

INES 2025 Preliminary Program



Dress code:
business casual

June 11, Wednesday

Venue: **Saracen Sands Hotel & Congress Centre** (address: Via Libertà, 128/A, 90040 Isola delle Femmine, Palermo)

9:00 – 9:20 **Opening Ceremony**

Teatro del Sole

9:20 – 10:00 **Plenary Talk I**
Session chair: **Levente Kovács**

Teatro del Sole

87	Andrea De Gaetano	PINNs and Sobolev Spaces
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10:00 – 10:40 **Plenary Talk II**
Session chair: **Dániel András Drexler**

Teatro del Sole

3	Márta Péntek	Value in Health Technology Innovations
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10:40 – 11:00 Coffee break

11:00 – 12:20 **[W1a] Session on Computational Intelligence in Engineering**
Session chair: **Judit Szűcs**

Sala Politeama

5	József Palatka, Lehel Dénes-Fazakas , Levente Kovács and László Szilágyi	Advancing Interstitial Lung Disease Diagnosis: a CNN Approach for High-Resolution Computed Tomography Image Classification
27	Anca Adriana Petcut Lasc , Valentina Emilia Balas, Flavius Maxim Petcut and Cornel Barna	Modelling and Identification of Two Genetic Algorithms used for Solar Cell Parameter
1	Christoph Gritsch , Andrea Tick and Philipp Rosenberger	Data Cleansing Methods for Big Data: A Systematic Review
67	Judit Szűcs , Gergő Fehér, Krisztián Németh and Tibor Guzsvinecz	Neural Network-Based Binary Tomography From Limited Number Of Projections

11:00 – 12:20 [W1b] Session on Systems Engineering I**Sala Bellini**Session chair: Tibor Farkas

58	Dimitrios Fragkoulis and Fotis Koumboulis	Supervisor Water Level Control for the Tanks in a Modular Water Distribution Network Testbed
47	Erika Hronyecz, Tibor Farkas and Péter Hunorfi	From Battlefield Innovation to Our Wrists: The Civil and Military Revolution of Wearable Devices
72	Dimitrios Fragkoulis, Fotis Koumboulis and Antonis Menexis	Edge Computing for Safe Control of a Parametric Multi-floor Manufacturing Process
25	Natansh Vyas , Gerrit Muller, Mo Mansouri, Kristin Falk and Omid Razbani	Supporting Systems Modeling Using Semantic Cues for Concept Development

12:20 – 13:30 Lunch

Pizzeria**13:30 – 15:30 [W2a] Session on Artificial Intelligence in Engineering I****Sala Politeama**Session chair: Valentina Emilia Balas

60	Vivien Roxána Patakvölgyi , Levente Kovács and Dániel András Drexler	Artificial noise injection for enhancing synthetic data quality for cell counting applications
69	Mircea Trifan, Bogdan Ionescu and Dan Ionescu	Voronoi-Based Semantic Segmentation
43	Ami Otsuka, Csaba Hajdu and Katalin Kovacs	Chatbot assistant based on Large-Language Models for University students
50	Árpád Pándy , Róbert Lakatos and Andras Hajdu	Arithmetic-Aware Question-Answering on Tabular Data Using a Large Language Model-Based Code Generation Agent
83	Vacarescu Sonda Preascilla Ioana , Valentina Emilia Balas and Paraschiv Nicolae	Artificial Intelligence in Quality Management within the Automotive Industry 4.0 : Real Life Applications
12	Bruno Kristián and Giang Nguyen	Parameter-Efficient Optimization for Supervised Fine-tuning Trainer

13:30 – 15:30 [W2b] Special Session on Recent PhD Emerging Excellence in Intelligent Engineering I**Sala Bellini**Session organizer and chair: László Horváth

15	Szandra Anna Laczi and Valéria Póser	Behavioural Analysis in Human-Machine Interaction for Insider Threats
30	Suryakant Tyagi and Sándor Szénási	Emotion Recognition from Audio Data Using Graph Neural Networks
32	Barbara Simon, Ádám Hartveg, Lehel Dénes-Fazakas, László Szász , Levente Kovács, Imre Rudas, László Szilágyi and György Eigner	Enhancing Diabetes Management Through LSTM Analysis of Physical Activity Effects

33	Andras Kovacs , Sandor Szenasi and Robert Lovas	Optimal distribution of applications in a server center
42	Barbara Simon , Ádám Hartveg, Lehel Dénes-Fazakas, György Eigner and László Szilágyi	Medical Assistant Chatbot on Microcontroller
45	Ernő Rigó	Attack Surface Mapping of Country-Wide Networks - a Technical Report
51	Róbert Roman , Levente Kovacs and László Szilágyi	Detection of Pneumonia from X-Ray Scans Using Deep Learning Algorithms and Computer Vision
57	Tamás Miseta , Ágnes Vathy-Fogarassy, Zsófia Závodi-Fodor and Attila Fodor	Design, modeling, and simulation of the energy system of semi-autonomous floating homes

