SISY 2024 preliminary program

Venue: "Dr. Mijo Mirković" Faculty of Economics and Tourism, Juraj Dobrila University of Pula
Address: Preradovićeva 1/1, 52100 Pula, Croatia

Time zone: CEST

September 19 (Thursday)

9:00 – 9:30   **Opening Ceremony**   Room Dvorana Pula

9:30 – 10:10   **Plenary Talk I**   Room Dvorana Pula
Session chair: Levente Kovács

151	**József Bokor** and Zoltán Szabó	Learning nonlinear models of dynamic systems

10:10 – 10:30   Coffee break

10:30 – 11:10   **Plenary Talk II**   Room Dvorana Pula
Session chair: Péter Galambos

152	**Peng Shi**	Cybersecurity: Issues and Challenges

11:10 – 11:50   **Plenary Talk III**   Room Dvorana Pula
Session chair: Domagoj Frank

153	**Darko Etinger**	Event Log Collection and Processing in Educational Environments: Discovering Usage Patterns for Learning Management Systems

12:00 – 13:30   Lunch   University Restaurant

13:30 – 15:30 [T1a] Session on Informatics I   Room Dvorana Pula
Session chair: Domagoj Frank

120	**Andrija Bernik**, Domagoj Frank and Dejan Kober	An empirical study of enhancing 3d scanning techniques through Augmented Reality and LiDAR
146	**Barbara Simon**, Adam Hartveg, Mate Siket, Lehel Denes-Fazakas, Levente Kovacs, Laszlo Szilagyi, **Gábor Kertész and** Gyorgy Eigner	Enhancing Diabetes Management Through GRU Analysis of Physical Activity Effects
22	**Victor Mitrana** and Mihaela Paun	Distributed Reaction Systems Viewed as Multi-agent Systems
99	**Tibor Farkas** and Erika Hronyecz	The Risks and Danger of Smart Devices Exposing Personal Information: Dark Side of Convenience
116	**Attila Nagy,** Zoltán Prof Dr. Rajnai and Beatrix Fregan	Cyber Defense in Quantum Technologies: An Overview
28	Peter Krammer, Ondrej Habala, **Michal Staňo** and Ladislav Hluchy	Fine-tuning the High-Voltage Tower Pollution Model Using Distribution Identification

13:30 – 15:30 [T1b] Session on Intelligent Robotics   Room 303
Session chair: Enikő Nagy

118	Ádám Wolf, Sascha Beck, Panna Zsoldos, **Péter Galambos** and Károly Széll	Towards Robotic Laboratory Automation Plug & Play: LAPP Pilot Implementation with the mobERT Mobile Manipulator
12	**Alex Csillag**, Lőrinc Márton, László Dávid, Zsolt Köllő and Endre Györfi	Intelligent kinematic control of a quadrupedal mobile robot
19	**Xhonklei Hoxha** and Kazuyuki Ito	MAMEYAKA III: Climbing Soft Robot with Enhanced Mobility
40	Dávid Varga, Tamás Kari, Szabolcs Hanzel, Katalin Péter, **Ferenc Füstös** and Csaba Sulyok	Hand Gesture Recognition using Glove Mounted Sensor Data
45	Panka Szalka and **Attila Hideg**	Enhanced Indoor Mapping via Integration of Lidar and HoloLens 2 Data Using Iterative Closest Point Algorithm
105	Homayoun Safarpour Motealegh Mahalegi, Amirfarhad Farhadi, **György Molnár** and Enikő Nagy	Enhancing UAV Autonomous Navigation in Indoor Environments Using Reinforcement Learning and Convolutional Neural Networks

13:30 – 14:00   [T1c] E-poster Special Session on Digitalisation, Generation Research, Consumer Trends aula

