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## Technical Program

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**Thursday 23 May 2024**

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| 09:00 - 09:30 | Opening Ceremony - Day I:<br><b>Jelena Begović</b> , Minister of Science, Technological Development and Innovation, Republic of Serbia<br><b>Nikola Dašić</b> , Mayor of the City of Kragujevac<br><b>Prof. Nenad Filipović</b> , Rector of the University of Kragujevac |
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| 09:30 - 10:30 | Keynote speakers:<br><b>4D Flow MRI: Efficient Acquisition and Deep Learning Strategies for Assessment of Hemodynamics</b><br><b>Prof. Amir A. Amini</b><br><b>Successful Engineering Education Requires Applied Industry Projects</b><br><b>Prof. Borko Furht</b><br>Chair: Nenad Filipović |
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| 10:30 - 11:00 | Coffee Break |
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| 11:00 - 12:00 | Keynote speakers:<br><b>Protecting Vehicle Privacy against AI-Enhanced Attackers in Intelligent Transportation Systems</b><br><b>Prof. Israel Koren</b><br><b>Characterizing Disruptive Events by Modeling Dynamics in Multiplex Networks</b><br><b>Prof. Zoran Obradović</b><br>Chair: Veljko Milutinović |
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**Session T.1A 12:00-14:00**

**Mini-Symposium I – AI in Energy and Environmental Science**

Chair: Boban Stojanović

- T.1A.1 Deep neural network models for dynamic resilience estimation of a complex water system under hazards** - Vukašin Ćirović, Milan Stojković, Vladimir Milivojević
- T.1A.2 Temperature as a factor shaping dissolved oxygen in the Danube river** - Irena Todorović, Branislav Kisačanin, Milan Stojković
- T.1A.3 Recurrent Neural Networks for Energy Management Systems: A Case Study** - Jelena Joksimović, Jure Kos, Krištof Debeljak, Janez Povh
- T.1A.4 Evaluating Bayesian Approaches for Water Quality Classification: A Comparative Study** - Ana Dodig, Tatjana Lutovac
- T.1A.5 Exploring machine learning approaches for predicting the resilience of water resources system under hazardous events** - Aleksandra Z. Kazaković, Višnja M.

Simić and Vukašin B. Ćirović

**T.1A.6 Application of artificial intelligence in approximating 2D hydraulic calculations** - Boško Laković, Dušan Stefanović, Uroš Stanković, Luka Stojadinović, Boban Stojanović

**T.1A.7 A comparative study of autotml libraries and hyperparameter tuning techniques** - Radovan Drašković, Marija Jolović, Miloš Ivanović, Boban Stojanović

**T.1A.8 Treatment of non-physical Solutions of the Oxygen Diffusion in Soil by Physics-Informed Neural Network** - Miloš Ivanović, Ljubica Kuzmanović, Andreja Živić, Milan Kovačević, Svetislav Savović

#### **Session T.1B 12:00-14:00**

##### **Mini-Symposium III – AI in Computer Vision and Remote Sensing**

Chair: Marko Pavlović

**T.1B.1 Efficient sequential detection: enhancing cancer detection in sequential MRI sequences** - Aleksandar Cvetković, Veljko Papić

**T.1B.2 Improving velocity estimation in GPR recordings using machine learning approach** - Daniel Štifanić, Jelena Štifanić, Sandi Baressi Šegota, Nikola Anđelić and Zlatan Car

**T.1B.3 Evaluating GDPR and HIPAA in the integration of ML/AI for future-proofing healthcare** - Saso Nikolovski, Anita Petreska

**T.1B.4 Application of remote sensing indices in vegetation monitoring** - Marko Pavlović, Karlo Bala

**T.1B.5 Multi-class birads categorization of mammographs using neural networks** - Vanja Švenda, Nikola Jovišić, Milica Škipina, Slobodan Ilić

**T.1B.6 AI-Driven Soil Property Estimation** - Karlo Bala, Marko Pavlović

**T.1B.7 The impact of artificial intelligence on digital marketing** - Ana Spasojević, Stefan Zdravković, Aleksandar Milovanović

**T.1B.8 Human right to artificial intelligence: an alternative regulatory framework** - Dragan Dakić

#### **Workshop C 12:00-18:00**

##### **Artificial Intelligence for Improved Diagnosis of Heart Failure – The INTELHEART Project**

Chair: Smiljana Tomašević

- The aim and vision of INTELHEART project
- The INTELHEART clinical study and data usage following FAIR principles
- The latest advancements in AI-driven diagnosis of heart failure
- Introducing the concept of INTELHEART platform and integration of machine learning, computational modeling, and vocal biomarkers
- Utilization of voice characteristics to assess emotional disturbance and psychological resilience in cardiovascular diseases
- Networking with leading experts, clinicians, researchers, and stakeholders in the field

