



Smart Digital Futures 2026

AMSTA | HCIS | IDT | InMed | SEEL |

Conference Programme

17-19 June 2026
Barcelona, Spain

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Chairs Welcome

Welcome to the Smart Digital Futures 2026 (SDF-26) multi-theme conference held at the SB Icaria Hotel, Barcelona, Spain, during 17-19 June 2026.

SDF-26 is an amalgamation of six KES conferences: Agent and Multi-Agent Systems - Technology and Applications (KES-AMSTA-26), Intelligent Decision Technologies (KES-IDT-26), Human Centred Intelligent Systems (KES-HCIS-26), Innovation in Medicine and Healthcare (KES-InMed-26), Smart Education and e-Learning (KES-SEEL-26) and Smart Transportation Systems (KES-STS-26). Although the conferences share a common forum, each one has its own Chair and International Programme Committee.

The best papers submitted to the conference were presented and published in several volumes of proceedings in the Smart Innovation Systems and Technology series by Springer, submitted for indexing by SCOPUS, EI Compendex, INSPEC, and a number of other places.

Smart Digital Futures was organised as part of the KES International conference portfolio. For over twenty years the mission of KES International has been to provide a professional community, networking and publication opportunities for all those who work in knowledge-intensive subjects. At KES we are passionate about the dissemination, transfer, sharing and brokerage of knowledge. The KES community consists of several thousand experts, scientists, academics, engineers, students and practitioners who participate in KES activities. KES runs conferences in different countries of the world on leading edge topics including Intelligent Systems, Sustainability in Energy and Buildings, Innovation, Knowledge Transfer and Enterprise, and Digital Media. KES provides routes to publication, such as journals, book series, and online publications, both through its own media and in conjunction with major publishers. KES also provides knowledge transfer services and consultancy.

The aim of Smart Digital Futures was to bring together researchers working at the leading edge of developments in smart systems and intelligent technology theory and applications. This programme contains 116 papers, each selected after full peer review by members of the International Programme Committees of the conferences.

We thank the keynote speakers for providing informative accounts of the latest research in their areas:-

Yoshimasa Masuda, California State University, USA and Keio University, Japan - title of talk '*AI Strategy and Enterprise Architecture for Sustainable Innovation extended toward Ecosystem Societies*'

Ivana Podnar Žarko, University of Zagreb, Croatia - title of talk '*Orchestrating Hierarchical Federated Learning Pipelines in the Edge-to-Cloud Continuum*'

Beata Zielosko, University of Silesia, Poland - title of talk '*When Decisions Are Blocked: Learning Inhibitory Rules from Tree Ensembles*'

We thank the General Chairs and Programme Chairs of the SDF-26 conferences for their hard work and dedication. We appreciate the efforts of those organising and chairing special sessions, members of the International Programme Committees and reviewers and we thank them. We are grateful to authors for the papers they have contributed to the conference, and to delegates for their attendance and we give them our thanks.

Finally, we thank the KES International administration team for their efforts.

We hope you find the conference useful and informative, we wish you all well, and we look forward to seeing you at another of our events in the future.

R.J. Howlett and L.C. Jain
Smart Digital Futures Conference Series Chairs



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Keynote Talks

Yoshimasa Masuda

California State University, USA and Keio University, Japan

AI Strategy and Enterprise Architecture for Sustainable Innovation extended toward Ecosystem Societies

Abstract:

Global enterprises and information societies are experiencing incessant changes, factors including the rise of new information technologies, Artificial Intelligence (AI), globalization, and innovative business models. Recently, AI strategy and digital transformation have had a profound effect on existing businesses, ecosystems, and economies. The latest developments in Digital IT, especially AI have set new trends in information technology that are essential for sustainable innovation in enterprises. These developments have led to new IT trends, such as Generative AI, Digital AI Healthcare Platforms and Robotaxi, etc. which are shaping a digital economy filled with both opportunities and challenges. To remain competitive, businesses must innovate or risk being left behind. Therefore, the “adaptive integrated digital architecture framework (AIDAF) – second edition” for AI strategy and Digital Enterprise Architecture is expected to promote, design, and implement the AI Digital platforms in a number of industries additionally. Furthermore, because enterprises began to undertake AI strategies in Digital Transformation and Enterprise Architecture these days, Digital Economy has become crucial aspects for planning appropriate ways of AI strategy and digital transformation in analytical manners.

In this talk, first, I introduce that several cases of AI strategy and digital business with platforms for Sustainable Innovation and related enterprise resource management (ERP) with AI are planned, designed and proceeded in an alignment with Digital Transformation and Enterprise Architecture covering Digital Economy’s perspective. Whereas, I explain how to apply the AIDAF second edition covering AI Platforms and Design Thinking Approach with Risk Management involving the case of the California State Government in the US and JDA. Finally, I introduce the AIDAF with the ecosystem level of digital healthcare platforms, AI Hospital Strategy and the directions of digital AI strategy and platforms with the AIDAF extended to ecosystem societies, as the latest trend.