15:30 – 15:50 Coffee break

15:50 – 17:30 [W3a] Session on Intelligent Mechatronics and Robotics Systems and Intelligent Manufacturing Systems

Sala Politeama

Session chair: Márta Péntek

84	Tamás Haidegger , Márta Péntek and László Gulácsi	Towards Health Technology Assessment for Surgical Robots
86	Marius Mircea Balas, Valentina Emilia Balas , Flavius-Maxim Petcut and Corina Anca Mnerie	Automation of the Two-Second Rule via Constant Time-to-Collision Curves
73	Michail Skarpetis , Fotis Koumboulis and Marios Tsoukalas	Robust Control of Axial Piston Pumps Using Particle Swarm Optimization
85	Mohammed Faeik Ruzajj Al-Okby	Multi-Zone UWB-based Tracking System for Indoor Environments
54	Andras Nagy	Development of an IoT-Based Continuous Ground Monitoring System for Enhanced Reliability

15:50 – 17:50 [W3b] Session on Web Engineering, CAD/CAM/CAE Systems, Communications Software and Systems in Engineering, Intelligent Transportation Systems

Sala Bellini

Session chair: Zoltán Rajnai

4	Yue Wu , Beatrix Fregan and Rajnai Zoltan	Advancing Accessibility, Engagement, and Innovation through Digital Education Technologies: A Comprehensive Analysis
11	Levente Füzér and Miklós Sipos	Analyzing Follower Data on Social Platforms Using Big Data Tools
19	Csongor Dobak, Kata Egres and Andras Kovacs	Extending Educational Web Application with Elasticsearch-Based Log Analysis and Predictive Analytics
22	László Horváth	Wide Area Context Driven Communication in and Between Engineering Models
39	Attila Nagy, Beatrix Fregan and Rajnai Zoltan	The Quantum Internet: The Foundations and Challenges of Future-Proof Communication
31	Mera Saulaiman , Ákos Csilling and Miklos Kozlovsky	Exploring the Intersection Between STIX Framework and TARA for Sharing Cyber Threat Intelligence for Automotive Systems

18:00 Welcome Reception

Terrace Marina

June 12, Thursday

9:00 – 10:40 [T1] Session on Artificial Intelligence in Engineering II

Sala Bellini

Session chair: **Gábor Kertész**

64	Balázs Gáspár , Attila Farkas and Gábor Kertész	Energy-aware cloud workload prediction method using machine learning techniques
9	Modafar Al-Shouha , Jose Burgos and Gábor Szűcs	Zero-GCCD: Zero-shot Generalized Continual Category Discovery using Foundational Models
61	Paula Melisa Goron and Rodica Ioana Lung	Notes on the transferability of adversarial examples
65	Attila Biró and László Szilágyi	An Enhanced AI Pipeline for the Detection and Preliminary Diagnosis of Pneumonia and Pulmonary Malformations in Athletes with YOLOv11
40	Gergo Bogacsovics	A Hybrid Two-Step Approach For Breast Cancer Classification In Low-Resource Settings

10:40 – 11:00 Coffee break

11:00 – 12:20 [T2] Session on Man-Machine Systems

Sala Bellini

Session chair: **Andrea De Gaetano**

26	Peter Kadar	Bulk control application for smart homes
82	Marcello Pompa, Simona Panunzi , Alessandro Borri, Laura D'Orsi, Elena Lo Presti and Andrea De Gaetano	Estimating Tumor Sferoid Growth
55	Tibor Guzsvinecz , Krisztian Nemeth and Judit Szűcs	Topic Modeling of Virtual Reality Game Reviews using Latent Dirichlet Allocation
14	Ildikó Holik , Zoltán Márton, Tamás Kersánszki and István Dániel Sanda	Motivations for Video Game Use and Skill Development in a Minecraft Camp

12:20 – 13:30 Lunch

Terrace Marina

13:30 – 14:30 [T3] Session on Systems Engineering II

Sala Bellini

Session chair: **László Szilágyi**

41	Esmeralda Kadena , Xhezmiye Palushi, Rajnai Zoltan, Indrit Baholli, Elvin Meka and Sidorela Marini	An Overview of UPS Configurations and Redundancy Techniques for Containerized Data Centers
34	Alin-Marius Stanciu	Emerging Technologies in Cybersecurity: Key Concepts and Future Impact
38	Zoltán Bodrog and Csilla Mile	Rush for sustainability: timeline-conscious technological retreat as the crucial tool

14:35 – 15:15 [T4] Special Session on Digitalisation, Generation Research, Consumer Trends

