



January 28, Wednesday

18:00 Dinner
TUKE-OU Young Researchers Grant Award Ceremony

Restaurant

January 29, Thursday

9:00 – 9:20 Opening Ceremony

Conference Room

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

Conference Room

11	Zdeněk Bečvář	Empowering Autonomous Systems with Multi-Modal Semantic Communication and Computing
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10:00 – 10:20 Coffee break

10:20 – 11:00 Plenary Session II
Session chair: Imre J. Rudas

Conference Room

1	Alexandru Kristály	Sharp Logarithmic-Sobolev Inequalities via Optimal Mass Transport
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* This preliminary program had been prepared on the basis of paper data in EasyChair. However, both final program and pendrive proceedings will be prepared according to the final papers submitted into IEEE PDF eXpress.

11:00 – 11:40 Plenary Session III
Session chair: **Dániel András Drexler**

Conference Room

16	Ami H Gandomi	Evolved Machine Intelligence in Action
123	Mohammadreza Akbarzadeh, Mohammad Mehdi Hoseini Karani, Mohammad Reza Nikoo, Mahdieh Akbariasl and Amir H Gandomi	Data-driven Probabilistic Seismic Demand Modeling of Offshore Wind Turbines

11:40 – 13:00 Lunch

Restaurant

13:00 – 14:40 [T1a] Session on Artificial Intelligence I
Session chair: **Martin Sarnovsky**

Conference Room

114	Martin Javurek, Radoslav Forgáč, Miloš Očkay, Matúš Janok , Bianca Badidová and Ľuboš Skurčák	Prediction of extra-high voltage values using transformer neural network
68	Amadej Krepek , Iztok Jr. Fister and Andrej Vilhar	Physics-Informed Machine Learning for Wind Forecasting using WRF
72	Péter Farkas , Tamás Bécsi and Szilárd Aradi	Rollout-Guided Switching to Failure-Trained Policies in Residual Reinforcement Learning
91	Mahdia Ahmadi , Mariam Jvarsheishvili, Rui Pedro Lopes, Getúlio Igrejas and Pedro João Rodrigues	Anomaly Detection in Gas Sensor Data Using LSTM Autoencoder and Latent Space Analysis
137	Attila Farkas and Gábor Kertész	Evaluation of Transformer Model Fine-Tuning on HPC Systems

13:00 – 14:40 [T1b] Special Session on 5G and Cybersecurity I
Session organizers and chairs: **Anna Bánáti and Miklós Kozlovsky**

Business Lounge

63	Szandra Anna Laczi and Valéria Póser	Exploiting Generative AI: How Children Bypass Safety Filters with Prompt Injection
65	Viktor Szulcsányi and Sándor Magyar	A Review of Possible Methods for Building a Network Threat Detection Dataset for Data-driven Machine Learning
85	Kata Egres and András Kovács	Developing an Anomaly Detection Module for Online Video Platforms
42	Imre Pardi and Anna Bánáti	Transitioning from Windows-based to Linux-based Cyber Ranges:\\ Design, Automation, and Educational Impact
92	Zoltán Aradi and Anna Bánáti	Honeypots and the Law in 2025: “Without Right,” Entrapment, and the Edges of Defensive Deception

13:00 – 14:00 [T1c] Poster Session I
Session chair: Monika Pogátsnik

e-poster

135	Peter Artimovič , Mária Mareková and Miroslava Rabajdová	Analysis of Gene Set-Derived Features for Endometrial Receptivity Profiling
138	Monika Švecová , Katarína Fiedlerová, Vladimír Kraus, Anna Birková, Mária Mareková and Katarína Dubayová	Machine Learning Framework for Urine Screening and Early Disease Detection in Women's Health
27	Gregor Sopko , Martin Pollák, Zuzana Mitaľová, Jakub Kaščák and Marek Kočiško	Design of Modular Welding Fixtures Using CAD System
9	Marek Horváth , Matúš Motyka and Emília Pietriková	Detection of Programming Style Consistency and Plagiarism through Code Similarity Metrics
35	Monika Pogatsnik , Judit Módné Takács and Éva Takács	A Decade of Practice-Based Engineering Education
44	Tímea Bekk and Monika Pogátsnik	Teacher roles in the age of AI
143	Samuel Novotný , Monika Kohútová, William Steingartner, Ján Perháč and Arsen Fesiuk	An Interactive Tool for Stepwise Normalization and Transformation of Context-Free Grammars