Biography: Yoshimasa Masuda is Visiting Professor at Graduate School of Management Information Systems in California State University, Sacramento and Graduate school of System Design Management, Keio University (specially appointed), while he has been Teaching Faculty, Instructor at Carnegie Mellon University – ISR (Institute for Software Research) since 2021, and Professor at School of Management in Tokyo University of

Science. He has more than 14 years' experience in enterprise in many industries. He earned a Ph.D. degree in Keio University. He had experienced many global projects, international assignments in IBM. He started up the global enterprise architecture in Global Pharmaceutical company and worked as Sr. IT Director in Global Robotics company in 2019, and started the “Global Digital Strategy Consulting” in NTT Data group, Management Consulting as Senior Management. He completed the Executive Education (MoT) in MIT in 2011, and he has joined Carnegie Mellon University since 2018. He was selected as “Distinguished Member” of AIS (Association for Information Systems) in 2021 and he is currently Vice President of AIS-SIGLEAD since 2024. His research interests are enterprise architecture in Digital era toward Ecosystem Society in the AI era, AI strategy and digital transformation, digital healthcare, IT management. Yoshimasa Masuda is author of the successful AIDAF – Adaptive Integrated Digital Architecture Framework and the book Enterprise Architecture for Global Companies in a Digital IT Era, from Springer Nature. He published the second edition of the above AIDAF book in August in 2025, that covers AI platforms and Design Thinking approach, etc. He got the “Global Achievement Award – Innovative Solutions Award 2021” from worldwide ISACA, by establishing the AIDAF framework in 2021, and he received the “Outreach Practice Publication Award” from Global AIS in December in 2022.

Ivana Podnar Žarko

University of Zagreb, Croatia

Orchestrating Hierarchical Federated Learning Pipelines in the Edge-to-Cloud Continuum

Abstract: Federated Learning (FL) enables distributed learning while preserving data privacy, as data remains local on devices performing the training. However, standard FL pipelines rely on a single cloud aggregator, which often results in high communication costs and poor global model convergence due to data heterogeneity. Hierarchical Federated Learning (HFL) introduces an intermediate layer of edge servers to aggregate subsets of client models before communicating with the global cloud aggregator. This multi-tier architecture can significantly improve communication efficiency, making HFL pipelines ideal for the Edge-to-Cloud Continuum (ECC).

This talk explores the transition from static FL deployments to adaptive orchestration of HFL pipelines using the AloTwin Orchestration Middleware, an open-source framework built on Kubernetes and the widely adopted FL framework Flower. We will examine how automated orchestration addresses the dynamic nature of the ECC by managing varying client resources, fluctuating bandwidth, and frequent node failures. The AloTwin approach uses continuous runtime monitoring of both infrastructure health (e.g., node failures and network conditions) and the ML performance of running HFL tasks (e.g., model accuracy and convergence rate) to provide runtime adaptability and autonomous reconfiguration actions. Reconfiguration is driven by objective-based optimization, which aims to maximize model accuracy while adhering to constraints such as predefined communication or energy cost budgets. Selected evaluation experiments will demonstrate how the orchestration middleware enables the deployment of decentralized intelligence at scale in cross-domain and dynamic Edge-to-Cloud environments.



Biography: Ivana Podnar Žarko is a Full Professor at the Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia (UNIZG-FER), where she teaches courses on distributed systems and the Internet of Things. She was promoted to Full Professor in December 2017 and is leading the Internet of Things Laboratory at UNIZG-FER since 2015. She was a guest researcher and research associate (2001-2002) at the Vienna University of Technology, Austria, and a postdoctoral researcher (2005-2006) at the Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland.

Her research interests are in distributed systems, with a particular focus on scalable and decentralized solutions for the Internet of Things (IoT). Over the past five years, she has concentrated on research problems such as artificial intelligence and interoperability for IoT and edge-to-cloud environments, and distributed ledger technology.

Prof. Podnar Žarko has extensive experience participating in collaborative scientific research projects funded by national and European sources and has led six research projects. She recently coordinated the Horizon Europe twinning project AIoTwin: Twinning Action for Spreading Excellence in Artificial Intelligence of Things (2023-2025). She also serves as an invited expert for the Horizon Europe program.

Ivana Podnar Žarko has co-authored more than 85 scientific papers in large-scale distributed systems, IoT, and edge computing. She has served as a program committee member for many international conferences and workshops, including IEEE Globecom, IEEE ICC, IEEE 5G World Forum, and the Global IoT Summit, and was a track chair at the 19th Annual IEEE/ACM Int Symposium in Cluster, Cloud, and Grid Computing (CCGrid 2019). She is a member of IEEE and served as Chapter Chair of the IEEE Communications Society, Croatia Chapter (2011–2014). She received the Award for Engineering Excellence from the IEEE Croatia Section in 2013 and the Science Award of UNIZG-FER in 2020 for outstanding achievements in research and innovation.

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Beata Zielosko

University of Silesia, Poland

When Decisions Are Blocked: Learning Inhibitory Rules from Tree Ensembles

Abstract: Decision trees and rule-based systems are widely used in various tasks related to classification and knowledge representation. Their great advantage is the interpretable and structured way of modelling decision-making processes. Tree structure facilitates the representation of knowledge in the form of rules, making it easy to understand, analyze, and explain, even for those without expertise in a particular field.

Inhibitory rules complement this approach by explicitly modelling constraints or exceptions that prevent certain conclusions from being drawn when specific conditions are met. Unlike standard decision rules, inhibitory rules have a consequent in the form of: “attribute \neq decision” and often suggest insights not captured by traditional decision rules.

During the lecture, the challenging problems of extracting inhibitory rules from a set of decision trees will be considered. The proposed method can be applied in scenarios involving multiple local and distributed data sources represented as decision trees, where the goal is to extract knowledge that is important for all these sources and can be used both locally and globally. The main objective is to identify patterns that reflect knowledge common to most data sources, while also being applicable at the level of individual sources.