Sala Bellini

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

63	Mark Viktor Kátai, Éva Karl, György Molnár and Enikő Nagy	New alternatives to private car transport for different powertrains in Hungary - trends in the petrol, diesel and electric drive solutions
66	Lourdes Ruiz , Carlos Alvarez Llerena and Huu Phuoc Dai Nguyen	ChatGPT Usage in Education: Challenges and Best Practices

15:20 – 16:05 [T5] Special Session on Recent PhD Emerging Excellence in Intelligent Engineering II

Sala Bellini

Session organizer and chair: László Horváth

59	Borbála Gergics , Levente Kovács and Dániel András Drexler	Mathematical modeling of in vitro tumor spheroid co-cultures: a literature review
74	Tamás Zakota and József Fogarasi	Mapping of Remote Sensed Data Literature for Individual Tree Recognition
75	Miklós Vincze , Mera Abbassi, Szigeti Gyula and Miklós Kozlovszky	The interactive 3D visualisation of diagnostic data

14:30 – 15:10 e-poster sessionSession chairs: Sándor Szénási and Gábor Molnár

8	Amin Pourmahboubi, Nazanin Arsalany, Hamed Tabrizchi and Amir Mosavi	Comparative Analysis of Machine Learning Methods for Alzheimer's Disease Diagnosis
10	Ábel Landenberger and Sándor Szénási	Financial Forecasting using Quantum-Inspired Deep Learning
13	István Ferenc Farkas and Sándor Szénási	Pallet Detection using Image Processing
21	Lukáš Tomaščík, Ján Perháč , Nikola Geciová and Samuel Novotný	Web-Based Automated Theorem Prover for Propositional Logic
28	Zoltán Dominik Boros and Gábor Kertész	Lightweight Siamese Neural Network for Offline Signature Verification: A Data-Efficient Approach
29	Barnabás Szombat, Natacha Moniz and Gábor Kertész	Predicting NBA Draft Rankings with Machine Learning: A Pointwise Learning to Rank Approach
68	Dušan Čatloch, Eva Chovancová, Martin Chovanec and Martin Stancel	Application of Machine Learning Algorithms for Cybersecurity: Detection and Classification of Malware, DDoS, and Phishing Attacks
2	Jean Rosemond Dora , Ladislav Hluchy and Jean Rosemond Dora	Advanced Techniques to Execute a Shellcode in Word Memory
17	Máté Anderko, Csaba Németh and Sándor Szénási	Lithostratigraphic Layer Generation based on LiDAR and Borehole Data

46	Gábor Kertész and Attila Farkas	A survey on novel applications of Deep Metric Learning
52	Martin Štancel , Marek Ružička, Eva Chovancová and Dávid Hovanec	Autonomous Control System Simulation Using Image Segmentation
7	Marek Kvet and Jaroslav Janacek	Robustness of Fire Brigade System Deployment

15:20 – 15:40 e-poster session on Digitalisation, Generation Research, Consumer Trends

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

70	Monika Garai-Fodor and Nikolett Huszak	Generational perceptions of the role of coaching in self-awareness, self-development and career path planning
71	Monika Garai-Fodor and Nikolett Huszak	Analysis of personal contribution to a more conscious future
76	Ágnes Csiszárík-Kocsir , Hima Parameswaran, Ádám Mészáros and István Márk Tóth	Exploring identification with the agile approach through an intercultural lens
77	Gábor Sterczl and Ágnes Csiszárík-Kocsir	Assessing the basic skills of agile working from an international perspective
78	Zsolt Téglá and János Kosztolányi	Analysis of production planning in Hungarian manufacturing companies
80	János Varga and Richárd Veres	The role of leaders in driving innovation

18:00 **19:00** Banquet

Backyard Garden

June 13, Friday: One-day bus tour (for all participants) starts at 9:00 from Hotel Saracen

Description:

Full Day Marsala, Salt Road and Wine Tasting

Spend a day soaking in the beauty and flavours of western Sicily.

Start in **Marsala**, a town full of character and history, famous for its wine. Wander through the charming streets, take in the local culture, and admire the beautiful scenery around you. Then, head to the stunning **salt pans**, where you'll be surrounded by endless white salt flats and traditional windmills. The view is absolutely picturesque, and you'll learn all about the ancient salt-making process that has shaped the area for centuries.

Afterward, treat yourself to a wine tasting at one of the renowned local **wineries**. Discover the history and craftsmanship behind the famous Marsala wine, and sample some of the region's finest varieties. Enjoy the peaceful atmosphere of the winery, and take in the rich heritage that makes this experience truly special.

Includes: Transportation – English speaking local guide – Light lunch and wine tasting at winery - Earphone system

**Thank you for your contribution!
See you next year at INES 2026!**