehicles By Using Artificial Intelligence Methods**
5	Alexandru Oarcea, Sergiu Stan, Alexandru Ianosi, Alin Plesa, Victor Cobilean **Design of an automatic charge station for rail inspection drones**
6	Alin Pleșa, Ștefan-Alexandru Szabo **Design of a 2DOF simulator for addressing the VR motion sickness**
7	Ivan Ćirić, Emina Petrovic, Stefan Lalic, Nikola Ivačko, Dušan Jevtić, Oliver Brkić, Vlastimir Nikolić **Development of 3D printed robotic manipulator for the entertainment industry**
8	Dušan. Z. Ćirić, Aleksandar V. Miltenović, Jelena Ž. Mihajlović, Miroslav M. Mijajlović **Mechanical Design of the Bicycle Inner Tube Valve Positioning Tool Based on the Reverse Engineering Methodology**

Session E – Artificial Intelligence & Machine Learning Thursday, 09th Spetember, 14:00 – 16:00 (local time)	
1	Andjela D. Djordjević, Marko T. Milojković, Saša S. Nikolić, Staniša Lj. Perić, Miroslav B. Milovanović **Neural Network Model Predictive Control of Servo System**
2	Houssein Firas Aimanovich **A modification on the local search of the Bee Algorithm**
3	Emina Petrović, Ivan Ćirić, Milan Pavlović, Vlastimir Nikolić **Gaussian Process Regression for Distance Estimation in ATO Thermal Vision Systems**
4	Bratslav Predić, Milica Cirić **Machine Learning Anomaly Detection In Time Series – Aiming Towards Industry 5.0**
5	A. Petrović , M. Banić, D. Stamenković , D. Ristić Durrant , Lj. Radović, M. Perić **Classification of Geometric Shapes in the Images Using Logistic Regression Algorithm**
6	Milan R. Dinčić, Zoran H. Perić, Milan S. Savić, Marko T. Milojković, Nikola J. Vučić **QNR Analysis and Classification Accuracy of the 24-bit Floating Point Representation of the Laplacian Data Source Applied for Quantization of Weights of a Multilayer Perceptron**
7	Danijela Ristic-Durrant, Marten Franke, Ahmad Asghar, Darko Ojdanić, Aleksandar Miltenović, Kai Michels **Deep learning-based image features for industrial applications of visual identification and inspection**

Session F – Renewable and Non-Conventional Energy Sources. Energy Systems Thursday, 09th Spetember, 14:00 – 16:00 (local time)	
1	Anna Limanskaya, Predrag Rajković, Goran Vučković, Mića Vukić **Numerical solve of non-stationary heat conduction in the wall with asymmetric boundary conditions**
2	Miloš Kocić, Živojin Stamenković, Jasmina Bogdanović-Jovanović, Jelena Petrović **EMHD Control of Micropolar Fluid Flow and Heat Transfer**
3	Milena Nebojša Rajic, Dragoljub Živković, Marko Mančić **Temperature Measurements of Hot Water Boiler Structure**
4	Milena Nebojša Rajic, Rado M. Maksimović, Pedja Milosavljević, Dragan Pavlović **Maturity Model for Energy Management System: Case Study**
5	Branka Radovanović, Predrag Zivkovic, Mića Vukić, Jelena Janevski, Ljubov Sokolova, Ana Limanskaya **Solar Collectors Application**
6	Lyubov Sokolova, Anna Limanskaya, Jelena Janevski, Predrag Zivkovic, Branka Radovanović **Renewable Energy Sources in Serbia and the Belgorod Region of Russia**
7	Danka Kostadinović, Dragana Dimitrijević Jovanović, Nenad Stepanić, Emina Petrović **Development of Smart Capacitive Sensor for Continuous Real Time Soil Water Content Monitoring**

Friday, 10th of September

Project session Friday, 10th Spetember, 10:00 – 14:00 (local time)	
1	Enhancing and validating service-related competences in versatile learning environments in Western Balkan Universities (e-VIVA), ERASMUS+, 598307-EPP-1-2018-1-AL-EPPKA2-CBHE-JP.
2	Innovations for Big Data in a Real World (iBigWorld), ERASMUS+, 2020-1-PL01-KA203-082197
3	Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders (SWARM), ERASMUS+, 597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP.
4	Advanced Methods of Quantization, Compression and Learning in Artificial Intelligence (Com-in-AI), financed by Science Fund of Republic of Serbia – Artificial intelligence program.
5	SMART2 - Advanced integrated obstacle and track intrusion detection system for smart automation of rail transport financed by HORIZON 2020 Shift2Rail Innovation Action; Project number:881784.
6	RoboShepherd – automated animal husbandry and grazing system, cofinanced by Innovation fund of Republic of Serbia and COMING – Computer Engineering d.o.o. Ptoject number: IF 50123.
7	ATUVIS - Autonomous Trains Undercarriage Visual Inspection System, cofinanced by Innovation fund of Republic of Serbia and CAM Engineering Novi Sad. Project number: IF 50348
8	Erasmus+ Programme – Strategic Partnership Project Nr: 2019-1-RO01-KA203-063153 MIND project -Development of mechatronics skills and innovative learning methods for Industry 4.0.
9	Erasmus+ Programme – Strategic Partnership Project Nr: 2020-1-RO01-KA226-HE-095517 BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period.
10	ERASMUS+ пројекат „Active Learning Community for Upskilling technicians and Engineers (allCUTE)“, PROJECT NUMBER: 2020-1-BG01-KA202-079042.