Biography: Beata Zielosko works as Associate Professor at University of Silesia in Katowice. She is the head of the research group dealing with decision rules in knowledge discovery and representation. From October 2022, she has served as deputy director of the Institute of Computer Science at the Faculty of Science and Technology of the University of Silesia in Katowice. From 2011 to 2013, she worked as a senior research scientist at King Abdullah University of Science and Technology in Saudi Arabia.

Beata Zielosko is a co-author of four research monographs published by Springer and over 60 papers published in journals and international conference proceedings. She is also a co-editor of the PP-RAI 2025 and IJCRS 2017 proceedings and co-editor of an international monograph on feature selection. She is a member of the International Rough Set Society, KES International and the Polish Artificial Intelligence Society. Her research interests include pattern recognition, knowledge discovery, feature selection, rough sets methods for data processing and artificial intelligence.

Schedule – Wednesday 17 June

	Plenary Room	Room 2	Room 3	Room 4	Room 5
	<p>Opening Ceremony Prof Robert J Howlett & Prof Lakhmi Jain 9:00 - 9:15</p>				
	<p>Keynote Speaker 1 Prof. Ivana Podnar Zarko Orchestrating Hierarchical Federated Learning Pipelines in the Edge-to-Cloud Continuum 9:15 - 10:15</p>				
	<p>Networking Break 10:15 - 10:45</p>				
Session Details	<p>AMSTA - 01 Multi-Agent Systems Chairs: Prof. Mario Kušek</p>	<p>IDT-01 General Track Chair: Ireneusz Czarnowski</p>	<p>InMed-01 General Track Chair: Yen Wei Chen</p>	<p>STS-01 Transport Systems, Sustainability & User Behavior Chair: Kun Gao</p>	<p>SEEL-01 Models in Smart E-Learning System Theory and Practice (MSTP) Chair: Natalia A. Serdyukova</p>
BST Time	10:45 - 12:45	10:45 - 12:45	10:45 - 12:45	10:45 - 12:45	10:45 - 12:45

	Plenary Room	Room 2	Room 3	Room 4	Room 5
	Lunch Break 12:45 - 13:45				
	Keynote Speaker 2 Prof. Yoshimasa Masuda AI Strategy and enterprise architecture for sustainable innovation extended toward ecosystem societies 13:45 - 14:45				
	Networking Break 14:45 - 15:15				
Session Details	AMSTA - 02 Agents and Agentic AI Chair: Prof. Gordan Ježić	IDT-02 General Track Chair: Ireneusz Czarnowski	InMed-02 Smart Techniques in Healthcare A Chair: Smaranda Belciug	STS-02 Intelligent Traffic Systems, Control & Connected Vehicles Chair: Arsalan Najafi	
BST Time	15:15 - 17:15	15:15 - 17:15	15:15 - 17:15	15:15 - 17:15	

Schedule – Thursday 18 June

	Plenary Room	Room 2	Room 3	Room 4	Room 5
	<p>Keynote Speaker 3 Prof. Beata Zielosko When decisions are blocked: Learning inhibitory rules from tree ensembles 9:00 - 10:00</p>				
	<p>Networking Break 10:00 - 10:30</p>				
Session Details	<p>AMSTA-03 Business Economics and Agent-based Modeling Chair: Prof. Hiroshi Takahashi</p>	<p>IDT-03 Data-Driven Intelligent Decision Making: Models, Algorithms, and Innovative Applications Chairs: Mu Du & Lijun Sun</p>	<p>InMed-03 Smart Techniques in Healthcare B Chair: Smaranda Belciug</p>	<p>STS-03 Traffic Safety, Perception & Data-Driven Modeling Chair: Yang Liu</p>	
BST Time	10:30 - 12:30	10:30 - 12:30	10:30 - 12:30	10:30 - 12:30	
	<p>Lunch Break 12:30 -13:30</p>				

	Plenary Room	Room 2	Room 3	Room 4	Room 5
	Networking Break 13:30 - 14:00				
Session Details	<p>AMSTA-04 Intelligent Agents in health, wellness, sustainability and human development environments Chair: Prof. Rosario Baltazar and Prof. Arnulfo Alanis Garza</p>	<p>IDT-04 Large-Scale Systems for Intelligent Decision Making and Knowledge Engineering & Decision Making Theory for Economics Chairs: Sergey V. Zykov & Takao Ohya</p>	<p>InMed-04 Digital Architecture and Economics for Internet of Things, Big data, Cloud and Mobile IT in Healthcare & Advanced ICT for Medicine and Healthcare Chair: Mihaela Luca & Yoshimasa Masuada</p>	<p>HCIS-02 IS04: Human-Centered Security in Resource-Constrained Computing: Bridging IoT Security, Human Trust, and Emerging Technologies (2nd Edition) & IS03: Human-Road-Vehicle Chairs: Reza Jazar & Nordine Quadar</p>	
BST Time	14:00 - 16:00	14:00 - 16:00	14:00 - 16:00	14:00 - 16:00	
	Gala dinner at El Tribut From 19:00 - 21:30				

Schedule – Friday 19 June

	Plenary Room	Room 2	Room 3	Room 4	Room 5
	Morning Networking 09:30 - 10:00				
Session Details	AMSTA-05 Agent-based Modeling and Simulation Chair: Prof. Roman Šperka	IDT-05 General Track Chair: Ireneusz Czarnowski	InMed-05 Deep Learning in Medical Imaging and Multimodal Biomedical Data & Advances in Bioengineering Applications Chair: Milan Simic & Ivan Macia	HCIS-01 General Track Chairs: Prof. Mihaela Luca	
BST Time	10:00 - 12:00	10:00 - 12:00	10:00 - 12:00	10:00 - 12:00	
	Lunch Break 12:00 - 13:00				
	Closing Ceremony 13:00 - 13:00				

