



September 25, 2025, Thursday



Venue: Assembly Hall in Town Hall (address: Gradska kuca, Trg Slobode 1, Svecana sala)



Dress code:
business casual

- 13:30 – 17:00 Registration
- 14:00 – 14:15 **Opening Ceremony**
- 14:15 – 14:50 **Introducing SISY History and Márta Takács on Her 65th Birthday by Imre J. Rudas**
- 14:50 – 15:30 **Plenary Talk I**
- Session chair: **Igor Fürstner**

7	Márta Takács	Fuzzy Challenges
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15:30 – 15:50 Coffee break

15:50 – 16:30 **Plenary Talk II**

Session chair: **Levente Kovács**

2	Robert Kozma	Implementation of Brain-Inspired Multi-Sensory Integration and Decision Making using Embodied Robot Platforms
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16:30 – 17:10 **Plenary Talk III**

Session chair: **Dániel Drexler**

22	Ljiljana Trajković	Data Mining and Machine Learning for Analysis of Network Traffic
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17:10 – 17:50 **Plenary Talk IV**

Session chair: **Márta Takács**

9	Bernard De Baets	“Fuzzy Sets”, 60 Years Later
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18:00 **Welcome Reception**

September 26, 2025, Friday



Venue: Subotica Tech, VTS (address: Marka Oreskovica 16)



Dress code:
business casual

9:00 – 10:40 [F1a] **Session on Informatics I**

Room A2

Session chair: **Lourdes Ruiz**

13	Secundino Marrero, Diego Cordova Guamanquispe and Lourdes Ruiz	Tool for the Analysis of Distributed Generation for Self-Consumption in Urban Areas
25	Victor Mitrana , Mihaela Paun and Ion Petre	Two New Types of Evolution in Quantitative Reaction Systems
35	Attila Kanto and Attila Csaba Marosi	Optimizing Big Data Workloads in Hybrid Cloud Environments: Evaluating File Formats and Compression Codecs
39	Márk Emődi, Konrád Bánfi and József Kovács	Slurm Deployment in Cloud Environments: Enhancing Utilization and Scalability
41	Ákos Kránics , Gábor Hosu, Eszter Farkas, Kinga Petkes and Nándor Bándi	B.o.B: Intelligent chatbot employing document-centric data processing

9:00 – 10:00 [F1b] **Session on Intelligent Robotics**

Room 204

Session chair: **Enikő Nagy**

59	Levente Daroczi, Benjamin Demeter , Gyöngyi Katona, Dénes Mihály, Csaba Sulyok and Arnold Szász	Automated Testing of Interaction-Requiring Devices with a Robotic Arm and Object Detection
113	György Molnár , André Ádin Kiss and Enikő Nagy	Integration of visual programming and artificial intelligence in robotics education: The pedagogical possibilities of the NAO robot
114	András Makány and Péter Galambos	A Framework for Generating Synthetic Expert Demonstrations in Digital Twin-based Robot Learning

10:00 – 10:40 [F1c] Session on Applied Mathematics I

Room 204

Session chair: **Biljana Mihailović**

46	Miloš Milovanović	On the Optimal Representation of a Continuous Signal
50	Mirjana Štrboja, Martin Kalina, Lucian Coroianu and Biljana Mihailović	The numerical characteristics of BLOWA operators: orness measure and entropy

9:00 – 10:40 [F1d] Session on Computational Intelligence

Room 206

Session chair: **László Gogolák**

28	Boldizsár Bednárík and László Gogolák	A Generalized Memory Evaluation Method for Local Language Models with Applications in Critical Infrastructure Security
36	Krisztián Póra , Imre Felde and Attila Csaba Marosi	Nature-inspired algorithms for energy-aware application scheduling in fog computing environments
48	Abu Shad Ahammed , Sayeri Mukherjee and Roman Obermaisser	Diagnosing Psychiatric Patients: Can Large Language and Machine Learning Models Perform Effectively in Emergency Cases?
67	Bochra Jendoubi and Jiyen Mahmud	A Dual-Stage Anomaly Detection Framework: Integrating Self-Organizing Maps with KNN Refinement
85	Attila Nagy , Yue Wu, Szilvia Ács, Beatrix Fregan and Rajnai Zoltan	Quantum Machine Learning-Based Intrusion Detection: A Comparative Study on Real Quantum Hardware

