
Technical Program

Thursday May 19th, 2022

08:30 - 09:00	Participants Registration
09:00 - 09:30	Opening Ceremony Prof. Nenad Filipović , Rector of the University of Kragujevac Prof. Vladimir S. Kostić , President of the Serbian Academy of Sciences and Arts Prof. Marijana Dukić Mijatović , State Secretary, Ministry of Education, Science and Technological Development Nikola Dašić , Mayor of the City of Kragujevac
09:30 - 10:00	Keynote speech Topic: On the Integration of Radiomics and Transcriptomics Markers Prof. Michalis Zervakis Chair: Nenad Filipović
10:00 - 10:30	Coffee Break
10:30 - 11:00	Keynote speech Topic: Machine Learning from Streaming Data with Scarce and Imprecise Labels Prof. Zoran Obradović Chair: Vesna Ranković

Session T.1A: 11:00-13:15

Mini-symposium III – Artificial Intelligence Applications in Social Sciences

Chair: Branko Urošević

T.1A.1 – Feature Selection Process for the Evaluation of European Countries' Innovativeness – *Edyta Bielińska-Dusza, Monika Hamerska, Magdalena Kotowicz, Paweł Lula*

T.1A.2 – Zero-shot Learning Applied to a Real-Life Chatbot – *Siniša Stanivuk, Andrija Petrović*

T.1A.3 – Billions of Vectors, Billions of Answers – *Miodrag Vladić*

T.1A.4 – FDI and Trade Outcomes at the Industry Level—A Data-Driven Approach – *Milan Nedeljković*

T.1A.5 – The Application of Machine Learning in Used Car Price Prediction and Recommendation – *Vukašin Vasiljević, Zoran Kalinić*

T.1A.6 – Quantitative Finance and the Revenge of the Geeks – *Vladimir Lučić*

T.1A.7 – Ontology-based Analysis of Job Offers for Doctors in Poland – *Paweł Lula, Marcela Zembura*

T.1A.8 – Yield Curve Arbitrage – A Hierarchical Correlation Reconstruction Approach –

Malgorzata Snarska, Przemyslaw Jasko, Jarek Duda

T.1A.9 – Multimodal Application of Graph Neural Network Recommendation Engine – Aleksa Radosavčević, Aleksandar Milutinović

Session T.2A: 13:15-14:00

Applied AI in Industry – (part I)

Chair: Anđela Blagojević

T.2A.1 – Machine Learning Regression Models Analysis - Piezometric Water Level Prediction Case Study – Vukašin Čirović, Vesna Ranković, Nikola Milivojević

T.2A.2 – Population-based Feature Selection for Intrusion Detection – Nikola Stevanović

Session T.1B: 11:00-14:00

Mini-symposium V – Supercomputing for Artificial Intelligence – (part I)

Chair: Vladimir Srdanović

T.1B.1 – How to build ethical AI? – Dragana Ignjatović Ristić

T.1B.2 – Artificial intelligence: The First Seven Decades – Vladimir Srdanović

T.1B.3 – Real-time Microcomputing: The First Seven Decades – Božidar Levi

T.1B.4 – Combining Logic and Optimization for Applications in Probabilistic and Non-monotonous Reasoning – Tatjana Stojanović

T.1B.5 – Fairness in Machine Learning: Why and How? – Mladen Nikolić

T.1B.6 – Applying AI Methods in Automated Theorem Proving for Software Verification – Filip Marić

T.1B.7 – Using Efficient Programming to Create Efficient Programs: Combining Easily Parallelizable Languages with Efficient C/C++/ASM Libraries – Saša Malkov

T.1B.8 – Applying the Big Data Analytics in Bioinformatics: A Practical Example – Nenad Mitić, Aleksandar Veljković, Mirjana Maljković, Saša Malkov, Minjie Lyu, Xin Lin, Marek Michalewicz, Guanglan Zhang, Vladimir Brusić

T.1B.9 – HR Analytics: The Serbian Perspective – Dragan Vukmirović, Željko Bolbotinović, Tijana Čomić, Nebojša Stanojević

