

SISY 2022

IEEE 20th Jubilee International Symposium on Intelligent Systems and Informatics

September 15-17, 2022 Subotica, Serbia

— Welcome to SISY 2022! —



<http://conf.uni-obuda.hu/sisy2022>

SISY 2022 preliminary program

Since it is a hybrid event, onsite and online participants are welcome.

Please click the link below to join online:

<https://us06web.zoom.us/j/89358147319>

Time zone: CEST

September 15, Thursday

8:00 – 10:00 [T1] Special session on Research Protocols and Systematic Reviews

via Zoom at Room A0 (ground floor), VTS

Organizer and session chair: Zsombor Zrubka

2835	Nhlanhlayakhe Nkwanyana	Key barriers to digital health interventions in South Africa: Systematic scoping review
3720	Zsolt Bringye, Miklos Kozlovsky and Kinga Farkas	Are wearable physiological sensors and associated algorithms suitable for detecting or predicting challenging behavior events in patients with Autism Spectrum Disorder? A protocol for a scoping review
3778	Johanna Tripo, József Fogarasi and Márta Péntek	Statistical reporting quality of randomized controlled trials on artificial intelligence chatbots for promoting healthy lifestyle: an experiment with the SAMPL guideline
5028	Hana Al-Abdulkarim	Outcomes of continuous glucose monitoring: Protocol for A Systematic Review of Systematic Reviews
6406	Meriem Fgaier	Health economic studies using transferred costs from the Middle East and North Africa region: a protocol for a systematic review of the methodology and reporting quality
7517	Hossein Motahari-Nezhad, Meriem Fgaier and Hana Alabdulkarim	Methodological and bibliometric examination of systematic reviews of digital biomarker-based studies
8673	Janos Tibor Czere and Marta Pentek	Meta-analysis of randomised controlled trials on artificial intelligence chatbots for use in health care: a matter of study design and reporting
9516	Barbara Tóth and Laura Gulyás Oldal	Automation of systematic literature reviews: Collection of keywords and development of a gold standard in PubMed 2020-2021, a research protocol

10:00 – 10:15 Break

10:15 – 10:45 [T2] Session on Applied Mathematics

via Zoom at Room A0 (ground floor), VTS

Session chair: Ivana Štajner-Papuga

4816	Evgeniya Mikhaylova and Ilya Makarov	Curiosity-driven Exploration in VizDoom
9882	Yegnanarayanan Venkataraman, Dhamayanthi Hayyath J, Indira Krishnaperumal and Valentina E. Balas	On Properly Odd Harmonious Labeling of Graphs

10:45 – 11:30 [T3] Special Session on PhD Student Research in Applied Informatics

via Zoom at Room A0 (ground floor), VTS

Organizer and session chair: László Horváth

1949	Luca Sara Pusztahazi, Gabor Csiszar, Michael S. Gashler and Orsolya Csiszar	Parametric activation functions modelling fuzzy connectives for better explainability of neural models
1964	Gabor Szedo Becker	Low-Cost Spatio-Temporal Algorithm for Defective Pixel Identification and Correction
6611	Rituraj Rituraj, Diana Ecker and Annamaria Varkonyi Koczy	Data-Driven Methods of Machine Learning in modeling the Smart Grids

11:30 – 12:15 [T4] Session on Intelligent Robotics

via Zoom at Room A0 (ground floor), VTS

Session chair: Zlatko Čović

5165	Huda Alsudany and Béla Lantos	Prediction of the Navigation Angles Using Random Forest Algorithm And Real Flight Data of UAVs
5656	Yichen Ding, Jialong Li and Kenji Tei	Multi-Agent Path Finding with Priority Transfer Accompanied with Moving Obstacles
7115	Kirill Zhingalov, Aleksei Karpov and Ilya Makarov	Multi-modal RGBD Attention Fusion for Dense Depth Estimation

12:15 – 12:30 [T5] Session on Informatics

via Zoom at Room A0 (ground floor), VTS

Session chair: Ilya Makarov

4282	Nikomidisz Eftimiu, Csaba Köllöd, István Ulbert and Gergely Márton	A surface electromyography dataset for hand gesture recognition
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13:00 – 17:00	Registration	Town Hall
14:00 – 14:30	Opening Ceremony	Town Hall
14:30 – 15:00	Jubilee Presentation by Imre J. Rudas	Town Hall
15:00 – 15:15	Introducing Annamária R. Várkonyi-Kóczy on her 65th birthday by Imre J. Rudas	Town Hall
15:15 – 15:45	Anytime Information Processing – a Challenging Alternative to Traditional Hard Computing by Annamária R. Várkonyi-Kóczy	Town Hall
15:45 – 16:15	Coffee break	Town Hall