9:00 – 11:00 [F1p] E-poster Session

Inspira student corner

Session chairs: **Sanja Maravic Cisar, Ivana Stajner-Papuga, Gábor Molnár, Miklós Mezei and Tamás Nógrádi**

26	Lidija Čomić and Nebojsa Ralevic	A Combinatorial Coordinate System for the Slanted Cubic Grid
54	Ljubo Nedović, Đorđe Dragić , Nebojša Ralević and Andrija Blesić	Construction of distance functions on a set of fuzzy numbers
74	Nataša Duraković , Tatjana Grbić and Slavica Medić	g-probability distribution of a non-negative discrete random variable

27	Sanja Maravic Cisar , Piroška Stanić Molcer and Robert Pinter	Design and Implementation of an IoT-Based Smart Irrigation System for Sustainable Agriculture
34	Tamara Ranković , Mateja Rilak, Janko Rakonjac and Miloš Simić	A monitoring system for collecting and aggregating metrics from distributed clouds
44	Milena Jelić and Miloš Simić	Towards a New Distributed Overlay File System: An Overview and Proposal
72	Erik Krascsenits and Attila Kiss	Comparative Analysis of ARIMA and LSTM Models for Weather Forecasting Using Time Series Data
120	Štefan Koprda, György Molnár and Zoltán Balogh	Design and Implementation of a Modular Smart Home System Using ESP32 and Apple HomeKit Integration
122	Ádám Gyula Nemes and György Eigner	Evolution of Neural Architectures for EEG Motor Paradigm Processing: Current Trends and Future Directions
20	Yue Wu , Attila Nagy, Rajnai Zoltan and Beatrix Fregan	Advancing Digital Education: Technologies, Opportunities, Challenges, and Future Directions
80	Marek Paulik, Simon Petro, Rudolf Andoga, Peter Udvardy, Peter Korba, Robert Czako, Peter Klamo, Martin Vencel and Ladislav Fozo	Design of an optical measuring stand for the analysis of iSTC-21v jet engine fuel nozzle spray
14	Sándor Burian , Sándor Szénási and Miklos Kozlovsky	Application possibilities of CUDA programming in bioprinting and tissue engineering used in food production
73	Attila Nagy and Márta Takács	Classification of quantum internet security vulnerabilities by layer
23	András György Györök, Bertalan Beszédes and Péter Udvardy	Concept of an Ultrasound-Based Collaborative Mobile Robot Localization System

10:40 – 11:10 Coffee break

11:10 – 12:30 [F2a] **Session on Informatics II**

Room A2

Session chair: **Dunja Srpak**

53	Walter Mayer, Szilárd Farkas , Csaba Sulyok, Dávid Szopos and Lóránt Tibor Fazakas	Precise Indoor Positioning Using Ultra-Wideband
63	Norbert Biró, Gergő Kelemen , Dénes Bálint Kelemen-Fehér, Katalin Rácz-Nagy and Károly Simon	VoteHub: Highly Customizable and Secured Voting System for Institutions Providing AI-Based Transcript Generation
75	Márk Emődi , József Kovács and Róbert Lovas	Mesh-Aware Debugging: Identifying Resource Allocation Issues in Distributed Microservices
88	Dunja Srpak , Josip Srpak, Antonija Šumiga and Filip Frančić	Implementation of OpenPLC concept for cost effective industrial automation

11:10 – 12:30 [F2b] **Session on Applied Mathematics II**

Room 204

Session chair: **Martin Kalina**

61	Vanja Stepanovic and Andreja Tepavcevic	A note on the solutions to lattice-valued relational equations and inequations
76	Dragan Jočić and Ivana Štajner-Papuga	A note on aggregation of t-norm based fuzzy vector subspaces
94	Árpád Handler , Szilárd Jagasics and József Kopják	Dynamic Normalizing Method for Sinusoidal Signals
99	Juraj Kalafut and Martin Kalina	Unifunctions and nullfunctions, a new generalization of overlap and grouping functions for bipolar modelling