T.1B.10 – Hybrid Medical Records System for Artificial Intelligence: Essence and Challenges – Miroslav Bojović, Dragan Bojić, Nenad Korolija, Veljko Milutinović

T.1B.11 – Natural Languages and Programming Languages: A Case Study – Boško Nikolić, Dražen Drašković, Vuk Batanović

T.1B.12 – Modelling Subreddit Interactions by Activity Overlap – Nikola Aleksić, Ema Pajić, Predrag Obradović, William Power, Marko Mišić, Zoran Obradović

14:00 - 15:00	Buffet Lunch
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15:00 - 15:30	Keynote speech Topic: DataFlow SuperComputing for BigData DeepAnalytics Prof. Veljko Milutinović Chair: Vladimir Ranković
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Session T.3A: 15:30-17:00

Applied AI in Industry – (part II)

Chair: Miloš Ivanović

T.3A.1 – Recurrent Neural Networks for the Prediction of Seat-to-head Transfer Functions – *Igor Saveljić, Slavica Mačužić Saveljić, Branko Arsić, Nenad Filipović*

T.3A.2 – Energy Management Platform Based on Automated Machine Learning – *Boško Laković, Nikola Andrijević, Lazar Krstić, Branka Jovanović, Dušan Stefanović, Nikola Bojović, Miloš Ivanović, Boban Stojanović*

T.3A.3 – Physics Informed Neural Networks for 1D Flood Routing – *Filip Bojović, Miloš Milašinić, Branka Jovanović, Lazar Krstić, Boban Stojanović, Miloš Ivanović, Dušan Prodanović, Nenad Jaćimović, Nikola Milivojević*

T.3A.4 – Fast Self Learning Spectral Clustering – *Aleksandar Trokicić, Branimir Todorović*

T.3A.5 – Modeling 2D Steady Flow through a Porous Medium with Free Surface Using Physics-Informed Neural Networks – *Branka Jovanović, Miloš Ivanović, Boban Stojanović, Filip Bojović, Nikola Andrijević*

T.3A.6 – Artificial Intelligence in Revealing Air Pollution-related Processes – *Andreja Stojić, Mirjana Perišić, Gordana Jovanović, Svetlana Stanišić*

Session T.2B: 15:30-17:00

Mini-symposium V – Supercomputing for Artificial Intelligence – (part II)

Chair: Miloš Kotlar

T.2B.1 – Hybrid Supercomputing Architectures for Artificial Intelligence: Analysis of Potentials – *Jovan Popović, Vladislav Jelisavčić, Nenad Korolija*

T.2B.2 – Detection of Anomalies using Metadata in Automated Machine Learning Systems – *Miloš Kotlar*

T.2B.3 – Applications of Machine Learning in Query Execution of Database Systems – *Zoran Babović, Filip Hadžić*

T.2B.4 – Compensating the Lack of Big Data in Construction Industry Using Expert Knowledge: A Case Study – *Zoran Stojadinović*

T.2B.5 – Axial Strength Prediction of Square CFST Columns Based on The Ann Model – *Filip Dorđević, Svetlana Kostić*

T.2B.6 – Artificial Intelligence in Agriculture – *Miloš Kovačević, Petar Bursać, Branislav Bajat, Milan Kilibarda*

17:00 - 17:30	Presentation: <u>Winners of the “Best Technological Innovation in 2021” award, Farmbot d.o.o. Novi Sad</u> Coffee Break
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Session T.4A: 17:30-18:15

Applied AI in Industry – (part III)

Chair: Aleksandar Aleksić

T.4A.1 – Dimensionality Reduction in Computationally Intelligent Photoacoustic Measurement

Data Processing – Miroslava *Jordovic Pavlovic*, Marica *Popović*, Slobodanka *Galović*, Katarina *Dorđević*, Miodjub *Nešić*, Dragana *Markushev*, Dragan *Markushev*

T.4A.2 – The Projects Evaluation and Selection by using MCDM and Intuitionistic Fuzzy Sets – Aleksandar *Aleksić*, Snežana *Nestić*, Danijela *Tadić*