AMSTA Paper Presentations

Wednesday 17th June 2026

Time: 10:45-12:45

Plenary Room

AMSTA-01: Multi-Agent Systems

Chairs: Prof. Mario Kušek

Paper No	Paper Title / Authors
22	Multiple UAV Delivery Route Generation and Scheduling with Time Windows Using a Genetic Algorithm Kentaro Miura and Toshiharu Sugawara
21	Comparing an Ontology-Enhanced Sentiment Analysis Approach to Machine-Learning Models using Media Tweets to Predict Stock Market Trends Zhicheng Hao and Jessica Yun-Heh Chen-Burger
10	Supporting Media Selection Decisions in eLearning: An Empirical Study Using Extended Reality Panagiotis-Efstratios Chontas and George-Gabriel Constantinescu
31	Distributed Medical Image Processing in Agent-Based Collaborative Environment Armin Stranjak, Rajan Unnikrishnan and Igor Cavrak
2	Adaptive Multi-Agent Systems with Differential Privacy: Enhancing Intelligent Transportation Networks Through Optimal Exploration-Exploitation Strategies Nihed Yousfi and Nadia Bouassida
37	LLM Constitutional Multi-Agent Governance J. de Curtò and I. de Zarzà

Wednesday 17th June 2026

Time: 15:15 - 17:15

Plenary Room

AMSTA-02: Agents and Agentic AI

Chair: Prof. Gordan Ježić

Paper No	Paper Title / Authors
1	Semantic Invariance in Agentic AI I. de Zarzà, J. de Curtò, Jordi Cabot, Pietro Manzoni and Carlos T. Calafate
30	Adverse-Weather Semantic Segmentation Using Large-Window Transformers and Lightweight CNN-Mamba Networks Mccauley Obenembot, Hima Vadapalli and Dustin van der Haar
27	Personalized Fairy Tale Generation for Children Using AI Mattia Fantinati, Massimiliano Pirani, Simone Scannapieco and Claudio Tomazzoli
29	Towards Safer Autonomous Vehicles: Semantic Segmentation in Adverse Weather Conditions Philip Mathee, Dustin van der Haar and Hima Vadapalli
36	Performance Analysis And Optimization Of University Web Sites Jolanta Wrzuszcak-Noga

Thursday 18th June 2026

Time: 10:30 - 12:30

Plenary Room

AMSTA-03: Business Economics and Agent-based Modeling

Chair: Prof. Hiroshi Takahashi

Paper No	Paper Title / Authors
16	How the Level of Digitalization Affects Employee Satisfaction and Work Motivation Christopher Reichstein and Ralf-Christian Härting
11	Method for Constructing Knowledge of Emotion-Specific Resonance and Misrecognition Patterns in Japanese Text Communication Mayu Kouno and Kazuhiko Tsuda
17	Stagnation or Acceleration: Assessing the Impact of Energy Efficiency Diffusion on Gas Demand in Depopulating Japan Aijia Liu, Eiji Murakami and Hiroshi Takahashi
24	A Multi-Objective Decision Framework for Greenhouse Operations Integrating Energy Control, Carbon Pricing, and Economic Performance Chaeun Hong, Eiji Murakami and Hiroshi Takahashi
15	Analysis of the Suppression Effect in Speculative Mis-representation: Analyzing Individual-Group Decision-Making Processes Using Allvial Diagrams, and Discussion Text Factor Visualization Hiroyasu Seita and Setsuya Kurahashi
7	Building AI-Driven Circular Manufacturing Systems: Evidence from Coolant Regeneration Technologies in Taiwan Masayuki Hirosue, Hideki Hayashida and Masakazu Takahashi

Thursday 18th June 2026

Time: 14:00 - 16:00

Plenary Room

AMSTA-04: Intelligent Agents in health, wellness, sustainability and human development environments

Chair: Prof. Rosario Baltazar and Prof. Arnulfo Alanis Garza

Paper No	Paper Title / Authors
32	Coral Bleaching Risk Classification Using Multilayer Perceptrons with Regionally Calibrated Thermal Stress Indicators and Ecological Validation Ana Laura Santos Chin and Rosario Baltazar
34	Classification of acute leukemia (ALL/AML) using neu-ral networks based on gene expression profiles CLRNN-gp Aranza Gutiérrez
38	Breast tumor prediction using neural networks Aaron Ganiz
39	Experimental Evaluation of Rule-Based and CNN Emotional Detection in Controlled Therapeutic Human–Robot Interaction for ASD Luis Arturo Hernández Martínez

Friday 19th June 2026

Time: 10:00 - 12:00

Plenary Room

AMSTA-05: Agent-based Modeling and Simulation

Chair: Prof. Roman Šperka

Paper No	Paper Title / Authors
25	Exploration of Early Detection Algorithms for Frailty in Single-Person Households Using Time-Series Anomaly Detection Shizuka Ebisudani, Eiji Murakami and Hiroshi Takahashi
28	Forecasting LP Gas CIF Prices Using a Deep Learning–Based Multi-Model Framework with Equity Market Information Fumin Chang, Eiji Murakami and Hiroshi Takahashi
14	Retrieval-Augmented Generation for Agent-Based Modelling and Simulation in Business: A Structured Literature Review of Architectures and Reliability Mechanisms Michal Halaška and Roman Šperka
6	A Multi-Agent Framework for Probabilistic Batch-Level Quality Inference from Distributed Consumer Feedback Krzysztof Rewak
18	A Multi-Agent Data-to-Decision Pipeline for Real-Time Public Parking Guidance in Iași: Quality-Aware Publication and Standards-Based Interoperability Liviu Andrei Scutelnicu
26	Learning-Based Action Masking for Task Allocation in Multi-Agent Vehicular Systems Muhammad Asad Raza, Saeedeh Ghanadbashi, Luca Longo, Abdollah Malekjafarian and Fatemeh Golpayegani