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

18	**Lili Belkovics**, Krisztina András and István Takács	The Technological Innovation of Pit Stops in Formula 1
33	**Máté Prorok** and István Takács	Business Management Transformation Through the Influence of Artificial Intelligence
51	**Szilárd Berke**	Quality as a component of excellence - the theories that define it in a managerial approach
66	**Bertalan Beszédes**	Multi Stage High Current Resistance Welding Control
130	Katalin Jaeckel and **Monika Garai-Fodor**	Analyses of healthy lifestyle preferences and habits among Generation Z university students
132	**Réka Saáry**	Analysis of the Generational Context of Brand Love using Quantitative Data
142	**János Varga** and Ágnes Csiszárik-Kocsir	Generational differences in environmental awareness and responsibility
147	**Ágnes Csiszárik-Kocsir**, János Varga and István Márk Tóth	The agile approach as a mindset among Hungarian and Arab respondents
148	**János Varga**, Enikő Kahler-Korcsmáros and Ágnes Csiszárik-Kocsir	Subjective perception of global challenges among Hungarian and Slovak SMEs
150	Ádám Mészáros and **Ágnes Csiszárik-Kocsir**	The impact of psychological safety on educational outcomes and team performance

15:30 – 15:50   Coffee break

15:50 – 17:50   [T2a] Session on Computational Intelligence I Room Dvorana Pula

Session chair: Dániel András Drexler

67	**Vili Podgorelec**, Iztok Fister Jr. and Grega Vrbančič	Towards Green AI by reducing training effort of Recurrent Neural Networks within Hyper-Parameter Optimization with dynamic stopping criteria
71	**Robert Šajina,** Romeo Šajina and Nikola Tanković	Efficient Personalized EEG-Based Action Recognition: Unveiling Minimal Training Requirements
76	**Ivan Lorencin,** Vedran Mrzljak, Igor Poljak and Darko Etinger	Prediction of CODLAG Propulsion System Parameters Using Kolmogorov-Arnold Network
114	**Martin Ferenc Dömény,** Melánia Puskás, Levente Kovács and **Dániel András Drexler**	Multi-objective chemotherapy optimization using NSGA-II and Epsilon-constraint method
92	Matko Glučina, Nikola Žigulić, Domagoj Frank, **Ivan Lorencin** and Dario Matika	Comparative analysis of YOLOv9 and YOLOv10 algorithms for urban safety improvement
134	Juraj Cukelj, Marino Grozdek and **Tomislav Veliki**	Neural Network Based Assessment of Delivered Energy for Heating

15:50 – 17:50   [T2b] Special Session on 5G and Cybersecurity   Room 303
Session organizers and chairs: Anna Bánáti and Miklós Kozlovszky

9	**Yue Wu**, Tibor Babos and Katalin Dr. Takácsné Prof. Dr. György	Global security changes and trends
16	**Gabor Visky,** Balint Adam, Risto Vaarandi, Mauno Pihelgas and Olaf Maennel	Open Source Intrusion Detection Systems' Performance Analysis Under Resource Constraints
52	Alexandre Oliveira De Almeida and **Lourdes Ruiz**	Securing IoT Devices: ZTA Principles and Network Slicing
54	**Szandra Anna Laczi** and Valéria Póser	Impact of Deepfake Technology on Children: Risks and Consequences
122	**Zsolt Bringye** and Miklós Kozlovszky	Safety requirements for a wearable sensor device
123	**Balázs Tóth,** Szandra Anna Laczi and Valéria Póser	Spam filter using artificial intelligence: PyTorch framework based approach
131	Lajos Olcsak, Julianna Aczel, **Rita Fleiner** and Anna Bánáti	Attack graph based optimizations of firewall rules
140	**Mera Saulaiman**, Anna Bánáti, Bálint László Iványi, Eszter Kail, Kristóf Zsombor Kövesi, Tamás György Pozsonyi, Benedek Máté Tóth, Akos Csilling and Rajmund Kail	Developing SIEM and Log Management for Automotive Network in a Simulated Environment

15:50 – 16:50   [T2c] E-poster Session   aula
Session chairs: Miklós Mezei, Tamás Nógrádi and Gábor Molnár