T.4A.3 – Cost Effectiveness Analysis of Real and In-silico Clinical Trials for Stent Deployment – Marija *Gačić*, Milica *Kaplarević*, Nenad *Filipović*

Session T.5A: 18:15-19:15

Mini-symposium IV – Artificial Intelligence and Entrepreneurship

Chair: Dubravko *Čulibrk*

T.5A.1 – Remote Sensing for Soil Organic Carbon – Marko *Pavlović*, Nenad *Antonić*, Gavriilo *Bosakov*, Slobodan *Ilić*, Dubravko *Čulibrk*

T.5A.2 – Decentralized Markets Design and Symbolic AI Methods – Dragiša *Žunić*

T.5A.3 – Artificial Intelligence as a Monetary Asset in Agriculture – Petar *Šolić*, Toni *Perković*, Lea *Dujić Rodić*

T.5A.4 – Implementation of Deep Learning to Prevent Peak-Driven Power Outages within Manufacturing Systems – Milovan *Medojević*, Marko *Vasiljević Toškić*

Session T.3B: 17:30-19:15

Mini-symposium V – Supercomputing for Artificial Intelligence – (part III)

Chair: Veljko *Milutinović*

T.3B.1 – The Mission of Biosense Institute, Novi Sad: Digital Transformation of Agriculture – Vesna *Bengin*

T.3B.2 – Development of Speech Technology for Serbian and its Applications – Vlado *Delić*, Darko *Pekar*, Milan *Sečujski*, Branislav *Popović*, Edvin T. *Pakoci*, Siniša *Suzić*

T.3B.3 – Synergizing Artificial Intelligence and Real-time Microcomputing: A Summary of Selected Education-oriented Efforts – Veljko *Milutinović*, Jakob *Salom*

T.3B.4 – Smart Specialization Strategy of Serbia – Mirjana *Kranjac*

T.3B.5 – Efforts Related to Teaching Infrastructure for AI: From Elementary Schools to Universities – Saša *Stojanović*, Danijela *Šćepanović*, Katarina *Aleksić*

T.3B.6 – Artificial Intelligence for Mobile Network Design and Planning – Aleksandar *Nešković*, Nataša *Nešković*

T.3B.7 – Conclusions – Veljko *Milutinović*

20:00 - 24:00

Gala Dinner

Friday May 20th, 2022

10:00 - 10:30	Keynote speech Topic: Artificial Intelligence for Speech Reproduction with Natural Voice in Patients after Tracheostomy Prof. Themis Exarchos Chair: Tijana Šušteršič
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10:30 - 11:00	Coffee Break
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Session F.1A: 11:00-12:00

Applied AI in Live Science – (part I)

Chair: Zlatan Car

F.1A.1 – Utilization of Genetic Programming for Estimation of Molecular Structures Ground State Energies – *Nikola Anđelić, Sandi Baressi Šegota, Ivan Lorencin, Matko Glučina, Jelena Musulin, Daniel Štifanić, Zlatan Car*

F.1A.2 – Efficient Model for English to Serbian Neural Machine Translation – *Dragutin Ostojić, Branko Arsić, Tatjana Stojanović, Neda Vidanović Miletić*

F.1A.3 – Data-Driven Solution Of 1-D Stefan Problem – *Srđan Nikolić, Miloš Ivanović, Ana Kaplarević-Mališić*

F.1A.4 – Optimization of Controller Parameters Using Neural Network Based Learning – *Tamara Nestorović, Amit Kumar Pal*

Session F.1B: 11:00-12:00

Applied AI in Medicine - (part I)

Chair: Smiljana Tomašević

F.1B.1 – Histopathological H&E-Stained Image Analysis Based on AI – *Jelena Musulin, Daniel Štifanić, Ana Zulijani, Sandi Baressi Šegota, Nikola Anđelić, Ivan Lorencin, Matko Glučina, Zlatan Car*

F.1B.2 – Cancer Rates per Country - Determining the Importance of Country Level Factors Using Random Forest Regressor – *Sandi Baressi Šegota, Nikola Anđelić, Ivan Lorencin, Jelena Musulin, Daniel Štifanić, Matko Glučina, Zlatan Car*

