
Technical Program

Wednesday 27th November 2024

10:00 - 10:30	Opening Ceremony - Welcome Speech: Prof. Nenad Filipović , <i>Conference General Chair</i> Jelena Begovic , <i>Minister of Science, Technological Development and Innovation</i> Nikola Dašić , <i>Mayor of the City of Kragujevac</i>
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10:30 - 11:00	Keynote speaker: Topic: Technological Innovations in Diagnosis of Heart Failure Prof. Đorđe Jakovljević , <i>Research Centre for Health and Life Sciences of Coventry University, United Kingdom</i> Chair: Nenad Filipović
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Session W.1A: 11:00-12:00

Bioinformatics I

Chair: Marko Zivanovic

- W.1A.1 Navigating the explainable Molecular Graph: Best Practices for Representation Learning in Bioinformatics** - Rocco Zaccagnino, Gerardo Benevento, Gianpaolo Laurenzano, Delfina Malandrino, Alessia Petescia and Gianluca Zaccagnino
- W.1A.2 Design of the Amorphous Solid Dispersion (ASD) Drugs by Hot Melt Extrusion (HME), for the Inhibition of Bone Graft Rejection** - Djordje Milosevic, Marija Brankovic, Mihailo Jovanovic, Janko Djordjevic, Nenad Grujovic and Fatima Zivic
- W.1A.3 Depression Diagnosis: Bioinformatics Uncover Cellular Abnormalities in Female - Specific Genes with AI-Driven blood biomarker-based prediction** - Neda Firoz, Nivedita Yadav, Olga Grigorievna Berestneva and Sergey Aksyonov Vladimirovich

Session W.2A: 12:00-12:30

Pulmonary disease

Chair: Miljan Milošević

- W.2A.1 CAT Score Prediction in COPD patients using a Chest-wearable Respeck** - Dk Arvind, Peters, CA Bates, M Prior and L Gray
- W.2A.2 Data-driven analysis of irregular respiratory signals derived from the chest- wearable Respeck monitor** - Dk Arvind and Filip Futera

12:30 - 13:00	Coffee Break
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Session W.3A: 13:00-14:30

Cardiovascular I

Chair: Đorđe Jakovljević

- W.3A.1 EI-ViT-Net: A Vision Transformer Approach for Diabetic Retinopathy's Decision Support Pipeline** - Alexandru Farcaș, Alesia Lobonț, Diogen Babuc, Todor Ivașcu and Sebastian Ștefăniță
- W.3A.2 Short Overview of Left Ventricular Action Potential Simulations: Integrating Numerical Methods with Machine Learning** - Bogdan Milicevic, Miljan Milosevic, Vladimir Milovanovic, Mina Vaskovic Jovanovic, Milos Kojic and Nenad Filipovic
- W.3A.3 HyperECG: ECG Signal Inference from Radar with Hyperdimensional Computing** - Matilda Gaddi, Flavio Ponzina, Fatemeh Asgarinejad, Baris Aksanli and Tajana Rosing
- W.3A.4 Heart Failure: Machine Learning Prediction within a 5-Year Framework** - Konstantina-Helen Tsarapatsani, Vassilis D. Tsakanikas, Antonis Sakellarios, Hans J. Trampisch, Henrik Rudolf, George K. Matsopoulos and Dimitrios I. Fotiadis
- W.3A.5 Adventitia Segmentation On Superficial Femoral Artery Optical Coherence Tomography Images** - Milos Anic, Sotirios Nikopolous, Konstantinos Siaravas, Christos S. Katsouras, Vasiliki Potsika, Nenad Filipović and Dimitirs Fotiadis
- W.3A.6 Kolmogorov-Arnold-based Network with Lightweight Feature Fusion Schema for Single-Lead Electrocardiogram Atrial Fibrillation Detection** - Zijian Zhao, Likun Sui, Yang Song, Branka Vucetic and Zihuai Lin