**Rectorate ground floor 12:00-14:00**

**Online:** <https://bbb.unic.kg.ac.rs/b/djo-ao0-8zf-dyl>

**WICT ME in Serbia**

**Chair:** Vladimir Ranković

- Presentation of the project and WICT short-cycle programme
- Overview of courses
- Q&A and networking with leading experts, researchers, and stakeholders in the field of AI and DS

14:00 - 15:00

Buffet Lunch

**Session T.2A 15:00-17:00**

**Mini-Symposium II –AI & IoT for Smart Industry and Big Data**

**Chair:** Milovan Medojević

**T.2A.1 The future of Manufacturing: Generative AI and Beyond** - Aleksandar Rikalović, Bojana Bajić, Miloš Jovičić, Milovan Medojević

**T.2A.2 Symbolic AI in verifiable design of financial exchanges** - Dragisa Žunić, Milovan Medojević, Miloš Jovičić

**T.2A.3 Evaluation of using balanced and unbalanced data for smart city solution based on IoT using classification and adaboostm1** - Valerij Grašić

**T.2A.4 Edge Intelligence for Cybersecurity: AI-Powered Threat Detection in Hardware Infrastructure** - Milovan Medojević, Velibor Ilić, Dragiša Žunić, Aleksandar Rikalović

**T.2A.5 Dataflow Hardware Advancements for Supporting Artificial Intelligence Algorithms** - Nenad Korolija

**T.2A.6 AI-Powered Prior Art Search: Towards Enriching Intellectual Property Management?** - Ana Hafner, Dolores Modic, Nadja Damij, Andrej Furlan

**T.2A.7 The evaluation of retrieval augmented generation tasks for different large language models fine-tuned for the Serbian language** - Mina Nikolić, Aleksandar Stanimirović, Leonid Stoimenov

**T.2A.8 Graph Neural Networks and Transformer Embeddings: A Hybrid Approach to Improving Recommender Systems** - Marko Njegomir, Matija Matović

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

**Machine Learning and Data Mining**

**Chair:** Vladimir Ranković

**T.2B.1 Sustainable Concrete Mix Designs by Machine Learning Approaches** - Ayman Karaki, Ahmad Hammoud, Bekassyl Battalgazy and Miloš Dujović\*

**T.2B.2 Advanced risk management practices – the application of the exact solutions methods for resilience factors improvement** - Aleksandar V. Aleksić, Michael Huber\*, Danijela P. Tadić and Snežana B. Nestić

- T.2B.3 Scaling methodology and phase portraits analysis** - Alina Fedorova, Kipelkin Ivan, Ivana Krtolica, Max Talanov
- T.2B.4 Processing of big data after transcriptome sequencing at single cell resolution** - Nevena Milivojević Dimitrijević, Biljana Ljujić, Marina Gazdić Janković, Ana Mirić, Marko Živanović, Nenad Filipović
- T.2B.5 Local Execution of Large Language Models: Democratizing AI through On-Device Optimization** - Kristina Jovanović, Milan Bjelica
- T.2B.6 Community event discovery using x datastream** - Adedotun Ogundare, Stevan Gostojić, Abdullahi Saleh, James Orban
- T.2B.7 Design of new potential inhibitor of the GABA<sub>A</sub> receptor assisted by artificial intelligence** - Tamara Mladenović, Dusica Simijonović, Dejan Milenković, Marko Antonijević, Edina Avdović, Sandra Milić, Zoran Marković
- T.2B.8 Multi-layer spectral clustering algorithm based on an adjustment of Laplacian matrix** - Aleksandar Trokičić, Milan Bašić
- T.2B.9 Comparing different approaches for modelling soil properties from Near infrared spectroscopy data** - Ognjen Antonijević, Branislav Bajat, Milan Kilibarda, Dragutin Protić, Aleksandar Sekulić, Petar Bursać, Milutin Pejović, Slobodan Jelić

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| 17:00 - 17:30 | Coffee Break |
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| 17:30 - 18:00 | <p>Keynote speakers:</p> <p><b>Integrating AI and IoT for Personalized Healthcare</b></p> <p><b>Prof. Emil Jovanov</b></p> <p>Chair: Amir Amini</p> |
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#### **Session T.3A: 18:00-20:15**