55	**Makoto Ohki**	Selection Indicators Based on Local Volume in Objective Space for Many-Objective Optimization
149	Aliya Shakhatova, Mirgalikyzy Tolkyn, Zhetessova Gulnara, Sergey Ozhigin, **Amir Mosavi** and Murat Kozhanov	Applied Machine Learning in Geophysics: Taxonomy, Review and Evaluation
50	**Andrei Pitkevich** and Makarov Ilya	A Survey on Sim-to-Real Transfer Methods for Robotic Manipulation
84	**Peyman Amiri,** Theodor Theodoridis, Marcus Müller and William Holderbaum	Anti-windup Methods for Integrators of Integral Controllers for Robotic Applications
64	**Jakub Kołota,** Jakub Bernat, Paweł Czopek, Agnieszka Marcinkowska and Piotr Gajewski	Analysis of DEAP actuator displacements in resonance states using 2D laser sensor
95	Nikola Žigulić, Matko Glučina, Domagoj Frank**, Ivan Lorencin,** Zoran Šverko and Dario Matika	Deploying YOLOv10 for affordable real-time handgun detection

135	**Mohammed Mudabbiruddin**, Imre Felde and Amir Mosavi	Deep Learning for Detecting Building Defects
23	**Tamara Ranković,** Filip Šiljić, Jovan Tomić, Goran Sladić and Miloš Simić	Misconfiguration prevention and error cause detection for distributed-cloud applications
56	**Sándor Szénási**, Gábor Légrádi and Imre Felde	Alternating Implementation of Machine Learning Assisted and General Hill-Climbing Algorithm
58	Bence Salamin and **Sándor Szénási**	Simulating Hidraulic Erosion Utilizing Graphics Processors
60	Gergő Oszvald and **Sándor Szénási**	Device Installation Guide using Augmented Reality
62	**Kaziwa Saleh**, Sándor Szénási and Zoltán Vámossy	Mask Guided Gated Convolution for Amodal Content Completion
79	**Lorentz Jäntschi**	Online students evaluation systems: a case study
110	Amirreza Jalili, Hedieh Sajedi, Hamed Tabrizchi and **Amir Mosavi**	Skin Cancer Classification using DenseNet-121
139	Saba Salmani Ghanbari, Seyed Milad Mousavi, Pouria Maleki, **Amir Mosavi** and Bahram Choubin	Flood Risk Analysis with Deep Learning
143	Zsolt Péter Takács, Miklós Vincze and **György Eigner**	Development of gaming AI: a case study
30	**Lidija Comic** and Nebojsa Ralevic	Vertex-Degree-Based Topological Indices of Rectangular Blocks of Unit Cells in the Simple Cubic Grid
93	**Eva Dr. Beke** and László Dr.Hanka	The Prediction of Global Spending Trends on Security using Holt-Winters model

18:15   Welcome Reception   University Restaurant

September 20 (Friday)

9:00 – 10:40   **[F1a] Session on Informatics II**   Room Dvorana Pula
Session chair: Ivan Lorencin

20	**Zsolt Tóth** and Zoltán Krizsán	Experiments on the Development Cost of Service Integration
39	Elek-Ákos Kovács**, Levente Szász,** Csaba Gálfi, Zsolt Szabó, Áron-Tamás Sipos and Csaba Sulyok	Greenhouse System Standardization Using the Matter Protocol
53	Máté Gozner, **Mátyás-Zsigmond Fischer**, Károly Simon, Attila Zölde and Lóránt-Tibor Fazakas	Parking Space Management and Occupancy Determination Using Artificial Intelligence
57	Tibor Kovács, **Péter Magyarosi**, Norbert Nagy-Seres, Ákos Zsebe and Csaba Sulyok	City Parking Simplified in a Mobile Environment
69	**Máté László Láng**, Oana Ancuţa Sabău and Károly Simon	Anatomy of a cloud-connected door lock prototype, integrating NFC-enabled mobile wallet technologies

9:00 – 10:40   **[F1b] Session on Computational Intelligence II**   Room 303
Session chair: Zoltán Rajnai