Session W.1B: 13:00-14:00

Bioengineering I

Chair: Aleksandra Vulović

- W.1B.1 Analysis of DNA Sequences from Human Sweat and Comparison with Blood Sample** - Tirthankar Paul, Daniel Fischer, Seppo Vainio and Juha Roning
- W.1B.2 AI-Enhanced Tele-Rehabilitation: Predictive Modeling for Fall Risk and Treatment Efficacy in Balance Disorders** - Efterpi Karapintzou, Vassilios Tsakanikas, Dimitrios Kikidis, Christos Nikitas, Brooke Nairn, Marousa Pavlou, Doris-Eva Bamiou, Themis Exarchos and Dimitrios Fotiadis
- W.1B.3 PulSense: An AI-driven Cardiovascular Monitoring and Arrhythmia Detection System** - Evangelos Katsoupis, Apostolos Karasmanoglou, Michalis Zervakis and Marios Antonakakis
- W.1B.4 An exploration of k-mer ranges for MEGAHIT in the context of microbial community-wide identification of antimicrobial resistance genes and biosynthetic gene clusters** - Alina Cărunta, Alexandru Eugeniu Mizeranschi, Cristina Cărunta, Horia Leonard Banciu, Oana Teodora Moldovan, Daniela Zaharie and Viorel Negru

14:30 - 15:30

Buffet Lunch

Session W.4A: 15:30-16:00

Cardiovascular II

Chair: Bogdan Milicevic

- W.4A.1 Predicting Heart Disease: A Comprehensive Approach to Data Analysis and Machine Learning Model Development** - Uroš Bojanić and Milan Bjelica

W.4A.2 Estimating the Effect of Danicamtiv on Human Cardiac Function - Momcilo Prodanovic, Vanja Cvetkovic, Andjela Grujic and Srboljub Mijailovich

Session W.5A: 16:00-16:30

Chemical Computing

Chair: Zoran Marković

W.5A.1 In vitro and in silico binding studies of chromeno-pyrimidine derivatives with biological important protein-Part III - Danijela Stojković, Sandra Jovičić Milić, Dušica Simijonović, Edina Avdović, Tamara Mladenović and Zoran Marković

W.5A.2 Design, In Silico Evaluation, and Toxicological Assessment of N-Protocatechoyl Hydrazone Derivatives as Potential EGFR Kinase Inhibitors - Dejan Milenković, Marko Antonijević, Edina Avdović, Dušica Simijonović and Zoran Marković

16:30 - 17:00	Keynote speaker: Topic: Assessing the Impact of Public Health Interventions and Simulating COVID-19 Spread in Northern Ireland Using the CP-ABM Approach Prof. Aleksandar Novakovic, School of Mathematics and Physics, Queen's University Belfast, United Kingdom Chair: Lazar Dasic
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17:00 - 17:30	Keynote speaker: Topic: Physics-Based Computational Models Within the Artificial Intelligence Scheme: Important Features Prof. Milos Kojic, Houston Methodist Research Institute Chair: Vladimir Simic
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17:30 - 18:00	Coffee Break
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Session W.6A: 18:00-19:00

Tissue engineering

Chair: Jelena Pavic

W.6A.1 Transformer Based Real Time Musculoskeletal Anatomical Structure Detection in Clinical Use - Jyun-Ping Kao, Hao-Yu Hung, Ping-Xuan Chen, Chung-Ping Chen and Wen-Shiang Chen

W.6A.2 The influence of changes in voltage and flow rate on the diameter of electrospun nanofibers - Jana Bašćarević, Katarina Virijević, Marko Živanović and Nenad Filipović

W.6A.3 Biomimetic natural electrospun gelatin scaffolds for skin regeneration - Katarina Virijević, Marko Živanović, Jelena Pavić, Tamara Mladenović, Hilal Girgin Oz, Jana Bašćarević and Nenad Filipović

W.6A.4 Smart Clothes Using Vital Signals for Evaluating Health Conditions: A Comparative Evaluation – A. Shrivastava, K. A. Kumar Shukla, P. R. Simhadri, S. K. Sunkaraboina, V. Thammisetty and Nikolaos Bourbakis