##### **Mini-Symposium VII: Heritage Mining: Theory and Examples**

Chair: Veljko Milutinović

- T.3A.1 Modeling user behavior in big systems** - Milan Bradonjić
- T.3A.2 Heritage Mining: Theory and Examples** - Veljko Milutinović
- T.3A.3 Correlation-Based Dimensionality Reduction for Multi-Source Samples** - Saša Malkov, Vladimir Brusić, Nenad Mitić
- T.3A.4 Text-to-SQL translation: Application of deep learning approach for Serbian language** - Zoran Babović
- T.3A.5 Can ChatGPT write parallel code?** - Marko Mišić, Matija Dodović
- T.3A.6 Applied Artificial Intelligence in detecting Hate Speech** - Jelica Cincović, Uroš Radenković, Marko Mićović, Adrian Milaković, Vladimir Jocović and Dražen Drašković
- T.3A.7 Data analysis techniques and detection of propaganda in Serbian online media in 2023** - Dražen Drašković, Mihajlo Ogrizović, Matija Dodović, Miloš Obradović
- T.3A.8 Scientific production and collaboration patterns of medical researchers: a case study in epidemiology and infectious diseases** - Iva Potkonjak, Predrag Obradović and Marko Mišić

- T.3A.9 Transforming learning: adapting to generative AI technologies in Serbian educational paradigm** - Nebojša Stanojević, Ranka Popovac, Tijana Čomić, Uroš Milićević, Dragan Vukmirović
- T.3A.10 Physics-Informed Neural Networks for Streamlined Snap-Through Instability Analysis of Shallow Truss** - Filip Đorđević, Marko Marinković

**Session T.3B: 18:00-20:15**

**AI in Domain-specific application**

Chair: Aleksandra Vulović

- T.3B.1 Analysis of association between social media signals and stock return on Asian markets** - Milan Zdravković, Pavel Dudko
- T.3B.2 Influence of Dimensionality Reduction Approaches on Various Machine Learning Models for a Biomedical High-Dimension Dataset** - Sandi Baressi Šegota, Nikola Anđelić Jelena Štifanić, Daniel Štifanić, Zlatan Car
- T.3B.3 Fuzzy-based characterization of ovarian tumors** - Marija Branković, Ana Mirić, Tijana Geroski, Marko Živanović, Nenad Filipović
- T.3B.4 Machine learning-based prediction of immunomodulatory properties of polymers: towards a faster and easier development of anti-inflammatory biomaterials** - Aghilas Akkachea, Lisa Clavier, Oleh Mezhenskyid, Kateryna Andriienkova, Thibaut Soubriéd, Philippe Lavalie, Nihal Engin, Varvara Gribova
- T.3B.5 Comparing Vision Transformers and Convolutional Neural Networks for Fungi Microscopic Image Classification** - Mina Milanović, Aleksandar Milosavljević, Dragan Janković and Marina Randelović
- T.3B.6 Turbojet engine control with neural network-based feedforward** - Luka Miličić, Vladimir Kuzmanović, Ivana Todić
- T.3B.7 Application of recurrent neural networks in Assessing Drivers' Oscillatory Comfort during fore-and-aft vibrations** - Igor Saveljić, Slavica Mačužić Saveljić, Tijana Đukić, Branko Arsić, Nenad Filipović
- T.3B.8 Parameter Sensitivity Analysis in Multiscale Agent-Based Modeling of Atherosclerotic plaque progression** - Lemana Spahić, Leo Benolic, Safi Ur-Rehman Qamar, Nenad Filipović
- T.3B.9 Deep learning segmentation of the porcine superficial femoral arteries oct images** - Miloš Anić, Sotiris Nikopoulos, Siaravas Konstantinos, Christos Katsouras, Vassiliki Potsika, Nenad Filipović, Dimitrios Fotiadis

20:30 - 24:00

Gala Dinner

**Friday 24 May 2024**

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| 9:00 - 9:30 | Keynote speaker:<br><b>AI-disrupted Medicine and How to Apply it in Serbia</b><br><b>Prof. Dubravko Ćulibrk</b><br>Chair: Tijana Geroski |
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| 9:30 - 10:00 | Coffee Break |
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**Session F.1A: 10:00-11:30**