16:15 – 16:55 **Plenary Talk I** Town Hall

Session chair: **Levente Kovács**

1273	Tom Gedeon	Convergence of HCI & AI
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17:00 – 17:40 **Plenary Talk II** Town Hall

Session chair: **Imre J. Rudas**

4096	Janusz Kacprzyk	Solving Complex Decision Making Problems: Towards an AI-assisted/enabled Judge-Advisor-Type Approach
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18:00 Welcome Reception Town Hall

September 16, Friday

8:00 – 11:30 Registration ICB Tech corner (ground floor), VTS

8:00 – 8:40 **Plenary Talk III** Room A0 (ground floor), VTS

Session chair: **Márta Takács**

9396	Ljiljana Trajković	Machine Learning for Detecting Internet Traffic Anomalies
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8:40 – 9:20 **Keynote Talk** Room A0 (ground floor), VTS

Session chair: **Igor Fürstner**

4823	Jesús Medina Moreno	Digital Forensics: Evidence Analysis via Intelligent Systems and Practices DigForASP — CA17124. Challenges and Achievements
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9:20 – 9:30 Coffee break First floor hall, VTS

9:30 – 11:30 **[F1] Session on Informatics**

Room A0 (ground floor), VTS

Session chair: **György Eigner**

0649	Fatih Basciftci and Fikri Aydemir	Strategies for Request-Response Logging in Microservices Architecture
2721	Gabriella Simon-Nagy, Rita Fleiner and Anna Bánáti	Attack graph implementation in graph database
4032	Ferenc Füstös, Katalin Péter, Norbert-Péter László, Szilárd-Gábor Mátis, Zsolt Szabó and Csaba Sulyok	Managing a Kubernetes Cluster on Raspberry Pi Devices
4385	Tibor Wüthrl, Péter János Varga, Sándor Gyányi, Márk Tamás Baross and Attila Németh	5G RAN synchronization vulnerability
5239	Tifani Franciska Nagy, Zsolt Csibi, Borbála Jánosi, Károly Simon, Hunor Hegedüs and Erika Szász	Cloud-based Serverless Solution for Facilitating the Organisation of Athletics Competitions
7128	Richard Faragó, Árpád-Bence Fekete, Dániel Ferencz, Zalán Ráduly, Örs-Krisztián Patakfalvi, Rudolf-Bálint Tunyogi and Csaba Sulyok	Automatic Photography System for Adventure Parks Using Computer Vision
7826	Gergely Vakulya, Éva Hajnal and Péter Udvardy	Experimental Bolus Sensor for Dairy Cattle
8448	Márk Tamás Baross	Passive Optical Black Box

11:30 – 12:00 **[F2] Session on Intelligent Robotics**

Room A0 (ground floor), VTS

Session chair: **Péter Kádár**

8786	Peter L. Varkonyi and Andres F. Guerra Riano	From swinging cables to adaptive funicular structures in architecture
3256	Peter Kadar	The robot becoming human

11:30 – 12:00 **[F3] E-poster Special Session on Digitalisation, Generation Research, Consumer Trends**

Ground floor hall, VTS

Organizers and session chairs: **Mónika Garai-Fodor and Ágnes Csiszárík-Kocsir**

3962	János Varga, Mónika Garai-Fodor and Ágnes Csiszárík-Kocsir	The impact of the pandemic on the crisis management practices of Hungarian SMEs
6882	Ágnes Csiszárík-Kocsir, János Varga and Mónika Garai-Fodor	External professional assistance for small and medium-sized enterprises to solving the challenges of the pandemic
9269	Mónika Garai-Fodor, Ágnes Csiszárík-Kocsir and Csilla Mizser	Competences for young people to become successful entrepreneurs - as seen by teachers
9631	Ágnes Csiszárík-Kocsir and Oszkár Dobos	Hungarian SMEs' role and opinion about research, development and innovation projects