F.1B.3 – Comparison of Image Augmentation Techniques in Urinary Bladder Cancer Diagnostics – *Ivan Lorencin, Sandi Baressi Šegota, Matko Glučina, Nikola Anđelić, Daniel Štifanić, Jelena Musulin, Josip Španjol, Zlatan Car*

F.1B.4 – Attention-based Graph Classification for Prediction in Immunotherapy Response – *Anđela Todorović, Milan Bašić*

12:00 - 12:30	<p>Keynote speech</p> <p>Topic: Artificial Intelligence for Agriculture and The Environment</p> <p>Prof. Sašo Džeroski</p> <p>Chair: Nikola Radovanović</p>
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<p>Session F.2A: 12:30-14:00</p> <p>Applied AI in Live Science – (part II)</p> <p>Chair: Marko Živanović</p>
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F.2A.1 – COVID-19 Disease Severity Prediction Model Based on Blood Biomarkers: A Machine Learning Approach – *Anđela Blagojević, Tijana Šušteršič, Ivan Lorencin, Sandi Baressi Šegota, Dragan Milovanović, Danijela Baskić, Dejan Baskić, Zlatan Car, Nenad Filipović, Nataša Zdravković, Sara Mijailović, Nebojša Zdravković*

F.2A.2 – Application of Artificial Intelligence in the Design of Warfarin Derivatives to Overcome VKOR1 Mutation-induced Warfarin Resistance – *Marko Antonijević, Žiko Milanović, Edina Avdović, Dušica Simijonović, Zoran Marković*

F.2A.3 – Application of Molecular Modeling for Predicting New Structures of Potential Drugs – *Žiko Milanović, Jelena Đorović Jovanović, Dejan Milenković, Zoran Marković*

F.2A.4 – Examination of Gene Expression of Molecular Mechanisms of Migration, Apoptosis and Redox Status of Colorectal Carcinoma Cells – *Jelena Pavić, Marko Živanović, Katarina Virijević, Nikolina Kastratović, Ana Mirić, Tijana Šuštrešić, Anđela Blagojević, Irena Tanasković, Nenad Filipović*

F.2A.5 – Controlled Drug Release from a 3D Printed Tablet – *Ana Mirić, Jelena Pavić, Leo Benolić, Dalibor Nikolić, Nevena Milivojević, Marko Živanović, Irena Tanasković, Nenad Filipović*

F.2A.6 – Use of Neural Networks in Optimization of Electrospun Derived Scaffolds – *Marko Živanović, Dalibor Nikolić, Katarina Virijević, Nenad Filipović*

<p>Session F.2B: 12:30-14:00</p> <p>Applied AI in Medicine - (part II)</p> <p>Chair: Bogdan Milićević</p>

F.2B.1 – Pose Estimation and Joint Angle Detection Using MediaPipe Machine Learning Solution – *Katarina Mitrović, Danijela Milošević*

F.2B.2 – Solving the Huxley Equation for Isometric Muscle Contraction Using Physics-informed Neural Network – *Bogdan Milićević, Miloš Ivanović, Boban Stojanović, Nenad Filipović*

F.2B.3 – Baselines for Automatic Medical Image Reporting – *Franco Alberto Cardillo*

F.2B.4 – Second Opinion NET: A Novel Neural Network Architecture to Detect Coronary Atherosclerosis in Coronary CT Angiography – *Mahmoud Elsayed, Nenad Filipović*

F.2B.5 – Improved Three-dimensional Reconstruction of Patient-Specific Carotid Bifurcation Using Deep Learning Based Segmentation of Ultrasound Images – *Miloš Anić, Tijana Đukić, Branko Gaković, Branko Arsić, Nenad Filipović*

F.2B.6 – Intelligent Computerized Maintenance Management System for Medical Device Management – *Lemana Spahić Bećirović, Amar Deumić, Lejla Gurbeta Pokvić, Almir Badnjević*

14:00 - 15:00	Buffet Lunch
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Session F.3A: 15:00-16:15

Mini-symposium II – Artificial Intelligence in Medicine: Current Situation and Future Trends – (part I)

