

SAMI 2025 Preliminary Program

January 23, Thursday

9:00 – 9:20 **Opening Ceremony**

Conference Room

9:20 – 10:00 **Plenary Session I**
Session chair: František Babič

Conference Room



104	Juraj Gazda	Driving the Future of Connected Autonomous Mobility with Advanced AI and Multi-Modal Data Fusion
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10:00 – 10:20 Coffee break

10:20 – 11:00 **Plenary Session II**
Session chair: Dániel András Drexler

Conference Room

103	Miklós Kozlovsky	Challenges in Medical Device Research and Development – 20 Years of Work and Cooperation in BioTechLab
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11:00 – 11:40 **Plenary Session III**
Session chair: Ladislav Fózó

Conference Room

105	Igor Farkaš	Explaining Internal Representations in Deep Networks: Adversarial Vulnerability of Image Classifiers and Learning Sequential Tasks with Sparse Reward
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11:40 – 13:00 Lunch

Restaurant

13:00 – 14:40 **[T1a] Session on Informatics I**
Session chair: Peter Papcun

Conference Room

10	Jean Rosemond Dora, Ladislav Hluchy and Jean Rosemond Dora	Process Injection and Migration Techniques
34	Ons Saadallah and Ikrame Nouar	Feature selection methods for intrusion detection systems in IoT

42	Tibor Guzsvinecz, Eva Orban-Mihalyko, Cecilia Sik-Lanyi, Judit Szűcs and Erika Perge	Comparison of Performance on MRT, MCT, PSVT and HSVT Spatial Ability Tests between Paper and Desktop Display
60	Lenka Skovajsova, Ladislav Hluchý and Michal Staňo	Optimising Federated Learning: Multi-Task and Multi-Objective Approaches
75	Khalil Ben Khaled, Döníz Borsos and Jozsef Katona	Benchmarking Cryptographic Protocols for (IoT) Malware Defence

13:00 – 14:40 [T1b] Session on Engineering Education (e-learning)

Business Lounge

Session chair: **György Molnár**

72	Ivan Peraić, Ani Grubišić and Neven Pintarić	Machine Learning in Learning Analytics Dashboards: A Systematic Review
11	István Dániel Sanda, Attila Viola and Ildikó Holik	THE DEVELOPMENT HISTORY OF TECHNICAL TEACHER TRAINING FROM 1950 TO THE CHANGE OF REGIME
13	Samuel Novotný, William Steingartner, Katarína Sivá and Ján Perháč	Interactive Proof Assistant Based on Floyd-Hoare Logic
3	Maria-Mădălina Andronache, Alexandru Vulpe and Corneliu Burileanu	A comparative study of intrusion events in different SIEM systems
102	Éva Karl, György Molnár, József Cserkó, Beáta Orosz and Enikő Nagy	Supporting the Pedagogical Assessment Process in Educational Institutions with Social Background Data Analysis and WTCAi System Integration

13:00 – 14:00 [T1c] Special Session on Digitalisation, Generation Research, Consumer Trends I

e-poster

Session organizers and chairs: **Mónika Garai-Fodor, Ágnes Csiszárík-Kocsir and János Varga**

4	Bertalan Beszédes	Design of a Cost-efficient Uniaxial Solar Tracking Charge Controller
39	István Gál and Andrea Tick	Modernization in the importing procedure of the automotive industry
90	Ádám Mészáros and Ágnes Csiszárík-Kocsir	Team confidence and trust during group tasks according to a primary research
95	Ágnes Csiszárík-Kocsir and János Varga	The environmental impact of tourism actors from an individual perspective
100	Katalin Jaeckel and Monika Garai-Fodor	How Generation Z economics students think about sustainability and the environment

14:40 – 15:00 Coffee break

15:00 – 17:20 [T2a] Session on Artificial Intelligence I

Session chair: Ján Vaščák

Conference Room

28	Luna Mohanad Al-Akhras and Andrea Tick	From the Rise of AI to Future Shock
81	Sándor Tarsoly, Péter Galambos and Artúr István Károly	Comparison of Manual and AI-assisted Labeling Techniques in Pixel-wise Instance Segmentation
50	Viliam Suchý, Dominik Vranay and Ján Magyar	Using Convolutional and Capsule Neural Networks for Coeliac Disease Diagnosis
22	Gabor Paczolay and Istvan Harmati	SetDQN: An agent number invariant reinforcement learning model using Set Transformers
32	Péter Farkas, László Szőke and Szilárd Aradi	Optimizing Rail Traffic with Reinforcement Learning and Graph Attention Networks
52	Iman Sharifirad, Jalil Boudjadar and Peter Gorm Larsen	TinyML for Computation-aware Transformer-based Anomaly Detection in Internal Combustion Systems
64	Dávid Papp and Gábor Szűcs	Solution of High-level Classification Task by Low-level Classifier in Vehicle Recognition Problem