11:10 – 11:50 [F2c] **Session on Intelligent Mechatronics and Intelligent Manufacturing Systems**

Room 206

Session chair: **Attila Rétfalvi**

11	Muhammed Arif Şen	Implementation of Fuzzy Gain-Scheduled PID Controller on Multi-Dof Rotary Torsion System
33	Attila Rétfalvi, Tamás Tornai and Tamás Fábián	Verification of specific cutting force of C60 steel at turning

11:50 – 12:30 [F2d] **Special Session on 5G and Cybersecurity I**

Room 206

Session organizers and chairs: **Anna Bánáti and Miklós Kozlovsky**

38	Zoltán Aradi, Anna Bánáti and Ernő Rigó, Eszter Kail	Metrics-Driven Evaluation and Optimization of Honeypots: Toward Standardized Measures of Deception Effectiveness
78	Lajos Olcsak , Rita Fleiner and Anna Banati	IDS incident integration into Attack Graph

12:30 – 14:00 Lunch

Restaurant Spartak

14:00 – 15:20 [F3a] **Session on Informatics III**

Room A2

Session chair: **Éva Hajnal**

90	Tilen Hliš , Iztok Fister, Patrik Rek and Iztok Jr. Fister	Time-aware analysis of overlapping cycling segments from activity tracker data
98	Robert Logozar and Matija Mikac	Avoiding Bad Programming Practices in Education and Profession — the Initial Consideration
43	Loubna Seddiki , Karima Benhamza and Imre Lendak	A Two-Stage Deep Hybrid Model for Intrusion Detection in IoMT
121	Erik Dobra and Éva Hajnal	AI Vision Smoke and Fire Detection Solution

14:00 – 14:40 [F3b] **Special Session on Digitalisation, Generation Research, Consumer Trends**

Room 204

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

77	Krisztina András and Tünde Máté	Olympics and sustainability - From qualification criteria to measured winning criteria
104	Vivien Leuba and Noémi Piricz	Leveraging AI for Customer Relationship Management in Healthcare Supply Chains: Benefits, Challenges and Limitations

14:45 – 15:15 [F3c] **Special Session on PhD Student Research in Applied Informatics I**

Room 204

Session organizer: **László Horváth**

Session chair: **Janos Simon**

37	Dávid Holecska , Judith Pálfi Dr. Habil, Márta Takács Prof. Dr. and Ferenc Molnár Dr.	Analysis of prediction uncertainties and their impact to facilitate the integration of solar producers into the system
32	Zhyar Kwekha Rostam , Márta Takács and Gábor Kertész	Evaluating Large Language Models: A Review of Metrics and Benchmarks

14:00 – 15:20 [F3d] **Special Session on 5G and Cybersecurity II**

Room 206

Session organizers and chairs: **Anna Bánáti and Miklós Kozlovsky**

81	István Oláh and Sándor Magyar	Secure use of Artificial Intelligence in a data-driven financial institution
79	Zsolt Maronga and Anna Banati	Efficient and Interpretable Random Forest-based Attack Detection for IoT Network Traffic
93	Imre Pardi and Anna Bánáti	Gamified and Automatically Evaluated Windows AD-based Cyber Ranges in Cybersecurity Education
110	Máté Érsok , Ádám Balogh, Kristóf Zsombor Kövesi and Anna Bánáti	Cyber Range Infrastructures for NIS2 Directive Compliance: Enterprise Use Cases and Training Imperatives