HCIS Paper Presentations

Friday 19th June 2026

Time: 10:00 - 12:00

Room 4

HCIS-01: General Track

Chairs: Prof. Mihaela Luca

Paper No	Paper Title / Authors
12	Young, talented, demanding: Gen Z's expectations of work - and what SMEs can offer Ralf Haerting, Christopher Reichstein, Jo Scheppach, Anne Grüner, Melissa Malik and Philipp Anderlohr
16	LLMDiRec: LLM-Enhanced Intent Diffusion for Sequential Recommendation Bo-Chian Chen and Manel Slokom
15	Intention to Use Generative AI in Project Management: A UTAUT-Based Study of Project Managers in Two German Organizations Mattis Plant and Thomas Paetow
3	Portion and Nutrient Estimation in Food Photographs using Mask R-CNN Alisa Podolska and Giang Nguyen
5	AI-Assisted Question Answering over Standard Operating Procedures: A Retrieval-Augmented Approach for Industrial Applications Charalampos Mastrokostas, Vasileios Fotkatzikis and Nikos Karacapilidis

Thursday 18th June 2026

Time: 14:00 - 16:00

Room 4

HCIS-02: IS04: Human-Centered Security in Resource-Constrained Computing: Bridging IoT Security, Human Trust, and Emerging Technologies (2nd Edition) & IS03: Human-Road-Vehicle Interaction

Chairs: Reza Jazar & Nordine Quadar

Paper No	Paper Title / Authors
20	Securing Health Through Speed and Accuracy: Efficient Blood Dennis Lu, Abdellah Chehri and Jing Gai
11	Road-Vehicle Co-Optimization and Intelligent Traffic Flow: A Human-Centered Multi-Agent Reinforcement Learning Approach Olugbenro Ogunrinde, Adedeji Afolabi, Mackenzie Howton and Billy Gray
4	Contractual Incentives and Ethical Algorithms in Autonomous Construction Vehicles Olugbenro Ogunrinde, Jared Burgoon and Tulio Sulbaran
9	Frequency Response Analysis of Vehicle Vibrations Considering Tire-Road Separation and Nonlinear Damper Dang Quy Nguyen, Dai Vo Quoc, Hormoz Marzbani, Saki R, Abolghassem Zabihollah, Hoe-Gil Lee and Reza Jazar
32	Multi-Scale Analysis of Tire Cornering Stiffness and Iterative Learning Control Architectures for Autonomous Driving Tasks Hormoz Marzbani, Thiago De Borba, Reza Jazar and Ondrej Vaculin
23	Security-Aware Multi-Objective Optimization for Renewable hybrid Microgrids in Resource-Constrained IoT Environments Nabil Mchirgui, Habib Kraiem and Ahmed Lakhssassi
25	Exceptional-Point Topological Photonic Sensors for Smart Road Infrastructure Hamidreza Ramezani

IDT Paper Presentations

Wednesday 17th June 2026

Time: 10:45 - 12:45

Room 2

IDT-01: General Track

Chair: Ireneusz Czarnowski

Paper No	Paper Title / Authors
5	KGQuest: Template-Driven QA Generation from Knowledge Sania Nayab, Marco Simoni, Giulio Rossolini and Andrea
11	SEAP FraudCatcher: Leveraging Artificial Intelligence and Cryptographic Techniques for Fraud Prevention Irimia Cosmin-Iulian, Bojescu Bianca-Daniela, Constantin Ana-Maria, Gălățianu Mihai, Munteanu Denisa-Maria-Ionela, Țiplea Matei and Adrian Iftene
15	Designing a Privacy-Aware, Expert-in-the-Loop Tudor Avram, Sandu Motelica, Daniela Onut, Cristian Murgu, Adelin Cojocaru, Ana-Maria Bores and Adrian Iftene
12	Decentralized and secure Provenance and Authentication of High-Value Products Cosmin-Iulian Irimia, Alin Jufa, Constantinescu, George-Gabriel and Adrian Iftene
31	Towards Efficient Phishing Email Detection with LLM-Based Models Alexandru Kiraly, Claudia-Ioana Coste, Diana-Florina, Șotropa and Darius-Vasile Bufnea

Wednesday 17th June 2026

Time: 15:15 - 17:15

Room 2

IDT-02: General Track

Chair: Ireneusz Czarnowski

Paper No	Paper Title / Authors
7	A Memetic Island Model for Partial Order Approximation of Arbitrary Binary Relations Sapna Katoch and Ryszard Janicki
24	PriEval-Protect: A Unified Framework for Privacy Evaluation and Protection in Healthcare Systems Asma El Hadj, Ilef Chebil, Souheib Yousfi, Aroua Hedhili and Layth Sliman
22	A Comparative Study of Intelligent Decision Support Interfaces Adapted for Visually Impaired People for Indoor Navigation Matei Madalin and Lenuța Alboaie
18	Digital Twin Environments in Virtual Reality for Natural Disaster Awareness and Training Silion Dragos, George-Gabriel Constantinescu and Adrian Iftene
8	Supporting Consumer Decision Making with Augmented Reality: Evidence from UX Evaluation of Mobile AR Experiences Panagiotis-Efstratios Chontas
13	Intelligent Virtual Reality System for Decision Support in Social Anxiety Management through Progressive Exposure Scenarios George-Gabriel Constantinescu and Adrian Iftene