15:00 – 17:20 [T2b] Special Session on 5G and Cybersecurity

Session organizers and chairs: Anna Bánáti and Miklós Kozlovsky

Business Lounge

12	Szandra Anna Laczi and Valéria Póser	Digital parenthood: manipulated reality - the impact of social media algorithms on young people's worldview
41	Visky Gabor, Risto Vaarandi, Sokratis Katsikas and Olaf Maennel	Statistical analysis-based feature selection for anomaly detection in AIS dataset
78	Mera Saulaiman, Anna Bánáti, Miklos Kozlovsky, Kristóf Zsombor Kövesi, Tamás György Pozsonyi and Akos Csilling	Cloud-based cybersecurity and data management system for near Real-Time Monitoring and Alerting in Vehicle-SOC - a proof of concept
25	Balázs Tóth, Szandra Anna Laczi and Valéria Póser	BiLSTM and BERT-Base-Multilingual-Cased Integration for Cyberbullying Detection: A Multi- Class Approach
77	Gergő Gyebnár and Sandor Magyar	Consumption of technical threat intel indicators
82	Anna Bánáti, Eszter Kail, Miklós Orsós and Benjamin Antalfia	Simulation and detection methods of specific 5G attacks
98	Zoltán Aradi and Anna Bánáti	The Role of Honeypots in Modern Cybersecurity Strategies

19	Lukáš Tomaščík, Norbert Ádám, Nikola Geciová, Branislav Madoš, Peter Poprík and Heidar Khorshidiyeh	ETL Model for Pandemic Data Processing
21	Peter Poprík, Branislav Madoš, Norbert Ádám, Heidar Khorshidiyeh, Alžbeta Sklenáriková and Lukáš Tomaščík	Procedural Content Generator of a 3D Polygonal Surface Models of Trees
30	Jaroslav Marko and Anton Baláž	Public Roads Management and Visualisation
44	Nikola Geciová, Lukáš Tomaščík and Marek Horváth	Development of a MATLAB application for simulating the SEIQRD pandemic spread model
46	František Babič, Tomáš Adam, Anna Biceková and Bianka Bosnyaková	Anomaly detection in blockchain network using unsupervised learning
48	Tomáš Kormaník, Marek Horváth and Lenka Bubeňková	Simplifying Education of Reactive Programming Concepts Using Comparative Application
59	Alžbeta Sklenáriková, Branislav Madoš, Norbert Ádám, Heidar Khorshidiyeh, Peter Poprík and Lukáš Tomaščík	Procedural Content Generator for Generating a 3D Graphical Representation of the River Model
66	Pavol Beskid and Matúš Sulír	Updatable Corpus of Compiled Java Projects with Dependencies
69	Judit Szűcs, Krisztián Németh and Tibor Guzsvinecz	A Preliminary Study on the Adoption of Self-service Technologies of Hungarian Cinemagoers
71	Renáta Rusnáková, Martin Chovanec, Maroš Harahus and Juraj Gazda	QUBO formulation of the shortest path algorithm and its evaluation on a quantum annealer
83	Alžbeta Kanalikova, Emilia Bubenikova and Peter Peniak	Testing of Asymmetric Cryptographic Authentication Protocols for Vehicle Communication

January 24, Friday

9:00 – 11:00 **[F1a] Session on Informatics III**
Session chair: Jean Rosemond Dora

Conference Room

5	Marek Kvet, Jaroslav Janacek and Michal Kvet	Valued neighborhood search for determination of Pareto-optimal solutions
14	Michal Kvet	Data Analysis - Aggregate Function Performance
15	Andrea Meleková and Michal Kvet	JSON Processing and Error Correction in SQL Functions
16	Jakub Rapšík and Michal Kvet	Improving Cybersecurity in Hospital Information Systems through Anonymization Techniques
36	Jiyan Mahmud, Tamás Jursonovics and Imre Lendak	How BBR Improves the Quality of Live TV Streaming Experience
84	Attila Nagy, Yue Wu, Rajnai Zoltan, Katalin Dr. Takácsné Prof. Dr. György and Beatrix Fregan	Glance at Quantum Innovations in Crop Pest and Disease Detection: Bridging Physics and Agriculture