12:00 – 13:00	Lunch	Restaurant Spartak
13:00 – 16:45	Registration	ICB Tech corner (ground floor), VTS
13:00 – 14:15	[F4] Session on Applied Mathematics	Room A0 (ground floor), VTS
	<u>Session chair:</u> Martin Kalina	

3532	Dragan Jočić and Ivana Stajner-Papuga	Distributivity between quasi-linear means and uni-nullnorms
3580	Bojan Kuljić and Peter Odry	Enhancing Lock in Amplifier in Digital Domain
4262	Nataša Duraković, Tatjana Grbić, Slavica Medić and Sandra Buhmiller	Discrete g-Mellin transform and discrete g-Mellin convolution in probability theory
6657	Biljana Mihailovic and Mirjana Štrboja	Classifying fuzzy linear systems with the real coefficient matrix
8125	Martin Kalina	On a construction of uninorms on lattice-based sum of lattices

14:15 – 15:00	[F5] Special Session on Mechatronics and Vehicle Engineering	Room A0 (ground floor), VTS
	<u>Organizer and session chair:</u> Edit Laufer	

2065	István Nagy, Yernar Kenzhetayev and Máté Szakálos	Facial recognition and Motion Tracking in Dynamic Environment by Drone Control Software
6244	László Juhász and László Pokorádi	Industrial digitalisation and Industry 4.0 among maintenance professionals in small and medium-sized enterprises
4082	Edit Tóth-Laufer	Fuzzy-based Multiexpert Risk Analysis Model

14:15 – 15:00	[F6] E-poster Session on Informatics, Computational Intelligence and Intelligent Manufacturing Systems	Ground floor hall, VTS
	<u>Session chair:</u> Piroska Stanić Molcer	

7624	Hiroki Kase, Junichi Nishizawa, Kento Tabata, Katsuyuki Takagi and Toru Aoki	Effective three-dimensional representation of internal structures in medical imaging visualization
0605	Aleksandar Pejić, Piroska Stanić Molcer and Dávid Fa	Improving math proficiency prediction in computer-based international large-scale assessments with data augmentation
4785	Larisa Szatmari, Lucian Prodan, Alexandru Iovanovici and Dacian Avramoni	Road Intersection Optimization with Resource-Constrained Metaheuristic: a Case Study
2406	Toru Aoki, Hiroki Kase, Tatsuya Suzuki, Kento Tabata, Katsuyuki Takagi, Masakazu Kimura and Hidenori Mimura	Identification of encased materials using energy distribution of reflected X-rays

15:00 – 15:15 Coffee break

First floor hall, VTS

15:15 – 16:15 **[F7] Special Session on PhD Student Research in Applied Informatics**

Room A0 (ground floor), VTS

Organizer and session chair: László Horváth

0676	Dominik Csík, Ákos Odry and Peter Sarcevic	Comparison of RSSI-Based Fingerprinting Methods for Indoor Localization
6305	Máté Siket, Lehel Dénes-Fazakas, Levente Kovács and György Eigner	Numba-accelerated parameter estimation for artificial pancreas applications
8282	Krisztián Kósi and Atinga Awudu	Increasing The Convergence Speed of Robust Fixed Point Transformaton-based Adaptive Control by Steffensen's Method in SISO Case
9355	Jelena Tašić and Márta Takács	Classification of personalized daily continuous glucose monitoring time series data

16:15 – 16:45 **[F8] Session on Intelligent Mechatronics and Intelligent Manufacturing Systems**

Room A0 (ground floor), VTS

Session chair: Attila Rétfalvi

2951	László Horváth	Contextual Research Configuration Using Autonomous Model System
1189	Rétfalvi Attila	Determining cutting depth that gives minimal machining time in rough turning

16:45 – 17:15 **[F9] Special session on Research Protocols and Systematic Reviews**

Room A0 (ground floor), VTS

Organizer and session chair: Zsombor Zrubka

0196	Mariann Bekesy	Measuring digital health literacy in Hungary: a scoping review
1942	Tuan-Anh Tran, Tamas Ruppert, Janos Abonyi and Gyorgy Eigner	Heart rate variability measurement to assess work-related stress of physical workers in manufacturing industries - Protocol for a Systematic Literature Review

18:00 Banquet

Népkör

September 17, Saturday

8:00 – 9:45 Registration ICB Tech corner (ground floor), VTS

8:00 – 8:30 **[S1] Special Session on Digitalisation, Generation Research, Consumer Trends** Room A0 (ground floor), VTS

