

# Programme of the 14th International Conference on Information Society and Technology – ICIST 2024

Kopaonik, Serbia, March 10-13, 2024

## **Sunday, 10.3.2024**

15:30 – 17:00 Registration

17:00 – 20:00 Keynotes session (Room Pančić 1)

- Vladimir Crnojević, BioSense Institute
- Vladan Devedžić, University of Belgrade, Faculty of organizational sciences

20:00 – 22:00 *Social programme – Wine tasting challenge (Room Pančić 2)*

## **Monday, 11.3.2024**

14:00 – 15:30 Software Engineering (Room Pančić 2)

15:30 – 17:00 ICT for health, well-being and sport, session 1 (Room Pančić 2)

17:00 – 18:00 Poster, session 1 (Lobby in front of Room Pančić)

18:00 – 20:00 Pre-trained Large Language Models (Room Pančić 2)

19:00 – 20:30 Digital Energy (Room Pančić 1)

## **Tuesday, 12.3.2024**

13:30 – 14:30 Security (Room Pančić 2)

14:30 – 15:00 Invited Lecture: Marek Chodnicki, Gdansk University of Technology, Poland (Pančić 2)

15:00 – 17:00 ICT for health, well-being and sport, session 2 (Room Pančić 2)

15:00 – 17:00 Digital Agriculture: The Synergy of AI and Cutting-Edge Technologies (Room Pančić 1)

17:00 – 18:00 Poster, session 2 (Lobby in front of Room Pančić)

17:00 – 17:30 Invited Lecture: Vlado Delić, Faculty of Technical Sciences, University of Novi Sad (Room Pančić 2)

17:30 – 19:00 Machine Learning/Artificial Intelligence, session 1 (Room Pančić 2)

17:30 – 18:00 Invited Lecture: Dragan Savić, KWR Water Research Institute (Room Pančić 1)

18:00 – 19:30 Digital Water (Room Pančić 1)

19:00 – 19:30 Invited Lecture: Herve Panetto, University of Lorraine, France (Room Pančić 2)

19:30 – 20:30 Machine Learning/Artificial Intelligence, session 2 (Room Pančić 2)

## Detailed programme

### Sunday, 10.3.2024

17:00 – 20:00 Keynotes session (Room Pančić)

- Vladimir Crnojević, BioSense Institute
- Vladan Devedžić, University of Belgrade, Faculty of organizational sciences

### Monday, 11.3.2024

14:00 – 15:30 Software Engineering (Room Pančić 2)

Automation and orchestration of hardware-in-the-loop testing processes	Mijatov, Vanja*; Ivanović Mijatov, Bojana; Milosavljević, Branko
Configuration management in the distributed cloud	Ranković, Tamara*; Kovacevic, Ivana; Maksimović, Veljko; Sladic, Goran; Simić, Miloš
Inheritance of Seccomp Profiles in Distributed Clouds	Jelić, Milena*; Knežević, Danilo; Zaric, Miroslav M; Simić, Miloš
An Educational tool for understanding the Macro processor algorithm	Ogrizović, Mihajlo*; Mićović, Marko; Dodović, Matija; Stojanović, Saša
A lightweight private distributed ledger framework for diploma credentialing	Gogić, Stefan; Zdravković, Nemanja*; Bogdanović, Milena; ponnusamy, vijayakumar
SCANA: a Spatial Coordinate-based Agglomerative Node Aggregation Algorithm for Public Transport Networks	Đajić, Anja; Raketić, Luka; Obradović, Predrag G*; Mišić, Marko
A New Approach for an Efficient Relational to Document-Oriented Database Migration	Vučinić, Milica*; Tomić, Miroslav; Vještica, Marko; Čeliković, Milan; Lukovic, Ivan S.; Kordić, Slavica

15:30 – 17:00 ICT for health, well-being and sport, session 1 (Room Pančić 2)

An algorithm-based approach to map and analyse the impacts of assistive technologies on the systemic players	Jesus, Paulo; Lourenço, Jordam; Nara, Elpidio; Canciglieri Junior, Osiris; Schaefer, Jones L*
Can simulated driving-based tasks reliably assess fitness to drive?	Stojmenova Pečečnik, Kristina*; Medarević, Jelena; Čizman Štaba, Urša; Rutar, Miha; Sremec, Marko; Sodnik, Jaka