9:45 – 11:00 **[F1b] Special Session on Recent PhD Research Achievements in Applied Informatics I**
Session organizer and chair: László Horváth

Business Lounge

2	Miklós Vincze, Sándor Burian and Miklos Kozlovszky	The 3D visualization of digitalized pathological serial sections on a native resolution
18	Zoltán Pusztai, Tamás Luspay and Ferenc Friedler	Control-Oriented Model for Energy-Efficient Electric Vehicle
8	Sándor Burian, Miklós Vincze, Roland Doczi, Tivadar Garamvölgyi, Bence Takács, Balázs Sütő, Dominik Virág, László Szűcs, Abdallah Benhamida and Miklos Kozlovszky	OUBot: The design and development of an underwater vehicle
40	Gerlinda-Boglárka Kis, László Szilágyi and Levente Kovács	Advancements and Future Directions in Retinal Image Analysis Using Deep Learning
56	Marek Bobcek, Zsolt Conka, Julius Simcak and Jozsef Bencsik	Machine Learning Techniques for Data Validation in Wide Area Measurement Systems

9:00 – 10:00 [F1c] Session on Artificial Intelligence II
Session chair: Ján Magyar and Gábor Molnár

e-poster

31	Haytham Dbouk and Layal Attieh	Microgrids Energy Demand Optimization: Towards Solar Sustainability in Lebanon and the Region
43	Peter Bednar, Jakub Ivan Vanko and Erik Ziak	Deep learning methods for multilingual classification of business documents
45	Marek Horváth, Lenka Bubeňková and Emília Pietriková	Exploring GPT-Generated Variations in C Programming Assignments
47	Martin Sarnovsky	Concept drift influenced by topic change in data streams from social media
55	Melisa Goron and Rodica Ioana Lung	Notes on the Performance Evaluation of Adversarial Examples
91	Adriana Hisemová, Petra Kolembusová, William Steingartner, Radovan Hudák, Norbert Ferenčík and Branko Štefanovič	Use of modern, diagnostic and treatment modalities in the treatment of malignant diseases of the breast with the application of compensators in radiotherapy
92	Matej Feduš, Norbert Ferenčík, Katarína Dudová, Petra Kolembusová, William Steingartner and Radovan Hudák	The use of CBCT imaging in the irradiation of prostate cancer

11:00 – 11:20 Coffee break

11:20 – 12:40 [F2a] Session on Intelligent Robotics and Intelligent Mechatronics
Session chair: Ján Magyar

Conference Room

70	Károly Fodor and András Rövid	Enhancing NetVLAD based localization with Gaussian Splat
76	Ján Vaščák, Yehor Nepokrytyi, Iveta Zolotová, Ladislav Fózó and Rudolf Andoga	Visual Detection and Identification of UAVs by YOLO Networks
35	Ádám Szabó, Dániel Károly Doba, Árpád Fehér and Szilárd Aradi	Modular Path-Following Control Architecture for Unmanned Ground Vehicles in ROS 2 Environment
9	László Lindenmaier, Szilárd Aradi and Tamás Bécsi	Comparison of Track Management Strategies in Automotive Track-to-Track Fusion Algorithms

11:20 – 12:20 [F2b] Session on Intelligent Robotics, Computational Intelligence, Intelligent Manufacturing Systems, Engineering Education (e-learning), Systems Engineering, Biomedical Engineering, and Man-Machine Systems
Session chair: Gabriella Farkas and Gábor Molnár