W.6A.5 Biogenic silver nanoparticles causes cell death by inducing oxidative stress in MRC-5 cell line - Safi Ur Rehman Qamar, Jelena Košarić, Marko Živanović and Nenad Filipovic

Thursday 28th November 2024

09:00 - 09:30	Keynote speaker: Topic: What HPV + status brings to the treatment of HNC? Prof. Branislav Jeremic, University Hospital in Kragujevac Chair: Marija Zivkovic Radojevic
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Session T.1A: 09:30-11:30 Cancer Chair: Branislav Jeremic

- T.1A.1 Molecular profile in breast cancer treatment** - Neda Milosavljević, Marija Živković Radojević, Branislav Jeremić, Ivane Kiladze, Pavol Dubinsky and Marko Spasić
- T.1A.2 Novel treatment of high-risk prostate cancer: a clinical trial development** - Pavol Dubinsky
- T.1A.3 Importance of HPV typing in predicting response to definitive chemoradiation in patients with locally advanced cervical cancer** - Marija Živković Radojević, Neda Milosavljević, Branislav Jeremić, Ivane Kiladze and Pavol Dubinsky
- T.1A.4 Selecting frontline immunotherapy in advance NSCLC: Picking the wining card** - Ivane Kiladze
- T.1A.5 HER2 and FISH status Prediction in Breast Biopsy H&E stained Images using Deep Learning** - Ardhendu Sekhar and Amit Sethi
- T.1A.6 Using Ultra-Sound Images and a Multi-Task, Explainable Approach for Thyroid Cancer Detection** - Ahana Roy Choudhury, Radu Paul Mihail and Sorin Dan Chiriac
- T.1A.7 A computer model for simulation of the influence of the cell-platelet interaction on the metastasis of the circulating tumor cells (CTC)** - Miljan Milosevic, Vladimir Simic, Aleksandar Nikolic and Milos Kojic

Session T.1B: 09:30-11:30 Decode Workshop I Chair: - Dimitrios I. Fotiadis
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- T.1B.1 Digital twins of percutaneous vascular and cardiac procedures** - Prof. Giancarlo Pennati (POLIMI)
- T.1B.2 Optimizing and Designing Drug Delivery Systems for Drug-Coated Balloons in Addressing Atherosclerosis** – Mohammad Akrami
- T.1B.3 In-Silico Modelling of Drug Distribution in Arteries Using AI Surrogate Techniques** – Leo Benolic
- T.1B.4 Hybrid in silico and ex vivo models for quantitative evaluation of acute coating transfer in drug-coated balloon angioplasty** - Efstathios Stratakos
- T.1B.5 Multiscale model for thrombosis/atherosclerotic plaque formation and progression** – Lemana Spahic

11:30 - 12:00	Coffee Break
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Session T.2A: 12:00-13:30

Brain I

Chair: Igor Saveljic

- T.2A.1 DAS-Alz: Alzheimer's Disease Classification Using Downscaled MRI Scans and a Reinforced Convolutional Neural Network - Diogen Babuc and Gabrijel Babuc**
- T.2A.2 Comparative evolution between different source localizations of epileptic MEG oscillations using different connectivity metrics - Ichrak Elbehy, Abir Hadriche nad Nawel Jmail**
- T.2A.3 The Effect of Multi-Channel tDCS on the Directed Connectivity Patterns of a Case with Focal Epilepsy using A Multi-Feature Machine Learning Evaluation - Alexandra Tsipourakis, Marios Antonakakis, Fabian Kaiser, Stefan Rampp, Stjepana Kovac, Christoph Kellinghaus, Gabriel Möddel, Carsten H. Wolters and Michalis Zervakis**
- T.2A.4 An Efficient CNN and RNN Hybrid Model for the Detection of Epileptic Seizures in EEG Signals - Zayneb Sadek, Abir Hadriche and Nawel Jmail**