Can augmented real-time haptic feedback assist young professional swimmers in improving swimming technique?	Hribernik, Matevž; Kos, Anton*
Adaptive Control of a 5-DOF Upper Limb Exoskeleton for Passive Rehabilitation: ADRC with Online Model Parameter Estimation	Benyahia, Ahmed taki eddine*; Stanković, Momir; AMOKRANE, Salem-bilal
Robustness Evaluation of Pre-Trained vs. Fine-Tuned Computer Vision Models for Score Detection in Dynamic Sports Environments	Ivačko, Nikola M*
Bridging the Gap: Physics-Driven Deep Learning for Heat Transfer Model of the Heart Tissue	Geroski, Tijana*; Pavić, Ognjen; Dašić, Lazar; Filipovic, Nenad
The Application of Augmented Reality for Treatment of Patients with Balance Disorder	Vulović, Aleksandra*; Ilic, Djordje; Filipovic, Nenad

### 17:00 – 18:00 Poster, session 1 (Lobby in front of Room Pančić)

Possibilities for machine learning algorithms application in forecasting immersion in virtual reality	Tufegdžic, Milica*; Trajanovic, Miroslav; Mišković, Aleksandar Ž
Classification of federal states of Brazil based on threat by the forest fires	Ivanović Mijatov, Bojana*; Mijatov, Vanja
A proposal for markerless gait analysis based on point cloud.	Rudek, Marcelo*; Schitz da Rocha, Luiz Gustavo
Advanced Automated Testing and Grading System for Computer Systems for the VLSI Course	Dodović, Matija*; Srbljanović, Aleksa D; Šuštran, Živojin; Stojanović, Saša
Expanding the Horizons of Autonomous Maritime Systems through Advanced 3D Reconstruction and AI Integration	Đapić, Vladimir*
Enhancing Cybersecurity Through AI-Driven Password Strength Analysis: A Genetic Programming Symbolic Classifier Approach	Anđelić, Nikola*; Baressi Šegota, Sandi; Štifanić, Daniel; Štifanić, Jelena; Car, Zlatan
Eco-Intelligence: Harmonizing Energy Consumption in the Age of AI Advancements	Medojevic, Milovan*; Talanov, Maxim
Exploring AI Adoption in Innovative Startups in Southeastern Serbia: A Survey-Based Approach	Kitic, Ana*; Rajic, Milena N; Milosevic, Masa; Ivacko, Nikola; Stojiljkovic, Dusan; Ćiric, Ivan

### 18:00 – 20:00 Pre-trained Large Language Models (Room Pančić 2)

Comparative analysis of traditional and large language models for sentiment analysis in the Serbian language	Đorđević, Nikola D*; Stoj, Su
A Serbian Cyrillic Tokenizer	Kalušev, Vladimir G*; Culibrk, Dubravko; Bala, Karlo
Utilizing Large Language Models for Automated Grading of Free-Form Test Questions	Osmajić, Mihaela*; Savić, Goran; Segedinac, Milan
Semantic Exploration of Industrial Standards using Large Language Models	Cvetkovic, Stevica*

The Experimental Evaluation of different Explainable AI techniques for Large Language models	Nikolic, Mina S*; Stanimirovic, Aleksandar S; Stoj, Su
Semantic Textual Similarity of Courses based on Text Embeddings	Stanković, Ranka M*; Kitanović, Olivera; Tomašević, Aleksandra; Škorić, Mihailo; Kolonja, Ljiljana
Learning-related emotion detection from Serbian text	Grujić, Katarina-Glorija Goran*; Vujinović, Aleksandar; Slivka, Jelena; Luburić, Nikola; Kovačević, Aleksandar
BERT downstream task analysis: Named Entity Recognition in Serbian	Ikonić Nešić, Milica*; Petalinkar, Saša; Škorić, Mihailo; Stanković, Ranka M
Enhancing Sentiment Analysis in Product Reviews: Fine-Tuning BERT for Class Imbalance and Optimal Sequence Representation	Dodović, Matija*; Ogrizović, Mihajlo; Miladinović, Danko; Drašković, Dražen