e-poster

58	Alina Zasetska, Ľubomír Urblík, Maroš Krupáš, Erik Kajáti and Peter Papcun	Automated Landing of a Drone on a Moving Vehicle Using Computer Vision
33	Maroš Harahus, Matúš Pleva and Renáta Rusnáková	Training T5 Models for Grammatical Error Detection in Slovak: Impact of Dataset Size
49	Miroslav Rakyta, Peter Bubenik, Vladimira Binasova and Katarina Staffenova	The predictive model for an intelligent maintenance system
7	Lenka Bubeňková, Emília Pietriková and Marek Horváth	Code Reuse and Good Clones in Programming Education
23	András Horváth and Gabriella Farkas	Effects of Online Learning Environments to the Academic Performance of Students
86	Mohammed Mudabbiruddin, Amir Mosavi, Felde Imre, Natacha Moniz and Mohamadreza Azodinia	Modeling Remaining Service Life and Structural Health Monitoring of Roads with Machine Learning And Deep Learning
26	Sakshi Mittal, Manjeet Kumar and Anukul Pandey	Dynamic Mode Decomposition Approach for Binary Motor Imagery EEG Signal Classification
27	Amit Kumar Dwivedi, Om Prakash Verma and Sachin Taran	EEG-Based Mental States Prediction of Driver

12:20 – 13:30 Lunch

Restaurant

13:30 – 14:50 [F3a] Session on Systems Engineering, Intelligent Manufacturing Systems and Man-Machine Systems
Session chair: Matúš Pleva

Conference Room

62	Anca-Adriana Petcut-Lasc, Valentina-Emilia Bălaș, Flavius-Maxim Petcuț, Raul Rotar and Daniel Alexuță	Performance Evaluation of a Residential Photovoltaic System in Matlab Simulink
80	Rebin Saleh and Balazs Villanyi	Harnessing IIoT and Industry 4.0 Paradigms for Advanced Energy Consumption Forecasting Using Ensemble Learning Techniques
101	László Horváth	Model of Research for Engineering Related Investigations
53	Maroš Krupáš, Vincent Orlovský and Iveta Zolotová	Integration of Human Localization into Augmented Reality Applications

13:30 – 14:50 [F3b] Special Session on Digitalisation, Generation Research, Consumer Trends II
Session organizers and chairs: Mónika Garai-Fodor, Ágnes Csiszárík-Kocsir and János Varga

Business Lounge

29	Róbert Štefko, Kristián Eliáš, Kristián Glajc, Ardian Hyseni, František Margita and Július Šimčák	Cybersecurity Challenges in the Power Sector: Analysing Attacks on Electrical Grids and Substations
61	Umair Ali Khan, Janne Kauttonen and Dmitry Kudryavtsev	AI Adoption in Finnish SMEs: Key Findings from AI Consultancy at a European Digital Innovation Hub
67	Dmitry Kudryavtsev, Teemu Moilanen, Elisa Laatikainen and Umair Ali Khan	AI implementation capability assessment and development planning: towards a tool for SMEs
94	Zoltán Bodrog and Csilla Mile	Environmentally conscious consumer behavior among generation Z – trends and motivations

14:50 – 15:10 Coffee break

15:10 – 16:30 [F4a] Session on Computational Intelligence
Session chair: Dániel András Drexler

Conference Room

37	Dušan Čatloch, Eva Chovancová and Sylvia Maťašová	Comparison of different machine learning algorithms for Stock Price Prediction
51	Tilen Hliš, Iztok Fister and Iztok Fister Jr.	Path overlap detection and property graph construction from TCX data for advanced analysis
63	Csaba Hajdu, Ahmet Mehmet Karadeniz and László T. Kóczy	Synergies between Fuzzy Signatures and Hypergraphs
96	Martin Ferenc Dömény, Levente Kovács and Dániel András Drexler	Cost-effectiveness Analysis of Optimized Chemotherapy Treatments

57	Zoltan Varga and Ervin Racz	Noise Reduction and Precision Enhancement: Data Smoothing Techniques for Dye-Sensitized Solar Cell Measurement Data
88	Wendler Márk, István Szűcs, Bendiák István and József Kopják	Enhancing Sensorless Start-Up in PMSM: Analysis and Optimization of Open-Loop Technique for Smooth Transitions
89	István Szűcs, József Kopják, Gergely Sebestyén and Wendler Márk	Analyzing EV Users' Charging Patterns for Estimating Session Parameters and Optimizing Load Management
93	Zhyar Kwekha Rostam and Gábor Kertész	Advancing Scientific Text Classification: Fine-Tuned Models with Dataset Expansion and Hard-Voting
97	Mirtill-Boglárka Naghi, Levente Kovács and László Szilágyi	A parameter selection strategy for the generalized fuzzy-possibilistic c-means algorithm
106	Tamás Zoltán Zakota and József Fogarasi	Information Technology Solutions in the Romanian Tree Inventory Research: A Review

Thank you for your contribution!

See you at SAMI 2026!