Thursday 18th June 2026

Time: 10:30 - 12:30

Room 2

IDT-03: Data-Driven Intelligent Decision Making: Models, Algorithms, and Innovative Applications

Chairs: Mu Du & Lijun Sun

Paper No	Paper Title / Authors
20	Cross-Lingual Multimodal Popularity Prediction for Data-Driven Content Decision Making on Social Media Ziming Wang, Yuzi Yang and Xiangwei Kong
27	Optimizing Efficiency and Workload Fairness in Robotic Mobile Fulfillment Systems: A Correlation-Based Zoning Storage Approach Tianrong Ding, Teng Huang, Yuankai Zhang and Xiangpei Hu
19	Multimodal Prediction of Immersive Interaction Field Strength in Live-Streaming Commerce Yujiao Sun and Jinhong Zeng
29	Collaborative Planning of Charging and Battery-Swapping Infrastructure for eVTOL Fleets in Low-Altitude Mobility Yuankai Zhang, Siyuan Liu and Taisheng Du
14	Fault Tree Analysis for Risk Factor Identification of Oil and Gas Storage and Transportation Facilities' Multiple Accident Scenarios Anqi Xin and Lijun Sun
21	Learning from Others: Cross-context POMDP and Its Application to Adaptive Scheduling Optimization for Health Screening Hongtao Yu, Mu Du and Nan Kong

Thursday 18th June 2026

Time: 14:00 - 16:00

Room 2

IDT-04: Large-Scale Systems for Intelligent Decision Making and Knowledge Engineering & Decision Making Theory for Economics

Chairs: Sergey V. Zykov & Takao Ohya

Paper No	Paper Title / Authors
17	Improving software engineering skills by challenging games: a case study Boris Ulitin, Eduard Babkin and Sergey V. Zykov
23	Research on Data Silos and Data Management Frameworks (DMF) in Building Cross-Organizational Data Management Platforms (DMP) - Based on Anthony's Hierarchy of Business Activities- Shunei Norikumo
25	Calculations by Several Methods for D-AHP Including Hierarchical Alternatives and Hierarchical Criteria. Takao Ohya
35	Democratizing Quantum Compute: A Scalable Microservices Architecture for Intelligent Decision Making Manuel Mazzara, Radhakrishnan Delhibabu, Salvatore Distefano and Sergey Zykov
26	Beyond Static Measures: Adaptive Multi-Factor Project Similarity for Software Development Effort Estimation Le Thi Kim Nhung Ho, Nguyen An Thuyen Duong, Radek Silhavy and Petr Silhavy
30	Local LLMs in Practice: Engineering Foundations and Evaluation Challenges Elena Pesotskaya and Sergey Avdoshin

* Online session

Friday 19th June 2026

Time: 10:00 - 12:00

Room 2

IDT-05: General Track

Chair: Ireneusz Czarnowski

Paper No	Paper Title / Authors
2	A Wind-Guided Firefly Metaheuristic for Unsupervised Clustering on Tabular and Image-Derived Feature Spaces Fabio Berberi and Paolo Mercorelli
3	FusionManagerPPv7: Dynamic PSO-Based Weight-Space Fusion of Ten Optimization Algorithms Fabio Berberi and Paolo Mercorelli
10	Captcha Breaker: Using Artificial Intelligence to Bypass Human Verification Systems Irimia Cosmin-Iulian, Diana Jîtcă, Adrian Iftene and Olariu Florin
32	Outlier-Resilient Feature Extraction Using Robust Statistics and Rank Aggregation Piotr Artiemjew

* Online session

InMed Paper Presentations

Wednesday 17th June 2026

Time: 10:45 - 12:45

Room 3

INMED-01: General Track

Chair: Yen Wei Chen

Paper No	Paper Title / Authors
10	An Architectural Approach to Healthcare Logistics Processes Improvement: A Sustainable Development Perspective Pavel Malyzhenkov, Oleg Glazkov, Maurizio Masi and Fabrizio Rossi
3	Hybrid Visual Analytics and Artificial Intelligence Methods for Medical Image Segmentation Across Clinical Domains Piotr Regulski and Kazimierz Szopinski
11	Estimating Mental Health Status from Web Text Using Local LLMs: An Exploratory Analysis of Decision Behavior and Model Characteristics Atsuto Naito, Kazuyuki Matsumoto and Hidehiro Umehara
6	An Analytical and Comparative Study of Modern Intelligent Models for Skin Cancer Diagnosis Rasha Kadhem

Wednesday 17th June 2026

Time: 15:15 - 17:15

Room 3

INMED-02: Smart Techniques in Healthcare A

Chair: Smaranda Belciug

Paper No	Paper Title / Authors
15	Reducing Inter-Plane Confusion in Fetal Ultrasound Classification Using a Probabilistic Stacking Ensemble Constantin-Renato Ivanescu, Mihai Mocanu and Mihai-Costinel Balosu
14	A Hybrid Keypoint–Deep Learning Approach for Pneumonia Classification Using Chest X-Ray Images Anca Ignat
22	Opportunities and Threats for SMEs Applying Smart Techniques in Healthcare: Entrepreneurship and Collaborative Innovation Bosco Lopez Landa, Anca Draghici and Maria Elena Boatca
8	A Lesion-Centric Digital Twin Framework for Personalized Clinical Decision Support in Colonoscopy Florin Ispas
9	Leakage-Aware Segmentation-Guided Diffusion Patch Augmentation for Left Atrium MRI Segmentation with 3D SegResNet Diana-Lorena Cocîlnău