### 19:00 – 20:30 Digital Energy (Room Pančić 1)

GPT Time Series Zero-shot Forecasting: A Case Study on Elektroprivreda Srbije	Jovišić, Nikola*; Ilić, Slobodan; Selakov, Aleksandar; Švenda, Vanja
XAI4HEAT: Towards demand-driven, AI facilitated, end-to-end management of District Heating Systems	Zdravkovic, Milan M*; Cvetkovic, Stevica; Ignjatović, Marko; Ćirić, Ivan; Mitrović, Dejan; Stojiljković, Mirko; Nejković, Valentina; Stojiljković, Dušan; Turudija, Rajko
Integrated Multi-Criteria Decision Analysis, Sizing Optimization, and Demand Side Management for Defining Optimal System Configuration while Reducing Costs and CO2 Emissions	Jovanovic, Igor*
Towards an approach to multivariate outlier detection for District Heating System data	Turudija, Rajko M*; Stojiljković, Dušan; Zdravkovic, Milan M; Ignjatović, Marko
Implementation of Semantic Data Model for Energy Management in Smart Buildings	Nenadović, Miloš; Berbakov, Lazar*; Tomašević, Nikola
DEVELOPMENT OF A MOBILE IOT CONTROLLED PHOTOVOLTAIC DUAL AXIS SOLAR TRACKING SYSTEM	Mancic, Marko*; Rajic, Milena N; Mancic, Milena; Djordjevic, Milan; Gjorgjevski, Vladimir
Digital twins for the modular design of offshore floating platforms	Rajic, Milena N*; Mancic, Marko; Mancic, Milena; Kitic, Ana

## Tuesday, 12.3.2024

### 13:30 – 14:30 Security (Room Pančić 2)

Risk and Conformity Assessment Platform for Supply Chains	Boberic Krsticev, Danijela*; Kalogeraki, Eleni-Maria; Karagiorgou, Sofia; Tesendic, Danijela
Secura – A Model-Driven Solution for Rapid Security Configuration of Web Applications	Hrnjak, Jelena*; Vještica, Marko; Todorović, Nikola; Ristić, Sonja; Dimitrieski, Vladimir

A Review on Security Vulnerabilities of Smart Contracts written in Solidity	Zdravković, Nemanja*; Dimitrijević, Nikola
Obfuscated Malware Classification Using Hierarchy-Based Pipeline	Mršulja, Ivan R*; Slivka, Jelena; Sladic, Goran
The Future of Cyber Security: IoT Challenges and Cloud Security	Đorđević, Nebojša D*; Rančić, Dejan; Đorđević, Veljko
Token-based identity management in the distributed cloud	Kovacevic, Ivana*; Ranković, Tamara; Stojkov, Milan; Simić, Miloš

14:30 – 15:00 Invited Lecture: Marek Chodnicki, Gdansk University of Technology, Poland (Room Pančić 2)

15:00 – 17:00 ICT for health, well-being and sport, session 2 (Room Pančić 2)

Short-term multimedia exposure estimation from pupil dilation: impact of normalization	Vec, Val*; Strle, Gregor; Tomažič, Sašo; Umek, Anton; Košir, Andrej
Artificial Intelligence in Healthcare: A Systematic Review and Analysis of Future Trends in Bariatric Surgery	Cotian, Luís Fernando Paulista; Strobel, Kamilya Miranda; Strobel, Rodrigo; Nara, Elpidio Oscar Benitez; Canciglieri Junior, Osiris*
Advanced Decision Support in Dental Implant Treatment Planning: Integrating Digital Technologies and Tomographic Image Analysis	Tinfer, Sabrina; Canciglieri Junior, Osiris*; Szejka, Anderson L; Trajanovic, Miroslav D
Development and clinical validation of an artificial intelligence-based decision support system for predicting risk, diagnosis, and progression of heart failure (STRATIFYHF)	Geroski, Tijana; Vulović, Aleksandra; Tomasevic, Smiljana; Jakovljevic, Djordje; Filipovic, Nenad*
Integrating Machine Learning and Bioinformatics for Chronic Inflammation Biomarker Discovery	Tanasković, Ilija*; Seničar, Mladen; Rakić, Branka
PRELIMINARY FRAMEWORK FOR USER-CENTERED CLINICAL MANAGEMENT BASED ON PROCESS MINING TO OPTIMIZE THE DOCTOR-PATIENT RELATIONSHIP	de Souza, Bianca Rodrigues; Carvalho, Deborah R; Schaefer, Jones L; Canciglieri Junior, Osiris*
Identification of Synthetic Data Source Points using Data Similarity Indexes and Artificial Neural Networks	Baressi Šegota, Sandi*; Anđelić, Nikola ; Štifanić, Daniel; Štifanić, Jelena; Car, Zlatan
The Application of Characteristics Product Features Methodology in Computer-Assisted Orthopedic Surgery: Human Tibia example	Vitković, Nikola M*; Turudija, Rajko M; Stojkovic, Jelena; Păcurar, Razvan; Gorsky, Filip ; Trajković, Aleksandar S
Simulation of atherosclerosis progression within patient specific carotid arteries	Tomasevic, Smiljana*; Djukic, Tijana; Anic, Milos; Arsic, Branko; Saveljic, Igor; Gakovic, Branko; Koncar, Igor; Filipovic, Nenad
Comparison of Different Convolutional Neural Networks Utilizing Transfer Learning for Pneumothorax Segmentation from Whole Chest X-Ray Images and Extracted Patches	Dašić, Lazar*; Pavić, Ognjen; Geroski, Tijana; Vasković Jovanović, Mina; Filipovic, Nenad