14:40 – 15:00 [F3p] **E-poster Session**

Inspira student corner

Session chairs: **Mónika Garai-Fodor, János Varga and Döníz Borsos**

58	János Kosztolányi and Zsolt Dr. Téglá	Bridging the Gap Between Scientific and Practical Interpretations of Lean Management
124	Gábor Sterczl	The Practical Usage of Artificial Intelligence in Pedagogical Practice: A Study of Teachers' Usage Habits in Hungary
125	János Dr. Varga and Anita Plötz	Energy carriers as risk factors in the bread supply chain
127	Ádám Mészáros and Ágnes Csiszárík-Kocsir	The importance of soft skills in the 21st century – mapping the background of student group work based on the results of primary research

128	Júlia Zombori, Judit Lukács, Ágnes Csiszárík-Kocsir and Richárd Horváth	Weather-related decisions: the effect of heatwaves and climate change in the case of Hungary
87	Renáta Matilda Filep and Bálint Molnár	Artificial intelligence in business process modelling: A structured overview of trends, challenges and future research direction
19	Dániel Kiss and Andrea Tick	Securing Critically Important Research in Education: The NIS2 Directive

15:20 – 15:50 Coffee break

15:50 – 16:50 [F4a] **Special Session on Women in Engineering and Informatics I**

Room A2

Session organizers and chairs: **Melánia Puskás and Andrea Tick**

17	Haifa Saleh Alfurayj and Syaheerah Lebai Lutfi	A Trustworthy Classifiers Chain for Cyberbullying Detection Using Bystander Roles
18	Andrea Pődör and Andrea Tick	Surveillance and Subjectivity: A GIS-Based Study of Fear of Crime and CCTV Distribution
21	Dávid Bognár and Andrea Tick	Optimizing Financial Fraud Detection in ETL: A Data Mining Approach with Oversampling Considerations

15:45 – 16:30 [F4b] **Special Session on PhD Student Research in Applied Informatics II**

Room 204

Session organizer: **László Horváth**

Session chair: **Zoltán Papp**

115	Felisberto Chivela, Zoltán Papp, Márta Takács and Edit Laufer	Risk-Based Clustering for Patient Stratification in Diabetes
83	Mohammadreza Azodinia , Amir Mosavi, Sina Ardabili, Kazizat Isakov, Marzhan Turarova and Almaz Tatin	How Machine Learning is Transforming Pavement Performance and Service Life Prediction
116	Franziska Kofler, Márk Wendler , Christoph Baumgartner and József Kopják	Sensorless Detection of Unbalanced Loads in Embedded Motor Control via ML-Trained Pattern Matching on Speed Signals

Session organizers and chairs: **Edit Laufer and Ákos Odry**

89	Wang Pengyu , Amir Mosavi, Imre Felde, Mohammadreza Azodinia and Shi Wei	Machine Learning for Modeling Stress Evolution
91	Akos Odry , Istvan Kecskes, Richard Pesti, Dominik Csik, Massimo Stefanoni, Imre Kovacs, Edit Laufer and Peter Sarcevic	Feedforward Neural Network for Orientation Estimation Under Magnetic and Acceleration Disturbances
62	Bojan Kuljić , Nina Gyorfi, Zoltan Vizvari and Peter Odry	Neuro-Fuzzy Concentration Classifier for Microplastics in Saline Solution

18:30 **Banquet**



Dress code:
Black tie modified
to **purple tie**



Venue: Népkör

September 27, 2025, Saturday



Venue: Subotica Tech, VTS (address: Marka Oreskovica 16)



Dress code:
business casual

9:00 – 10:20 [S1a] **Special Session on Women in Engineering and Informatics II**

Room A2

Session organizers and chairs: **Melánia Puskás and Andrea Tick**

52	Rita Fleiner , Patrik Dobrovodsky, Albert David and Bringye Zsolt	Multi-user support in pan-European kidney exchange programs
66	Zsuzsanna Deak	The Possible Impact of Trump Policies and the Anti-DEI Agenda on Women in Science
68	Döníz Borsos	Traffic-Based Anomaly Detection in LoRaWAN Networks under Indoor Environment
96	Martin Ferenc Dömény, Melánia Puskás , Balázs Gombos, András Füredi, Gergely Szakács, Levente Kovacs and Dániel András Drexler	Tumor model fitting using Markov Chain Monte Carlo method