14:40 – 15:00 Coffee break

15:00 – 17:00 [T2a] Session on Intelligent Robotics, CAD/CAM/CAE Systems and Biomedical Engineering
Session chair: Alexandru Kristály

Conference Room

80	Israr Akhter , Martin Dekan and Frantisek Duchon	Integrated Machine Learning and Data Optimization for Sensing Roadway Motion Objects
95	Dániel Jonatán Varga and Domokos Kiss	Algorithmic Model Synthesis and Control for Mobile Robots Following an Implicit Curve
17	Youssif Abuzied, Zein Nouredin, Mostafa Abdelkhalik, Abdelaziz Sayed, Ibrahim Gohar, Tamer Elbatt, Mohamed Abdelsalam , Mohamed El-Leithy, Mostafa Gaafar and Farida Mossad	Cyberscape: A Novel Generative AI-Based Framework for Multi-Robot Mission Planning
79	László Horváth	Environment for Integrated Professional Industrial Research
129	Samuel Rojko and Michal Varga	A Lightweight Modular System for Interactive Mesh Editing Using an Extended Half-Edge
53	Tomáš Balint , Jozef Živčák and Norbert Ferenčík	Design and manufacture of bone implant for biomedical applications

15:00 – 17:00 [T2b] Special Session on Digitalisation, Generation Research, Consumer Trends I
Session organizers and chairs: Mónika Garai-Fodor, Ágnes Csiszárik-Kocsir and János Varga

Business Lounge

56	Viktória Buday , Magnus Klofsten and György Eigner	Public Perception of Innovation and Science Parks in Hungary
108	Krisztián Bálint and Péter Szikora	Blockchain-Based DApp (Decentralized Application) Opportunities in the Field of Electric Vehicles
41	Balazs Deak and Istvan Szabo	Smarter Marketing, Stronger Trust: AI Adoption in SMEs
109	Marcell Nanasi , Donát Fridrich, Viktória Sugár and István Kistelegdi	Establishing a Reliable Model Base for Urban Climate Simulations: Data Requirements and Methodological Insights
126	Péter Szikora and Pál Fehér-Polgár	Technological trust and social risk perception in the acceptance of self-driving cars
93	Csilla Mile and Zoltán Bodrog	The striking inconsistency of what we pursue as global sustainability

15:00 – 16:00 [T2c] Poster Session II
Session chair: Laldislav Főző

e-poster

38	Simona Chovancová and František Babič	Interpretable Survival Analysis Models for Breast Cancer: Classical and ML approaches
43	Jaroslav Marko , Anton Baláž and Tomáš Sivák	IDS Systems Through Proactive Vulnerability Scanning in Network Environments
61	Peter Bednár, Oliver Lohaj and Roman Hulyk	Hierarchical customer segmentation based on electricity consumption
128	Linda Blahová , Ivan Cimrák and Jozef Kostolný	Cross-Database Analysis of Mammography Data via a Configuration-Driven Framework with Automated Visualization
19	Zuzana Mitaľová, Jakub Kaščák , Marek Kočíško, Martin Pollák and Gregor Sopko	Utilization of recyclates in filament manufacturing
25	Vladimír Szomosi , Marek Bobček, Július Šimčák, Róbert Štefko and Zsolt Čonka	Resilient, State-Based Dispatch Algorithm for Vehicle-to-Building (V2B) Integration to Optimize Building Energy Resilience and Economy
50	Mohammad Amin Rezaei and Amir Mosavi	Surrogate-Assisted Evolutionary Design of High-Voltage Solid-State Modulators for Industrial and Medical LINACS