**Mini-Symposium IV: AI and Social Wellbeing**

Chair: Ljubiša Bojić

- F.1A.1 A novel model for diversifying ai based recommender systems for societal well-being** - Zorica Dodevska, Ljubiša Bojić, Boris Delibašić
- F.1A.2 Benchmarking GPT-4 in sentiment analysis and bias detection: an evaluation of advanced large language models in textual understanding** - Ljubiša Bojić, Nenad Pantelić, Milan Čabarkapa
- F.1A.3 Adapting all-optical activation functions for predicting stock prices on the Frankfurt stock exchange** - Mladen Banović, Mihailo Todorović, Marko Barjaktarović, Lidija Barjaktarović, Jasna Crnjanski, Marko Krstić, Dejan Gvozdić
- F.1A.4 Unmanned Vehicles - Technical perspective of AI applications and social impact** - Vladimir Đapić, Isidora Grujić, Marijana Gavrilović Božović, Mina Vasković Jovanović, Jasna Radulović, Milan Čabarkapa
- F.1A.5 Application of the AHP method to the investment management of local municipalities and countries** - Aleksandar Kemiveš, Jelena Mišić

**Session F.1B: 10:00-11:30**

**AI in Domain-specific application**

Chair: Emil Jovanov

- F.1B.1 Artificial intelligence anxiety among young adults in Montenegro** - Irina Stamatović, Hakile Resulbegoviq
- F.1B.2 Can artificial intelligence mitigate intra-organizational moral outrage? A theory-based model** - Marko Selaković, Nikolina Ljepava, Marija Gačić, Nenad Filipović
- F.1B.3 AI-generated softfakes as disruptors of politician-citizen interaction: ethical considerations** - Nikolina Ljepava, Marko Selaković, Marija Gačić, Nenad Filipović
- F.1B.4 Predicting electrospun PCL/PEG nanofiber diameter using artificial neural network** - Jana Baščarević, Katarina Virijejić, Leo Benolić, Marko Živanović, Nenad Filipović
- F.1B.5 Factors influencing ai prediction of socially undesirable behaviors of foster care children** - Ana Miletić Vučković, Marko Selaković, Nikolina Ljepava, Marija Gačić, Nenad Filipović
- F.1B.6 Feature selection for lying posture classification** - Đorđe Nešković, Ilija Tanasković,

Nadica Miljković

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| 11:30 - 12:00 | <p>Keynote speaker:</p> <p><b>Using Explainable AI (xAI) to Predict the Conversion from Mild Cognitive Impairment to Alzheimer's Disease</b></p> <p><b>Prof. Themis Exarchos</b></p> <p>Chair: Smiljana Tomašević</p> |
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**Session F.2A: 12:00-13:30**

**Mini-Symposium V: Future of Workforce**

Chair: Jelena Čulibrk

- F.2A.1 AI as a Catalyst for Research Talent Development: Elevating Employer Branding to Forge a Cutting-Edge Workforce** - Milica Brković, Jelena Čulibrk, Jelena Spajić, Nemanja Tasić
- F.2A.2 The role of artificial intelligence in transforming hotels in developing countries, with a special focus on the republic of Serbia** - Tamara Gajić, Andrea Ivanišević
- F.2A.3 How artificial intelligence is transforming human resource management?** - Gala Šikoparija, Jelena Čulibrk, Bojana Jkanović, Nenad Medić
- F.2A.4 Enhanced Biomarker Detection and Health Monitoring Using AI-Driven Multi-Sensor Integration** - Matija Štrbac, Miloš Kostić, Goran Bijelić
- F.2A.5 DeepTech2M search API for Research Funding** - Luka Todorović, Jelena Tomić, Ana Kaplarević Mališić, Nenad Grujović, Fatima Živić

**Session F.2B: 12:00-13:30**

**AI in Domain-specific application**

Chair: Igor Saveljić

- F.2B.1 Automatization of 3D reconstruction of coronary arteries from angiography projections using AI-enhanced segmentation techniques** - Tijana Đukić, Ognjen Pavić, Lazar Dašić, Tijana Geroski, Nenad Filipović
- F.2B.2 Artificial intelligence-based anomaly detection with identifying and mitigating abnormal traffic patterns associated with the ddos attack in software-defined networking** - Stefan Biševac, Aleksandar Atanasijević, Aleksandar Jokić, Marko Šarac
- F.2B.3 Machine learning approach for predicting judicial case outcome** - Adedotun Ogundare, Stevan Gostojic, Augustine Tarawali, David Soumano
- F.2B.4 Impact of the development of artificial intelligence on the stock market** – Nemanja Lojanica, Dragan Stojković, Milica Kaplarević
- F.2B.5 Exploring Word2Vec Models for Capturing the Similarity of Codon Embeddings** - Anđa Denić, Jelena Pejić, Aleksandar Trokičić
- F.2B.6 On Semantic Association Capabilities of GPT LLMs in a Game of Word Associations** - Aleksandar Kondić, Vladimir Milovanović

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| 13:30 - 14:30 | Buffet Lunch |
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**Session F.3A: 14:30-16:00**