Chair: Tijana Šušteršič

F.3A.1 – Application of Artificial Intelligence in Medicine: From Data to Personalised Models – *Tijana Šušteršič, Anđela Blagojević, Nenad Filipović*

F.3A.2 – Analysis of COVID-19 Disease Using Machine Learning - Personalized Model – *Anđela Blagojević, Tijana Šušteršič, Ivan Lorencin, Sandi Baressi Šegota, Nikola Anđelić, Dragan Milovanović, Dejan Baskić, Zlatan Car, Nenad Filipović*

F.3A.3 – SegNet Architecture Based Model for Carotid Artery Segmentation – *Nikola Radovanović, Lazar Dašić, Nenad Filipović*

F.3A.4 – Liver Tracking for Intraoperative Augmented Reality Navigation System – *Lazar Dašić, Nenad Filipović*

F.3A.5 – 3D Reconstruction of Patient-Specific Carotid Artery Geometry from 2D Ultrasound Images – *Jovana Nikolić, Nenad Filipović*

Session F.3B: 15:00-15:45

Applied AI in Medicine - (part III)

Chair: Dalibor Nikolić

F.3B.1 – Computational Modeling: An Emerging Application for Drug-Coated Balloon Therapy – *Safi Ur Rehman Qamar, Aleksandar Milovanović, Nenad Filipović*

F.3B.2 – Shear Stress in Arteries with Myocardial Bridge Predicted with Neural Networks – *Dalibor Nikolić, Igor Saveljić, Nenad Filipović*

F.3B.3 – Parameter Optimization of Tumor Drug Delivery Model Using Genetic Algorithms – *Vladimir Simić, Bogdan Milićević, Miljan Milošević, Arturas Žiemys, Nenad Filipović, Miloš Kojić*

Session F.4B: 15:45-16:15

Mini-symposium I – Soft Computing Techniques in Multi-Criteria Optimization Problems

Chair: Mališa Žižović

F.4B.1 – Application of MCDM DIBR-ROUGH MABAC Model for Selection of Drone for Use in Natural Disaster Caused by Flood – *Tešić Duško, Božanić Darko, Boža Miljković*

F.4B.2 – Modification of the CRITIC Method Using Fuzzy Rough Numbers – *Dragan Pamučar, Mališa Žižović, Dragan Đurčić*

F.4B.3 – Detection of Anomalies in the Computer Networks: Feature Scaling Methodology – *Danijela Protić, Miomir Stanković*

16:15 - 16:45	Keynote speech Topic: Optimization Techniques in AI: Perspectives Prof. Priyanka Harjule Chair: Aleksandra Vulović
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16:45 - 17:15	Coffee Break
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Session F.4A: 17:15-18:00

Mini-symposium II – Artificial Intelligence in Medicine: Current Situation and Future Trends – (part II)

Chair: Lazar Dašić

F.4A.1 – Mathematical Modeling of COVID-19 Spread Using Genetic Programming Algorithm – *Leo Benolić, Anđela Blagojević, Tijana Šušteršič, Zlatan Car, Nenad Filipović*

F.4A.2 – Combined Finite Element Method and Machine Learning Toward Analysis of Myocardial Ischemia – *Smiljana Tomašević, Marko Robnik Šikonja, Nenad Filipović*

F.4A.3 – Shear Stress Classification for the Finite Element Analysis of Hip Implant Surface Topographies – *Aleksandra Vulović, Tijana Šušteršič, Nenad Filipović*

Session F.5B: 17:15-18:00

Applied AI in Arts and Social Sciences

Chair: Vladimir Milovanović

F.5B.1 – Digital Platform as the Communication Channel for Challenges in Artificial Intelligence – *Jelena Marković, Dorđe Ilić, Nikola Mitrevski, Tijana Šušteršič, Fatima Živić, Nenad Filipović*

F.5B.2 – A Reinforcement Learning Model for Playing a Fishing Card Game "Tablić" – *Nikola Kilibarda, Mladen Ravlić, Vladimir Milovanović*

F.5B.3 – Human Rights Mining: Artificial Intelligence and Reproductive Autonomy – *Dragan Dakić*

18:00 - 18:30

Closing Ceremony