17:30 Welcome Reception

Restaurant

January 30, Friday

9:00 – 10:40 [F1a] Session on Artificial Intelligence II

Conference Room

Session chair: Zsolt Čonka

29	Karol Łazaruk , Piotr Tokarski, Karol Kowalczyk, Mariusz Dzieńkowski and Małgorzata Plechawska-Wójcik	Artificial Intelligence as a Guiding Voice: Evaluating Chatbots for Users with Visual Impairments
83	Lukas Radosky , Miroslav Blstak, Matej Krajcovic and Ivan Polasek	Approaches to Semantic Textual Similarity in Slovak Language: From Algorithms to Transformers
106	Eris Zeqo, Silvana Qose and Rajnai Zoltan	Securing AI-based healthcare systems using Blockchain Technology and applying defense in depth.
86	Lukas Radosky and Ivan Polasek	Large Language Models in Software Documentation and Modeling: A Literature Review and Findings
89	Xhezmiye Palushi , Esmeralda Kadena, Kleona Elezaj and Lourdes Ruiz	Reshaping HRM Practices Through AI: A Comprehensive Overview

9:00 – 10:40 [F1b] Special Session on Recent Digitalisation, Generation Research, Consumer Trends II

Business Lounge

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

31	Péter Sasvári and Noémi Hajdú	Generational Patterns of Digital Research Activity: Age Dynamics and Publication Profiles within the Hungarian Academy of Sciences
48	Krisztián Bálint	Creating a Supply Chain and Implementing Its Encryption Solution for Secure Data Storage
84	Albert Molnar and Shandor Molnar	Modelling cyclical unemployment using machine learning and traditional time series forecasting techniques in the Visegrád group countries
33	Dóra Ládi and Noémi Hajdú	Trust, Price, and Convenience: Understanding Local Food Purchase Drivers in a Hungarian Region
144	Botond Pátrovics, Enikő Nagy and György Molnár	Database management teaching methodology solutions using innovative and flipped classroom methods

9:00 – 10:00 [F1c] Poster Session III

e-poster

Session chair: Judit Szűcs

21	Dušan Čatloch, Eva Chovancova, Martin Chovanec and Sylvia Maťašová	DDoS Attack Detection Using Machine Learning
37	Chris Uličný , Robert Rauch and Juraj Gazda	Efficient Multi-Exit Semantic Segmentation via Knowledge Distillation and Prediction Recycling
40	Sylvia Maťašová , Martin Chovanec, Eva Chovancová and Dušan Čatloch	Machine Learning-Based Automation of Document Indexing and Key Information Extraction
45	Tomáš Tisovský , Martin Komák and Ján Lang	Unsupervised Detection of Visual Anomalies in Industrial Images Using Convolutional Autoencoders

77	Máté Meglécz , András Kalapos, Liliána Szabó, Zsófia Dohy, Máté Kiss, Béla Merkely, Bálint Gyires-Tóth and Hajnalka Vágó	Generating T1 and T2 Mapping Cardiac MRI Using Semantic Diffusion Model for Data Augmentation
110	Zhiqing Xu , Yee Wei Law, Christopher Chow, Md Mizanur Rahman and Raufdeen Rameezdeen	Remaining useful life prediction across domains via a clustering-aware and time-weighted subdomain adaptation network
118	Martin Buzalka, Peter Bubeník, Miroslav Rakyta and Vladimíra Biňasová	Evaluating Human-Executed and LLM-Based SMED Methods for Changeover optimization in a Lathe line
120	Viera Kresnakova, Martin Sarnovsky and Frantisek Babic	Forecasting of Municipal Waste Generation Using Machine Learning