Session T.2B: 12:00-13:30

Decode Workshop II

Chair: Dimitrios I. Fotiadis

- T.2B.1 Application of nano material in biomedical science - Safi Ur Rehman Qamar**
- T.2B.2 The CT based measurements of vessels geometry in PAD - Hassan Saeed**
- T.2B.3 A computational study to assess the impact of vessel preparation on drug-coated balloon treatment - Elisabetta Stretti**
- T.2B.4 3D Segmentation of Peripheral Arteries through Computed Tomography Images - Manahil Zulfiqar**
- T.2B.5 Drug-loss at Arterial Bend Can Dominate Off-Target Drug Delivery by Paclitaxel -Coated Balloons - Linnea Tscheuschner**
- T.2B.6 Design of a milli-fluidic chamber to evaluate the impact of blood flow on drug-coated balloon during tracking - Dimitrios Zantzas**

13:30 - 14:15

Buffet Lunch

Session T.3A: 14:15-15:30

Brain II

Chair: Wei Zhang

- T.3A.1 Early Screening for Multiple Sclerosis Using Gut Microbiome and Machine Learning - Bhavicka Mohta and Mai Oudah**
- T.3A.2 Beyond the Gut Feeling: Machine-Learning Methods for Autism Screening - Aigerim Zhusubalieva and Mai Oudah**
- T.3A.3 An Enhanced Genetic Algorithm with Clustering for Optimizing Mobile Stroke Unit Deployment - Muhammad Adil Abid, Johan Holmgren, Fabian Lorig and Jesper Petersson**

Session T.3B: 14:15-15:30

Decode Workshop III

Chair: Dimitrios I. Fotiadis

- T.3B.1 Late recruitment in the project-pending** - Alexis Theodorou
- T.3B.2 Cloud-Based Solutions for Peripheral Artery Disease: Data Analysis, and Visualization** - Mohammed AboArab
- T.3B.3 Tunica Intima Segmentation From Porcine IVOCT Images** - Milos Anic
- T.3B.4 Arterial senescence and novel biomarkers regarding PAD** - Argyro Vagena
- T.3B.5 Micro/Nano characterization of the Drug Coated Balloons** - Deepthishre Gunashekar

15:30 - 16:00	Keynote speaker: Topic: 3D Printing of Bioelastomers and Granular Materials for Engineering of Organotypic Structures Prof. Milica Radisic, University of Toronto Chair: Nenad Filipović
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16:00 - 16:30	Coffee Break
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16:30 - 17:00	Keynote speaker: Topic: Leveraging Trust in Healthcare Through a Robust AI Trustworthiness Assessment Framework Prof. Dimitrios I. Fotiadis, University of Ioannina / IMBB-FORTH Chair: Smiljana Tomasevic
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Session T.4A: 17:00-18:00

Image processing I

Chair: Milica Nikolić

- T.4A.1 Predicting Microsatellite Instability from Histology Images with Dilated Neighborhood Attention Transformer in Colorectal Cancer** - Yun-Chi Chen, Tung Chao, Wimaya Nitya Phandita, Tzu-Yu Sun, Huai-Zhi Wang, Yi-Hsien Hsieh, Le-Yin Hsu, Che Lin
- T.4A.2 GPU-Driven Optimization of Web-Based Volume Rendering in Peripheral Artery Disease CT Imaging** - Mohammed A. Aboarab, Vassiliki T. Potsika, Fragiska Sigala, Alexis Theodorou, Sylvia Vagena, Dimitrios I. Fotiadis
- T.4A.3 CCVA-FL: A Solution for Cross-Client Variations in Federated Learning** - Sunny Gupta, Pankhi Kahyap and Kshitij Jadhav *

19:30 - 23:00	Gala Dinner
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Friday 29th November 2024

09:30 - 10:00	Keynote speaker: Topic: How microbeam technology could change the radio-oncology treatment Prof. Valentin Djonov, University of Bern Chair: Igor Saveljic
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Session F.1A: 10:00-11:30