Thursday 18th June 2026

Time: 10:30 - 12:30

Room 3

INMED-03: Smart Techniques in Healthcare B

Chair: Smaranda Belciug

Paper No	Paper Title / Authors
5	A Trust-Confidence Dual-Layer Bayesian-Markov Scoring Model for Food Allergy Tracking and Personalized Dietary Management Tiberiu-Alexandru Mihai
1	Generative Deep Learning Framework for the Classification of Parkinson's Disease Medication State using Gait Data Roel Pantonial and Milan Simic
7	Understanding delivery mode at term through time-dependent modeling Smaranda Belciug and Dominic Gabriel Iliescu
25	Navigating Complexity: Implementing an AI-enabled Translation App for CALD In-Home Care Services Hilary Davis, Sonja Pedell, Diego Munoz, Yansen Theopilus, Magdalena Biadala Sahingoez and Vesna Trampevska Talevska
26	Exploring the role of AI in Aged Care: Codesign Toolkit to integrate Expert Voices from the Sector Gareth Priday and Sonja Pedell

Thursday 18th June 2026

Time: 14:00 - 16:00

Room 3

INMED-04: Digital Architecture and Economics for Internet of Things, Big data, Cloud and Mobile IT in Healthcare & Advanced ICT for Medicine and Healthcare

Chair: Mihaela Luca & Yoshimasa Masuada

Paper No	Paper Title / Authors
4	Cost-Effectiveness of Financial Incentives and Artificial Intelligence-Assisted Counseling to Strengthen Diabetes Control in Jamaica: Modeling Study Donald Shepard, Michael Chuang, Atiya Magee, Patrice Francis-Emmanuel and Michael Boyne
13	Infrastructure Design for AI-Assisted Medical Anamnesis: A Bare Metal Kubernetes Approach Jose Luis Moura Marinho, Nuno Feixa Rodrigues and Pedro Rangel Henriques
24	Human-Centric Intelligence Amplification for Sustainable Innovation: A Comparative Use Case Exploration in a Pharmaceutical Multinational Tetsuro Miyake, Jean Paul Sebastian Piest, Alfred Zimmermann and Yoshimasa Masuda
16	Non-Invasive Preoperative Prediction of Microvascular Invasion in Hepatic Tumors Integrating Multi-Sequence MRI Radiomics and Clinical Features: A Multi-Center Study Minlu Cao, Hai Zhong and Xu Qiao
17	3D Cephalometric Landmark Detection via Local Patch Learning and Anatomical Constraints Yuan Cao, Xu Qiao, Rui Gao and Anwei Chen

Friday 19th June 2026

Time: 10:00 - 12:00

Room 3

INMED-05: Deep Learning in Medical Imaging and Multimodal Biomedical Data & Advances in Bioengineering Applications

Chair: Milan Simic & Ivan Macia

Paper No	Paper Title / Authors
23	Influence of preprocessing and transfer learning in Pulmonary Artery Segmentation from 4D Flow MRI Martin Cartajena, Javier Bóbeda, Nerea Arrarte, Jesús Ruiz-Cabello, Aitor Zubillaga, Ivan Mácia and Karen López-Linares
18	A Scale-Decoupled Dual-Branch Framework for 3D Hepatic Vessel Segmentation in CT Images Peiyang Li, He Li, Huiyan Jiang, Xianhua Han and Yen-Wei Chen
19	More than Meets the Eye: Laterality Prediction in Retinal Images of Premature Infants Gonzalo Plaza, Alicia Serra, Christian Mata, Arnau Valls, Oscar Camara and Adrian Galdran
12	A Governance Framework for GenAI-Telemedicine in Saudi Arabia Mohammed H. Alqahtani, Ahmed R. Alruwaili, Tahani A. Alruwaili, Lucy Lunevich and Milan Simic
21	Structured Text Extraction for Robust Text-Assisted Medical Image Segmentation Shurong Chai, Rahul Kumar Jain, Shiyu Teng, Jiaqing Liu, Ruibo Hou, Rui Xu and Yen-Wei Chen

* Online session

SEEL Paper Presentations

Wednesday 17th June 2026

Time: 10:45 - 12:45

Room 5

SEEL-01: General Track 1

Chair: Natalia A. Serdyukova

Paper No	Paper Title / Authors
2	System of Systems Complexity and Sustainability Properties: Description and Generalizations Natalia A. Serdyukova and Vladimir I. Serdyukov
3	Architectural transformation of training processes in higher education by means of VR: sustainable view Pavel Malyzhenkov, Vladimir Krylov, Francesco Pacchera and Mariagrazia Provenzano
4	The Application of Generative AI Technologies in the Process of Preparation of Transfer Pricing Documentations Natalya V. Serdyukova
5	Adaptive Control and Simulation of a High-Load System Anna Anatolyevna Sherstobitova and Lyudmila Vladimirovna Glukhova
6	Management of the Mechanism for Coordinated Team Interaction in Projects Lyudmila Vladimirovna Glukhova and Anna Anatolyevna Sherstobitova
8	Management of the Mechanism for Coordinated Team Interaction in Projects Lyudmila Glukhova, Anna A. Sherstobitova, Svetlana D. Sirotiyuk and Anton Gudkov
9	Adaptive Control and Simulation of a High-Load System Lyudmila Glukhova, Anna A. Sherstobitova, Svetlana Gudkova and Valerii Kaziev