10:40 – 11:00 Coffee break

11:00 – 12:00 [F2a] Session on Computational Intelligence I
Session chair: Jean Rosemond Dora

Conference Room

47	Dušan Krokavec and Anna Filasova	Network Consensus with Time-delay Ostensible Metzler Agents
52	Márk Zrubka , Tarlan Ahadli and Zsombor Zrubka	Assessing Probability Rating Performance for Large Language Models in Systematic Literature Review Automation
88	Marcell Németh , Marcell Balázs Tóth and Gábor Szűcs	Conformal Counterfactual Forecasting with Reduced Uncertainty for Time Series Predictions

11:00 – 12:30 [F2b] Special Session on Recent PhD Research Achievements in Applied Informatics I
Session organizer and chair: László Horváth

Business Lounge

10	Attila Biró , Levente Kovacs and László Szilágyi	Adapting Hidden Markov Models and Local Alignment Algorithms for Real-Time Lineup Change Decisioning in Ice Hockey
15	Miklós Vincze , Sándor Burian and Miklós Kozlovsky	The effect of different 3D visualization settings on performance and quality
18	Zhyar Kwekha Rostam and Gábor Kertész	EQ-5D Classification Using Biomedical Entity-Enriched Pre-trained Language Models and Multiple Instance Learning
23	Milán Balázs , Bálint Babenyecz and György Eigner	Cloud Computing Platforms in Research and Industry: A Systematic Review of Cloud and Hybrid Solutions
60	Péter Ákos Girgász and Péter Kádár	Experimental Evaluation and System-Level Potential of Bifacial Photovoltaic Technologies
96	Péter Szabó and Balázs Gáspár	Predicting ATM cash demand using machine learning

11:00 – 12:00 [F2c] Poster Special Session on Recent Digitalisation, Generation Research, Consumer Trends III*e-poster*Session organizers and chairs: Mónika Garai-Fodor, Ágnes Csiszárík-Kocsir and János Varga

20	István Gál and Andrea Tick	Resilience of Far Eastern Automotive Supply Chains in Central Europe: A PRISMA-Based Systematic Review
32	János Varga and Anita Plötz	The relationship between food safety and the sustainable development goals: Synergies and paradoxes between the GFSI and the SDG index
36	Szilárd Berke and Andrea Tick	Managing Across Generations: Organizational Problems and Solutions in a Changing Workforce
140	István Balázs Vass	Digital monument preservation – contemporary IT technologies in the service of monument protection
151	Ágnes Csiszárík-Kocsir	Payment solutions and habits in the context of financial exclusion
153	Nikolett Huszak, Drita Kruja and Mónika Garai-Fodor	Examining sustainability, awareness, and community spirit among Albanian university students

12:00 – 13:10 Lunch

*Restaurant***13:10 – 15:10 [F3a] Session on Systems Engineering, Intelligent Manufacturing Systems and Engineering Education***Conference Room*Session chair: Zoltán Rajnai

34	Baylar Bayramov and Balazs Villanyi	CSV-to-Chain: A Minimal Auditability Layer for IIoT-to-ERP CSV Imports
149	Anca Adriana Petcut Lasc , Flavius-Maxim Petcut and Valentina Emilia Balas	Design and Performance Assessment of a 10 kW East–West Oriented Photovoltaic System
130	Yue Wu , Attila Nagy, Rajnai Zoltan, Beatrix Fregan, Katalin Dr. Takácsné Prof. Dr. György and István Takács	The Barriers to Agriculture 4.0 Adoption in Hungary
133	Antón Valladares-Poncela , Tiago M. Fernández-Caramés, Javier Vilar-Martínez and Paula Fraga-Lamas	Instance Segmentation Models for Real-Time Progress Monitoring and Quality Control in Industrial Plant Construction
54	Ildikó Holik , Attila Viola and István Dániel Sanda	Examining the Application Possibilities of Artificial Intelligence among Engineering Students
75	Georgina Nóra Tóth and Ágota Drégelyi-Kiss	Bridging Skill Gaps through STEM: HR Risk Management in Higher Education for Industry 4.0 and 5.0