**Mini-Symposium VI\_1: Delivering on the Promise of AI to Improve Health Outcomes**

Chair: Tijana Geroski

- F.3A.1 Multilabel classification process optimization through the utilization of transfer learning approaches supported by decision postprocessing techniques** - Ognjen Pavić, Tijana Geroski, Lazar Dašić, Nenad Filipović
- F.3A.2 Pixels to Prognosis: A Data-Driven Deep Learning Approach for Gastric Cancer diagnosis** - Đorđe Karisic, Tijana Geroski, Vesna Ranković, Nenad Filipović
- F.3A.3 Development of convolutional neural network for classification of heart sounds utilizing mel-frequency cepstral coefficients** - Lazar Dašić, Tijana Geroski, Ognjen Pavić, Nenad Filipović
- F.3A.4 AI- and Computer-Based Module for 3D Reconstruction of Patient-specific Carotid Arteries and Plaque Progression Simulation** - Smiljana Tomašević, Tijana Đukić, Miloš Anić, Branko Arsić, Igor Saveljić, Branko Gaković, Igor Končar, Nenad Filipović
- F.3A.5 Folder design optimization with genetic algorithm for drug coated balloon folding** - Leo Benolić, Stratakis Efstathios, Elisabetta Stretti, Giancarlo Pennati, Spyridon Psarras, Vassilis Kostopoulos, Nenad Filipović
- F.3A.6 Development of a platform for displaying medical results** - Jelena Živković, Đorđe Ilić, Ognjen Pavić, Lazar Dašić, Tijana Geroski, Tijana Đukić, Nenad Filipović
- F.3A.7 Predicting absorbance for different concentration of AgNPs using artificial neural network** - Leo Benolić, Safi Ur Rehman Qamar, Lemana Spahić, Nenad Filipović
- F.3A.8 Identification of Potential Biomarkers and Pathways in Dilated Cardiomyopathy Using Bioinformatics Analysis** - Tamara Mladenović, Sanja Matić, Jelena Pavić, Katarina Virijević, Nenad Filipović

**Session F.3B: 14:30-15:30**

**AI in Domain-specific application**

Chair: Dubravko Čulibrk

- F.3B.1 A brief survey of ai-based methods in astrodynamics problems with disturbances, noises and uncertainties** - Natalia Amelina, Oleg Granichin, Yury Ivanskiy, Kseniia Kopylova, Margarita Maksimenko, Vadim Sakharov and Aleksei Tikhonov
- F.3B.2 AI-based intelligence versus individual intelligence: Regarding designing better environmental policies** - Petraq Papajorgji, Howard Moskovitz
- F.3B.3 Artificial intelligence in project management**, Branislav Zobenica and Borka Radovanović

16:00 - 16:30

Coffee Break

**Session F.4A: 16:30-18:30**

**Mini-Symposium VI\_2: Delivering on the Promise of AI to Improve Health Outcomes**

Chair: Marko Živanović

- F.4A.1 The use of artificial intelligence in predicting the significance of markers related to cell movement** - Dragana Šeklić, Dalibor Nikolić, Milena Jovanović, Katarina Virijeвиć, Marko Živanović, Biljana Ljujić, Igor Saveljić, Nenad Filipović
- F.4A.2 AI-Enhanced Extended Reality in Medicine** - Filip Filipović, Tijana Geroski, Aleksandra Vulović, Nenad Filipović
- F.4A.3 Utilization of Augmented reality for improvement of balance disorders** - Đorđe Ilić, Aleksandra Vulović, Nenad Filipović
- F.4A.4 Overview of the Integration of Genetic Algorithms and Reinforcement Learning Techniques** - Bogdan Milićević, Vladimir Milovanović, Miljan Milošević, Nenad Filipović
- F.4A.5 Cardiac segmentation using unetr: a transformer based deep learning approach on the accdc dataset** - Tijana Geroski, Ognjen Pavić, Lazar Dašić, Amir Amini, Nenad Filipović
- F.4A.6 The possibility of bone fracture prediction in osteoporosis treatment through use of ai** - Gordana Jovičić, Aleksandra Vulović, Arso Vukićević, Miloš Jovičić, Nenad Đorđević, Nenad Filipović
- F.4A.7 Internet of medical things (iomt): smart hearing aids, today and tomorrow** - Vesna Simikić, Ivana Maletić-Sekulić
- F.4A.8 Evaluation of magnetized micro- and nano-object parameters using artificial intelligence** - Vitaly Goranov, Alexander Makhaniok

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| 18:30 - 19:00 | Closing Ceremony |
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