15:00 – 17:00 Digital Agriculture: The Synergy of AI and Cutting-Edge Technologies  
(Room Pančić 1)

Soil Properties Estimation through Deep Learning and Multispectral Satellite Imagery: A Comprehensive Study across the USA (2023)	Bala, Karlo*
Proposal of a System for Monitoring Perennial Plants Based on Artificial Intelligence	Grujev, Milan A*; Mihajlovic, Vladan; Rancic, Dejan; Milosavljević, Aleksandar
Precision Agriculture Utilizing LoRaWAN Wireless Sensor Nodes in Greenhouses: A Case Study in Vojvodina	Krklješ, Damir B*; Kitić, Goran V; Birgermajer, Slobodan; Mirović, Mina
Development of the instrument for early mastitis detection in goats	Stanojev, Jovana*; Stankovic, Predrag; Panić, Marko N; Birgermajer, Slobodan; Petes, Csaba; Matovic, Jovan
Unlocking Potential: Improved Optical Approach for Enhanced Plant Stress and Metabolism Analysis with 640 nm Integration	Miletic, Katarina M.*; Petković Benazzouz, Marija; Kasalica, Bečko; Belča, Ivan
Influence of spatial region selection on infection sensitivity prediction of tomato calyx using hyperspectral imaging	Filipović, Vladan N*; Grbović, Željana; Chauhan, Aneesh; De Villiers, Hendrik A.C.; Panić, Marko N; Brdar, Sanja
Decision support system for crop damage estimation based on waterlogging detection using the synergy of remote sensing and machine learning	Pejak, Branislav*; Kopanja, Marija; Radulović, Mirjana ; Grbović, Željana; Marko, Oskar
SHAP-guided Explanations for the Machine Learning Classification of Irrigated Fields Using Satellite Imagery	Kopanja, Marija*; Pejak, Branislav; Radulovic, Mirjana; Brdar, Sanja
Integrating Spatial AI and robotic systems for grape harvesting	Banic, Milan S*; Velcev, Nikola; Simonovic, Milos; Rajic, Milena N; Miljkovic, Natalija; Djordjevic, Dejan; Pavlovic, Vukasin; Stojanovic, Lazar
Hardware implementation of deep learning based plant recognition for robotic harvesting	Milosevic, Masa*; Ciric, Ivan T; Stojiljkovic, Dusan; Markovic, Nemanja; Cojbasic, Zarko

17:00 – 18:00 Poster, session 2 (Lobby in front of Room Pančić)

Machine-readable landing pages of scholarly knowledge graph records	Popović, Miloš; Mršulja, Ivan; Ivanovic, Dragan*; Ivanovic, Lidija
Ransomware attacks: analysis, prevention and effective defense mechanisms	Mišković, Aleksandar Ž*; Tufegdžic, Milica; Banković, Nevena
Polymorphic network structures allowing distributed clouds	Simić, Miloš*; Stojkov, Milan; Ranković, Tamara; Sladic, Goran; Zaric, Miroslav M
Paralysis Patient Alerting and Monitoring System	Jaju, Raghav *; Deshmukh, Shubham; Devadkar, Rishikesh ; Khose, Kunal; Purandare, Radhika G

Multi tool hole drilling path optimization using simulated annealing	Trajković, Aleksandar S*; Stanković, Aleksandar; Petrović, Goran; Mitrović, Vladimir
Towards an Organizational Digital Transformation Framework considering Business Process Management, Digital Technologies and Human Factors Impacts	Chrusciak, Camilla; Szejka, Anderson L*; Canciglieri Junior, Osiris
Digital technologies in gastronomy	Ilic, Milos*; Grujev, Milan A; Spalevic, Petar
Simulation of Information System Imperfection Impact in Military Swarming	Jankovic, Radomir Lj*
Application of Explainable AI algorithms in Machine Learning Models for Time Series Forecasting: A Survey	Ciric, Ivan T*; Ivacko, Nikola; Cvetkovic, Stevica; Ciric, Milica