9:15 – 10:15 [S1b] **Special Session on PhD Student Research in Applied Informatics III**

Room 204

Session organizer: **László Horváth**

Session chair: **Márta Takács**

40	Marinko Rudics Vránics and Péter Kádár	Optimisation of Absorption Coefficient of a Nanofluid using MATLAB
70	Bence Gercuj, Anh Tuan Hoang and Zsolt Janos Viharos	Towards a Modular Redesign of the Scalable Adaptive Hybrid Feature Selection Algorithm
107	Ármin Károly , Márta Takács and Péter Galambos	Fuzzy Logic in Object Pose Estimation: Survey of Methodologies and Emerging Approaches
108	Márta Takács, József Kopják, Gergely Sebestyén and István Szűcs	Impact of Weather Conditions on Electric Vehicle Charging Behavior in Office Context in Hungary

Session organizers and chairs: **Edit Laufer and Ákos Odry**

86	László Pokorádi and Vera Stein	Two-point of view fuzzy assessment of student skills
45	Zsombor Kovacs and Bela Andras Frigyik	Function approximation with different activation functions
92	Imre Kovacs , Massimo Stefanoni, Richard Pesti, Dominik Csik, Peter Sarcevic and Akos Odry	Evaluation of optimal covariance models for EKF-based wheeled mobile robot localization
95	Massimo Stefanoni , Imre Kovács, Richard Pesti, Dominik Csík, Peter Sarcevic and Ákos Odry	Enhancing 2D Localization Accuracy for Differential Wheeled Robots: A Fusion of Odometry, Magnetometers, and Absolute Positioning Systems

10:20 – 10:50 Coffee break

Session organizers and chairs: **Melánia Puskás and Andrea Tick**

97	Rozália Szatmáry and Johanna Dr. Sápi	Predicting Female Infertility Using NHANES Data: A Component-Based Analytical Approach
105	Borbála Gergics , Lilla Kisbenedek, András Füredi, Levente Kovács and Dániel András Drexler	Automated image analysis for 3D tumor coculture spheroid
111	Dániel Frankl and Kornelia Lazanyi	Immersive EOD Training with Standalone VR: A Modular and Scalable Approach to High-Risk Skills Development
123	Judit Sörfőző Szügyi, Zoltán Papp and Márta Takács	Modelling Teacher Motivation with Fuzzy Cognitive Maps: A Pilot Study on Serbian Data (from the Erasmus+ VETAssist Project)

10:45 – 11:30 [S2b] **Special Session on PhD Student Research in Applied Informatics IV**

Room 204

Session organizer: **László Horváth**

Session chair: **Zlatko Čović**

109	Bence Varga , Richárd Horváth and József Tar	On Using Wegstein's Convergence Accelerator in Iterative Adaptive Control
112	Attila Selmecsi	Application virtualization management with environment verification
24	Gerlinda-Boglárka Kis , Levente Kovács and László Szilágyi	Automated Retinal Vessel Segmentation Using U-Net Deep Learning Model

10:50 – 12:10 [S2c] **Special Session on Soft Computing-driven Intelligent Systems and Applications III**

Room 206

Session organizers and chairs: **Edit Laufer and Ákos Odry**

100	Richard Pesti , Peter Sarcevic, Dominik Csík, Imre Kovacs, Massimo Stefanoni and Akos Odry	Efficiency analysis of MEMS accelerometer array calibration using ANNs
101	Dominik Csík , Akos Odry, Richard Pesti, Imre Kovacs, Massimo Stefanoni and Peter Sarcevic	Comparison of RSSI-Based and Encoder Odometry-Based Indoor Localization for Mobile Robots
119	Bence Babi, Akos Odry and Peter Sarcevic	Metallic object detection using passive magnetometer arrays for conveyor belt-based sorting systems
51	Khawla Bouafia and Muntasir Jaodun	State Machine Architecture for Dual-State Financial Assets

12:30 **Excursion** incl. lunch



Dress code:

Leisure, comfortable

Venue: Winery in Nagyrádanovác