Organizer and session chair: **Mónika Garai-Fodor and Ágnes Csiszárík-Kocsir**

0157	Dorottya Véghné Kohut, Katalin Nátz, Gábor Zsigmond Szalay and Szergej Vinogradov	Measurement of telecommunication software and their human perspective
9820	György Molnár and Katalin Nagy	Digital competences of teachers in the digitalising education sector and in the smart learning environment

8:30 – 9:30 **[S2] Session on Computational Intelligence I** Room A0 (ground floor), VTS

Session chair: **Károly Simon**

1220	Gorana Mijatovic, Natalija Vukosavljevic, Yuri Antonacci, Luca Faes and Tatjana Loncar-Turukalo	Measuring the Amount of Concomitant Firing during Neural Development
2918	Gabriella Polyák and Miklós Póth	Optimization of the Formula-1 race calendar using genetic algorithm
3205	Máté Kolat, Bálint Kővári, Tamás Bécsi and Szilárd Aradi	Designing Reward Functions in Multi-Agent Reinforcement Learning for Intelligent Intersection Control
5235	Balázs Tusor, Stefan Gubo and Annamária Várkonyi-Kóczy	Parallel Compound Index Arrays for Flexible Classification

9:30 – 9:45 Coffee break

9:45 – 11:00 **[S3] Session on Computational Intelligence II** Room A0 (ground floor), VTS

Session chair: **Miklós Póth**

5588	Tamás Tompa and Szilveszter Kovács	Heuristically accelerated FRIQ-learning
5600	Bálint Kővári, Máté Kolat, Tamás Bécsi and Szilárd Aradi	Competitive Multi-Agent Reinforcement Learning for Traffic Signal Control
6013	László Schäffer, Zoltán Kincses and Szilveszter Pletl	Spike Sorting Parameter Optimisation Framework using Genetic Algorithm
7723	Balázs-István Pelok, Csanád Sándor, Ákos Bálint, Csaba Sulyok and Károly Simon	Estimating the Correctness of Exercises for Flat Feet Using Semantic Segmentation
8797	Inoussa Habou Laouali, Antonio Ruano and Maria da Graça Ruano	MOGA designed neural networks for non intrusive load monitoring

11:00 – 13:45 **[S4] Session on Computational Intelligence III**

via Zoom at Room A0 in VTS

Session chair: **Amir Mosavi**

1907	Hamzeh Ghorbani, Parvin Ghorbani, Simin Ghorbani, Nina Khlgatyan and Bella G. Babayan	A robust approach to finding and predict of bone age
2079	Zhenyu Mao, Jialong Li and Kenji Tei	Towards Better Service Personalization: Reinforcement Learning with Guarantee of User Preference
2823	Marko Pap, Miloš Bjelić and Dragana Šumarac Pavlović	LSTM and Chroma Feature Based Music Composer
3560	Ilija Brdar, Jelena Vlajkov, Jelena Slivka, Katarina-Glorija Grujić and Aleksandar Kovačević	Semi-supervised detection of Long Method and God Class code smells
4443	Rituraj Rituraj, Diana Ecker and Varkonyi Koczy Annamaria	Smart and Sustainable Grids Using Data-Driven Methods; Considering Artificial Neural Networks and Decision Trees
5219	Krishna Chaitanya Gadepally and Sameer Mangalampalli	A Privacy First Path Analysis Using Clickstream Analysis
6140	Asad Saghari, Masoud Hosseinimehr, Shima Rahmani and Ivana Budinská	Automotive platform benchmark selection based on a combination of human judgment simulation and KDD techniques
8774	Andrey Savchenko	Recommending Restaurants based on Classification of Photos from the Gallery of Mobile Device
8811	Artem Sayapin and Ilya Makarov	Multi-modal Deep Reinforcement Learning in ViZDoom with Audio Component
8917	Kirill Svidovskii, Ilia Semenov and Ilya Makarov	Attention-based Models in Self-supervised Monocular Depth Estimation
9220	Seyyed Mostafa Ghadami, Seyyed Masoud Seyyedi and Rituraj Rituraj	Nonlinear control of Covid-19 pandemic based on the SIRD model

14:00 Kelebia Equestrian Park