13:10 – 15:10 [F3b] Special Session on 5G and Cybersecurity II
Session organizers and chairs: Anna Bánáti and Miklós Kozlovsky

Business Lounge

71	Anita Pál and Sándor Magyar	Zero Trust Integration in 5G Military Communication Networks and a Technical Framework for Cyber Resilience
100	Milán Szilveszter, Rita Fleiner, Zsolt Bringye and Eszter Kail	A Conceptual Framework for Enhancing LoRaWAN Security Testing with LLM-Based Synthetic Log Generation
64	Kristóf Zsombor Kövesi and Anna Bánáti	Development of Hybrid Automotive Simulation Environment for CAN Network Threat Model Analysis
94	Máté Érsok , Kristóf Zsombor Kövesi and Anna Bánáti	Systematic Mapping Framework for NIS2 Directive Compliance: ENISA Technical Requirements to Cyber Range Implementation
103	Benedek Máté Tóth and Anna Bánáti	Hybrid AI-Driven Intrusion Detection System for CAN Bus Networks
104	Miklós Orsós and Anna Bánáti	Attack Graphs for Standalone Non-Public 5G Networks

15:10 – 15:30 Coffee break

15:30 – 17:10 [F4a] Session on Artificial Intelligence III
Session chair: Rita Fleiner

Conference Room

51	John El Gallab , Alia El Bolock and Ali Hadi	TextBACON: An Unsupervised Statistically Robust Textual Outlier Detection via Embeddings
67	Emilio Mastriani , Alessandro Costa, Federico Incardona, Kevin Munari and Sebastiano Spinello	Segmentation over Complexity: Evaluating Ensemble and Hybrid Approaches for Anomaly Detection in Industrial Time Series
101	Patrik Dobrovodsky , Eszter Kail, Rita Fleiner and Viktória Tafferner-Gulyás	Evaluation of Large Language Models enhanced with Retrieval-Augmented Generation: A literature review
134	Róbert Bače and Ľuboš Buzna	Comparing Data-Driven with Event-Driven Predictions of Tram Arrival Delays
136	Dániel Tamás Gujgicz and Adam Szabo	Transformer-Based Prediction Model for Lateral Vehicle Dynamics

15:30 – 17:30 [F4b] Special Session on Recent PhD Research Achievements in Applied Informatics II*Business Lounge*Session organizer and chair: László Horváth

12	Attila Biró , Levente Kovacs and László Szilágyi	Bioinformatics-Inspired Robust Smith–Waterman–Guided Lineup Optimization in Basketball Using HMM Surrogates, PWMs, and Cantelli-Bounded Genetic Algorithms
55	Azar Attila Vamos , Attila Kovari and Gabor Kertesz	Assessing the potential of LLMs for optimizing SCL-based PLC programs in industrial motion control
74	Barbara Simon, Balázs Borkó, Bence Borkó, András Héger, Ádám Hartveg , László Szász, Lehel Dénes-Fazakas, György Eigner, Levente Kovács and László Szilágyi	Sleep Efficiency Prediction with Machine Learning and Deep Neural Networks
78	Adelino Joao Ganga Ngunza and Ervin Racz	Photovoltaic measurements at the DC side at the Biópio PV Power Plants in Angola
81	Csaba Arendas , Tamás Haidegger and Zsombor Zrubka	From Automation to Validation: Assessing Human–LLM Agreement in Systematic Reviews of Venture Capital Investment Strategies
102	István Szűcs , József Kopják and Zoltán Balogh	Exploring the Potential of Hybrid Petri Nets in Electric Vehicle Charging Models
146	Richard Füzeséry , Kaziwa Saleh, Sándor Szénási and Zoltán Vámosy	Object Counting with GPT-4o and GPT-5: A Comparative Study
148	Sándor Nagy , József Kopják and Gábor Nádor	Comparative Study on Bar Materials in Cage-Start Synchronous Motors: Influence on Starting Torque, Current and Thermal Behavior