17:00 – 17:30 Invited Lecture: Vlado Delić, Faculty of Technical Sciences, University of Novi Sad (Room Pančić 2)

17:30 – 19:00 Machine Learning/Artificial Intelligence, session 1 (Room Pančić 2)

Some possibilities for the utilization of machine learning methods for customer segmentation based on consumer habits	Radojicic, Dragana*; Milunovic, Bojana
BAB – an Extensible Software Framework for Development of AI-Augmented PAIS	Bogdanović, Borivoj V*; Segedinac, Milan; Konjović, Zora
Mirror AI: Self-optimizing multimodal multi-agent AI	Jovišić, Nikola*; Ilić, Slobodan; Ilic, Velibor
XGBoost "is all you need": the case of forecasting transmitted heat energy in District Heating Systems	Zdravkovic, Milan M*
Implementation of a web application of a song recommendation engine based on lyrics analysis	Batinic, Milica*; Punt, Marija; Drašković, Dražen
Assessment of autoencoder anomaly detection approach to acetic acid detection in non-alcoholic beverages using electronic nose	Ičagić, Savo*; Kvašček, Goran; Mišković, Dragiša
A Shifted Window based Spatial and Temporal Transformer Network for Traffic Flow Prediction	Cui, Jianxun*
ANFIS Based Explainable AI Approach for Industrial Automation in the Food Industry	Markovic, Nemanja; Milosevic, Masa*; Ciric, Ivan T; Cojbasic, Emilija; Ivacko, Nikola

17:30 – 18:00 Invited Lecture: Dragan Savić, KWR Water Research Institute (Room Pančić 1)

18:00 – 19:30 Digital Water (Room Pančić 1)

Machine Learning Model for Prediction of Indicative Water Parameters on the Danube River based on Satellite Data	Ilic, Velibor*; Stojkovic, Milan; Dodevska, Zorica; Ilić, Slobodan
Promises and perils of generative AI for water smart blue-green cities	Prodanovic, Veljko*; Bach, Peter
Enhancing the predictive power of Artificial Neural Networks using hydromorphological parameters as indicators for macroinvertebrate community in the Danube River	Krtolica, Ivana G*; Kamenko, Ilija ; Raković, Maja
Enhancing environmental monitoring: Cutting-edge approaches for early detecting pollution in freshwater ecosystems	Turk, Maja*
Continuous water quality monitoring using fixed and mobile autonomous sensor nodes	Đapić, Vladimir*
Assigning Material Properties to Finite Element Models of Dam	Mrdja, Tomislav; Pavić, Maja; Blagojević, Miloš; Stojanović, Boban*
Collaborative hydraulics platform for support in design, construction, and maintenance of Morava Corridor Project	Stojadinović, Luka*; Milivojevic, Nikola J; Stojanović, Boban; Cvijanović, Nevena; Prohaska, Ognjen
Evaluation of extreme flood events for support in highway design using high-performance computing hardware	Milivojević, Vladimir*; Milovanović, Marija; Stojadinović, Luka; Radovanović, Jovana; Laković, Boško

19:00 – 19:30 Invited Lecture: Herve Panetto, University of Lorraine, France (Room Pančić 2)

19:30 – 20:30 Machine Learning/Artificial Intelligence, session 2 (Room Pančić 2)

Reliability approach for structural safety assessment using Finite Element Method and Machine Learning	Bodić, Aleksandar S*; Rakić, Dragan; Milovanović, Vladimir
An approach for document image analysis using Faster RCNN deep convolutional network	Kocić, Jelena; Bogdanović, Miloš D*; Rančić, Dejan
HCAF: A Unified Conversational Framework for Business Process Hyperautomation	Dutina, Radoslav; Segedinac, Milan*; Savić, Goran
Analyzing Public Opinion and Sentiments on Nigerian Government Policy on Subsidy Removal & Palliatives	Ogundare, Adedotun O*; Gostojić, Stevan L
Deep Learning Models for Metal Surface Detection	Despenić, Nikola Đ*; Zdravkovic, Milan M; Madić, Miloš