Image processing II

Chair: Ognjen Pavic

- F.1A.1 Clustered Patch Embeddings for Permutation-Invariant Classification of Whole Slide Images** - Ravi Kant Gupta, Shounak Das and Amit Sethi
- F.1A.2 Comparing Top-K and Manual Feature Selection for PCG Signal Classification using XGBoost** - Poorv Patil
- F.1A.3 Efficient Whole Slide Image Classification through Fisher Vector Representation** - Ravi Kant Gupta, Dharani Dadi, Shambhavi Shanker and Amit Sethi
- F.1A.4 Classification and Morphological Analysis of DLBCL Subtypes in H&E-Stained Slides** - Ravi Kant Gupta, Mohit Jindal, Garima Jain, Epari Sridhar, Subhash Yadav, Hasmukh Jain, Tanuja Shet, Uma Sakhdeo, Manju Sengar, Lingaraj Nayak, Bhausaheb Bagal, Umesh Apkare and Amit Sethi
- F.1A.5 Comparative Study of Large Language Models for Lung-RADS Classification in Portuguese CT Reports** - Tarcísio Ferreira, Marcelo Oliveira and Thales Vieira
- F.1A.6 Unsupervised Deep Learning Method for Cell Segmentation of Confocal Microscopy Images** - Ognjen Pavić, Jorge Barrasa-Fano, Lazar Dašić, Tijana Geroski, Apeksha Shapeti, Hans Van Oosterwyck, Vesna Ranković and Nenad Filipović

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

Bioengineering II

Chair: Lazar Dašić

- F.1B.1 Modeling Approaches for Assessing the Impact of Air Pollution on Human Health in Serbia** - Aleksandra Vulović and Petar Stanojević
- F.1B.2 Semantic image segmentation of cell volumes using 3D U-net convolutional neural network**- Lazar Dašić, Jorge Barrasa-Fano, Ognjen Pavić, Tijana Geroski, Apeksha Shapeti, Hans Van Oosterwyck, Vesna Ranković and Nenad Filipović
- F.1B.3 Application of Machine Learning in the Analysis of Gene Expression in Colorectal Cancer Cells Treated with Chemotherapeutics** - Jelena Pavić, Marko Živanović, Ognjen Pavić, Katarina Virijević, Tamara Mladenović, Irena Tanasković and Nenad Filipović
- F.1B.4 AI-driven Decision Support System for Heart Failure Diagnosis: INTELHEART Approach Towards Personalized Treatment Strategies** - Smiljana Tomasevic, Andjela Blagojevic, Tijana Geroski, Gordana Jovicic, Bogdan Milicevic, Momcilo Prodanovic, Ilija Kamenko, Bojana Bajic, Stefan Simovic, Goran Davidovic, Dragana Ignjatovic Ristic, Andrej Preveden, Lazar Velicki, Arsen Ristic, Edin Dolicanin, Nenad Filipovic and Svetlana Apostolovic

F.1B.5 Combining agent-based modeling and lattice Boltzmann method to simulate the behavior of cancer cells in-vitro - Tijana Djukic, Nevena Milivojevic Dimitrijevic, Marko Zivanovic and Nenad Filipovic

F.1B.6 Virtual Coach Platform for Rehabilitation: Platform Overview and its Assessment - Aleksandra Vulović, Đorđe Ilić, Filip Filipović and Nenad Filipović

11:30 - 12:00	Coffee Break
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Session F.2A: 12:00-13:00

Bioinformatics II

Chair: Nevena Milivojevic

F.2A.1 Use of bioinformatics to extract pharmacogenomic information - Nevena Milivojević Dimitrijević, Ana Mirić, Radun Vulović, Marko Živanović and Nenad Filipović

F.2A.2 A Computational Method for Saccade Velocity Profiles Generation – Smilja Stokanović, Vukašin Spasojević, Ilija Tanasković, Jaka Sodnik, Nadica Miljković

F.2A.3 Hybrid Combinatorial Problems Used For Multimodal Optimisation - Daniela Cristea

13:00 - 14:00	Buffet Lunch
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14:00 - 14:30	Keynote speaker: Topic: Application of Hydrogel in Cancer Therapy Prof. Wei Zhang, Dalian University of Technology, Dalian, China Chair: Milica Nikolic
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14:30 - 15:00	Closing Ceremony
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