18:00 Banquet*Restaurant*

January 31, Saturday

9:00 – 10:20 [S1a] Session on Informatics I*Conference Room*Session chair: Oliver Lohaj

111	Jean Rosemond Dora , Ladislav Hluchý and Michal Staňo	Exploit Linux VIM Configuration Backdoor and Mitigation
115	Michal Kvet	Optimizing data access using enhanced Table Access Full method
117	Friday Ikechukwu Agu , Robert Andok, Klarák Jaromír and Jean Rosemond Dora	Malware Detection in Sensor Systems: Probability-Distribution Framework Versus Deep Learning
125	Tibor Guzvinecz and Judit Szűcs	Genre Matters: Analyzing Toxicity Patterns in Steam Game Reviews

9:00 – 10:20 [S1b] Session on Computational Intelligence II
Session chair: Tamás Bécsi

Business Lounge

69	Olivér Törő, Domonkos Csuzdi and Tamás Bécsi	Exploring the Matrix-Logarithm Formulation of the Exact Flow Filter
76	Ákos Botos and József Fogarasi	A PRISMA-Based Meta-Analysis of Neural Network Architectures in Stock Market Forecasting
119	Krisztián Póra and Attila Csaba Marosi	Adaptive Carbon-Aware Scheduling for Federated Cloud Systems with Time-Critical Workloads
131	Tilen Hliš , Iztok Fister, Uroš Mlakar and Iztok Jr. Fister	Timestamp interestingness measure for time series numerical association rule mining

10:20 – 10:40 Coffee break

10:40 – 12:00 [S2a] Session on Informatics II
Session chair: Olivér Törő

Conference Room

112	Jean Rosemond Dora , Ladislav Hluchý and Friday Ikechukwu Agu	Analyzing the Security Implications of Extensible Configuration Files
139	Khalil Ben Khaled , Dóníz Borsos and Jozsef Katona	Vulnerability Scanning Techniques in IoT Firmware
142	Márk Emődi , Róbert Lovas and József Kovács	Root-Cause Analysis of Latency Slowdowns in Distributed Microservice Applications
113	Jean Rosemond Dora , Ladislav Hluchý and Jean Rosemond Dora	Behavioral Detection and Formal Mitigation of Application-Level Persistence Threats in Extensible Text Editors

10:30 – 12:15 [S2b] Special Session on Recent PhD Research Achievements in Applied Informatics III
Session organizer and chair: László Horváth

Business Lounge

62	Azar Attila Vamos , Attila Kovari and Gabor Kertesz	Evaluating the Effectiveness of AI-Generated Test Cases for Industrial Applications
73	Dezso Bakacs , Attila Toth and Zoltán Ákos Vizvári	A proposal for a proof-of-concept experiment for the development of bioimpedance-based lactate-optimized training
90	Eszter Lukács , Tamás Levendovics and Tamás Haidegger	SCARS: an Autonomous Objective Surgical Skills Assessment Framework for Robot-Assisted Minimally Invasive Surgery
105	Attila Biró , Levente Kovacs and László Szilágyi	Bayesian Biostatistical and Physiological Modeling for Optimal Triathlon Relay Team Assembly from Historical Results
127	Roland Szand , József Kopják and Gergely Sebestyén	Design and Implementation of a Compact RF Power Sampling Generator for Low-EMI Operation
141	Márk Wendler and József Kopják	Acquisition Time in Dual Shunt-Based Current Sensing for PMSM FOC
152	Mihály Szabó , Attila Kővári and Gábor Kertész	Formalized Modeling and Deterministic Traceability in Computer Vision Pipelines - A Case Study

12:00 – 13:00 Lunch

Restaurant

Thank you for your contribution!

See you at SAMI 2028!