83	Nabil Abdoun, Samira Abboud, **Haya Altaleb** and Zoltan Rajnai	Collision Detection in LoRaWAN using Machine Learning
6	**Oliver Prior, Hannan Azhar**, Vijay Sahota and Scott Turner	Unveiling Pollution Peaks: Comparing Swarm Intelligence with Drone Hill Climber
24	Barnabás Holicza, **Péter Lehotay-**Kéry and Attila Kiss	Advancing in Protein Function Prediction: Leveraging Small Data Techniques in Convolutional and Graph Convolutional Networks
31	**Paul-Andrei Pintea** and Eva-Henrietta Dulf	Disturbance modelling in Anaesthesia Control using Regression Models based on Gauss Processes
126	**Mohammed Al-Okby,** Thomas Roddelkopf, Simon-Johannes Burgdorf and Kerstin Thurow	Multi-Tag UWB-based Indoor Positioning System for Objects Tracking

9:00 – 10:40   [F1c] Special Session on Women in Engineering and Informatics I   Room 404
Session organizer and chair: Andrea Tick

102	**Zsuzsanna Deak**	Women in science: representation in scientific publication in Eastern Europe
104	**Kornelia Lazanyi**	Big brother watches you – attitudes towards mass surveillance in Hungary
106	**Rozalia Hanna Szatmary**	Each of them their own
103	**Sára Szatmáry**	Cybersecurity of the gaming industry
61	**Andrea Tick**	Exploring ChatGPT's Potential and Concerns in Higher Education

10:40 – 11:00   Coffee break

11:00 – 12:20   [F2a] Session on Informatics III   Room Dvorana Pula
Session chair: Andrija Bernik

113	Barnabás Kuglics, Kata Egres and **Miklós Sipos**	Blockchain-based Healthcare DApp with MetaMask Integration
43	**Ondrej Habala**, Martin Šeleng, Michal Habala and Ľubor Stuhl	Versatile and High-throughput Cloud Application Deployment Service
112	Benedek Csikós and **Miklós Sipos**	Blockchain-based Voting DApp with MetaMask Integration
115	Bianka Johanna Földi and **András Kovács**	Development of a Mobile Application That Generates Customized Routes, Supports and Monitors Exercise
14	**Panmanas Sirisomboon**, Jiraporn Sripinyowanich Jongyingcharoen, Apiwat Junto, Thitima Phanomsophon, Cheewanun Dachoupakan Sirisomboon, Panan Rerngsamran, Dharma Raj Pokhrel, Sneha Sharma, Jetsada Posom, Pimpen Pornchaloempong, Anupun Terdwongwarakul and Prabhas Chongstitvatana	Effect of Environment Temperature and Relative Humidity on Thermal Emissivity: Study Case of Mango Fruit

11:00 – 12:40   [F2b] Session on Computational Intelligence III   Room 303
Session chair: József Kopják

11	**Gergo Igneczi** and Ernő Horváth	Human-Like Behaviour for Automated Vehicles (HLB4AV) Naturalistic Driving Dataset
42	**Jiyan Mahmud** and Imre Lendak	Enhancing One-Class Anomaly Detection in Unlabeled Datasets Through Unsupervised Data Refinement
82	**Iman Sharifirad,** Jalil Boudjadar and Peter Gorm Larsen	Highly accurate anomaly detection for the combustion system of a marine engine using Multivariate Transformers

70	**Ermiyas Birihanu,** Souad Asroubi and Imre Lendák	Pairwise Anomaly Detection for Industrial Control Systems
91	**István Szűcs,** József Kopják and **Gergely Sebestyén**	Implementation and simulation of a load balancing solution for electric vehicle charge points

11:00 – 12:20   [F2c] Special Session on Women in Engineering and Informatics II   Room 404
            Session organizer and chair: Andrea Tick