* Online session

STS Paper Presentations

Wednesday 17th June 2026

Time: 10:45 - 12:45

Room 4

STS-01: Transport Systems, Sustainability & User Behavior

Chair: Kun Gao

Paper No	Paper Title / Authors
8	Determinants of Electric Vehicle Purchase Intentions in Sweden Xiaoze Shen, Shang Gao and Xiaohan Liu
9	The Impact of Adaptive Signal Control on Traffic Efficiency and Environmental Pollution Jakub Jasinski, Linus Olsson, Kun Gao, Shaohua Cui and Xiaohan Liu
11	Calibrating Swedish Work Zone Driving Behavior for Microsimulation Elin Morin, Elin Johansson and Omkar Parishwad
3	A Zero-Shot Framework for Automated Instruction-Guided Object Segmentation Annotation in Driving Scenes Senyun Kuang, Yang Liu, Xiaoyu Wen, Haitao Wang, Lyu Tang and Yintao Wei
1	Forecasting Carbon Emissions from Transportation Sector in Chinese Provinces Based on CNN-BiLSTM-Attention Model Junzhe Huang and Xiaoqing Chen
14	Exploring risk factors associated with hard landing of Cessna 172 airplane using statistical regression Chuanyun Fu, Ziqing Nie, Jiaming Liu, Yue Zhou, Zhaoyou Lu and Huahua Liu

* Online session

Wednesday 17th June 2026

Time: 15:15 - 17:15

Room 4

STS-02: Intelligent Traffic Systems, Control & Connected Vehicles

Chair: Arsalan Najafi

Paper No	Paper Title / Authors
6	A Car-Following Modeling Framework for Mixed Truck–Car Traffic on Highways Weiwei Qi and Hanlin Jiang
7	Cooperative Traffic Signal Control with Generative AI-Assisted Multi-Agent Reinforcement Learning Jingyao Zhang, Zhiyuan Liu and Ziyuan Gu
15	Cloud-supported Coordinated Lane Changing at Lane Bottlenecks in Connected Vehicle Environment Xiaoge Cao, Mengchi Cai, Yitang Wang, Ye He, Meng Li, Shen Li and Bolin Gao
17	The Impact of CAVs on Mixed Traffic Flow: An Integrated Simulation Based on Digital Base Zhixuan Wang, Bo Yu, Yuren Chen and Diantao Deng
16	Human-Machine Coordinated Control of Multi-Vehicle Formations in Unstructured Lunar Environments Yuxuan Lin, Mengchi Cai, Yuxin Ma, Meng Li, Xin Li and Shen Li
19	User willingness to participate in vehicle-to-grid programs: a case study in Sweden Ivan Santiago Arana Torrealba and Arsalan Najafi

* Online session

Thursday 18th June 2026

Time: 10:30 - 12:30

Room 4

STS-03: Traffic Safety, Perception & Data-Driven Modeling

Chair: Yang Liu

Paper No	Paper Title / Authors
5	Vehicle Detection Algorithm for Highway Oblique-View Scenarios Based on MMDetection Framework Weiwei Qi and Yicong Li
20	Improved YOLOv8-Based Algorithm for Road Defect Detection in Complex Backgrounds Qian Xiao, Zijun Xie, Zinuo Niu, Dongxing Yang and Kai Huang
18	Safety-Enhanced Autonomous Driving with Bird's-Eye-View Transformer and Temporal Fusion Linshuo Zhang, Jiangbo He, Aoran Niu, Jie Huang, Binze Han, Qijin Wang, Zilong Wang, Lan Yang and Shan Fang
12	A Comparative Study of Statistical and Machine Learning Methods for Traffic Crash Severity Prediction under Imbalanced Data Yan Liu, Lu Sun, Rushdi Alsaleh, Chengbin Zhao and Chuanyun Fu
13	Clustering and Classification of Autonomous Vehicle and Motorcycle Interactions based on Multi-Dimensional Features Yan Liu, Chengbin Zhao, Rushdi Alsaleh, Lu Sun and Chuanyun Fu
10	Analyzing injury severity of general aviation accidents using contributing factors Chuanyun Fu, Ayinigeer Wumaierjiang, Ziqing Nie and Yue Zhou

* Online session

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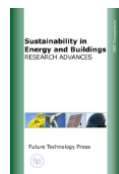
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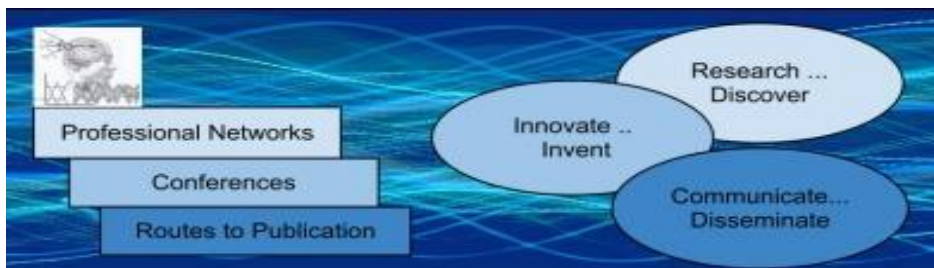
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International Conference on Human Centred Intelligent Systems (HCIS-26)

International Conference on Intelligent Decision Technologies (IDT-26)

International Conference on Innovation in Medicine and Healthcare (InMed-26)

International Conference on Smart Education and E-Learning (SEEL-26)

International Symposium on Smart Transportation Systems (STS-26)



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