107	**Döníz Borsos**	Development and Optimisation of Exit Procedures for LoRaWAN Nodes
109	Márta Kiszely and **Andrea Pődör**	Advanced Visualization of Seismic Activity in the Vértes Mountain Region Post-M4.5 Mainshock
141	Anikó Pikó, Anna Bánáti and **Eszter Kail**	Supporting NIS2 directive with SOC
117	Tünde Kovács and **Andrea Tick**	Safeguarding Human-Robot Collaboration in GMAW: A Risk Assessment Approach for Welding Automation

12:40 – 14:00   Lunch   University Restaurant

14:00 – 15:40   [F3a] Session on Intelligent Mechatronics and Intelligent Manufacturing Systems   Room Dvorana Pula
            Session chair: Tibor Farkas

47	**Mate Fazekas** and Peter Gaspár	State estimation design and tuning for autonomous vehicles in the era of data-based techniques
74	**Wendler Márk** and József Kopják	Low Power Brushed Direct Current Motor Commutation Noise Analysis
26	**Andras Nagy**	Enhancing Cleanroom Flexibility using Raspberry Pi-Based Door Control
81	**Viktor Vass** and György Györök	Purification of NMP: technolgies from a life cycle point of view
124	**Angel Luis Garrido,** Jonathan Rodriguez, Mariano Sanchez, José Manuel Antón, Carlos Bobed and Eduardo Mena	HEAT-SEER - A Real-Time Data Integration Experience through Semantic Technologies in a Graphic Arts Company

14:00 – 15:20   [F3b] Special Session on Digitalisation, Generation Research, Consumer Trends   Room 303
            Session organizers and chairs: Mónika Garai-Fodor, Ágnes Csiszárik-Kocsir and János Varga

10	**Botond Fehér**, László Gulácsi and **Márta Péntek**	Social Aspects of ESG in Higher Education: Family Caregiving University Students in the Digital Era
13	**Krisztian Balint** and Péter Zsákai	Secure Storage of Sensitive Data in the Blockchain

15	**Juan Pablo García-Martín,** Eloy Rodrigo Lorente Lorenzo, Iñigo Adin, Saioa Arrizabalaga, Emanuel Lekakis, Ifigeneia-Maria Tsioutsia, Tomaz Bokan and Miran Bunderla	B2B Data-Sharing Platform combining Galileo OSNMA and Blockchain applied to Traceable Short Food Supply Chains and Sustainable Farming
85	**Barbara Tóth,** László Gulácsi, Márta Péntek and Zsombor Zrubka	Examining the Validity of Hungarian version of the Internet Skills Scale Among University Students

15:40 – 16:00   Coffee break

16:00 – 17:00   [F4a] Session on Applied Mathematics   Room Dvorana Pula
          Session chair: Mária Slovinská

21	**Barbora Hennelová**	Generalized Sugeno integrals applied to scientometric indices
27	**Miloslav Cisko** and Jozef Kiseľák	On the Path to Understanding the Tortuosity of Fractal Curves
46	**Mária Slovinská**	Choquistic regression based on MSE

16:00 – 17:00   [F4b] Session on Computational Intelligence IV   Room 303
          Session chair: Lehel Csató

34	Alex Milos, **Kálmán Balázs Neszlényi** and Attila Kiss	AssistantGPT: Enhancing User Interaction with LLM Integration
98	**Md Easin Arafat**, Sourav Saha and Tamás Orosz	An Intelligent LLM-Powered Personalized Assistant for Digital Banking Using LangGraph and Chain of Thoughts
125	**Hanna-Georgina Lieb,** Tamás Kaszta and **Lehel Csató**	Wavelet-based Prototype Learning for Medical Image Classification

18:30   **Banquet**   Grand Hotel Brioni Pula
                                                  Address: Verudella 16, 52100 Pula, Croatia

September 21 (Saturday)

One-day tour

Gathering time	Departure time	Departure place
9:15	9:30	Hotel Park Plaza Histria Pula (address: Verudella 17, 52100 Pula, Croatia)
9:30	9:45	Police Station (address: Trg. Republike 1, 52100 Pula, Croatia)