

October 9, 2026		
8:00-8:30	Registration	
8:30-8:40	Opening: Dr. Ádám Török	
8:40-9:05	Keynote: Dr. Weinek Leonárd (FairCity Consulting Network)	
9:05-09:30	Keynote: Ms. Adrienn Mártonfalvi (Hitachi)	
9:30-9:55	Keynote: Dr. Aleksander Miltenovic (TUB)	
9:55-11:35	Technical sessions 3	
Section A: Cognitive Necessity & Sustainability Drivers 3		
Chair: Adam TOROK		
27	Ladislav Bartuska	Microscopic Emission Proxy Modeling Using UAV-Derived Vehicle Trajectories
89	Arturas Kliikevičius, Aleksandras Chlebnikovas, Gyorgyi Kale-Halasz, Jonas Matijošius and Darius Vainorius	Development and Investigation of an Electroacoustic System for Ultrafine Particle Reduction and Air Quality Improvement
98	Matija Kučinac and Zoran Lulić	Effect of network pruning on traffic emission estimates of arterial roads: A case study in Zagreb, Croatia
116	Peter Ficzer and István Györe	Cognitive Mobility and the Net Health Benefits of Cycling in Air-Polluted Urban Environments
84	Ilham Saiful Fauzi and Mate Zoldy	From Fossil Dependence to Sustainable Mobility: A Mathematical Modeling Perspective on Electric Vehicle Adoption under Government Intervention
Section C: Mobility Infrastructure & Resources 3		
Chair: Attila Buzasi		
71	Andrej Dávid, Jiří Tengler and Vladislav Zitrický	Banana Cold Chain Technologies in Maritime Reefer Container Transport
97	Ábris Bánki, Sarolta Tóth and Tibor Princz-Jakovics	Development options for the transport infrastructure of Rákosszentéző
106	Marina Zanne	The economics of digital twins in ports: costs, benefits, and pathways to value creation
85	Robertina Nikolić, Lena Pacea, Julian Jurak and Mario Čosić	Parking Demand Analysis and ITS-Based Parking Management Framework for the Borongaj University Campus in the City of Zagreb
30	Richárd Nagy and Csaba Troják	Quantitative Evaluation of Bitumen-Aggregate Interfacial Adhesion: An HSV-Based Digital Image Processing and Metrological Uncertainty Model Under EN 12697-11
Section E: Vehicle Systems, Materials & Sensing		
Chair: Balint CSENDES		
79	Daniel Gachulnec, Radovan Madleňák, Maroš Jakubec and Eva Jakubcová	Fleet-Matched Synthetic Data: Region-Specific Vehicle Generation for Cognitive Mobility
47	Márk Mező-Kerekes, Péter Praksz and Chang Liu	Lightweight LiDAR-Based Cone Detection Framework using Random Forest for Formula Student Driverless
81	Gábor Sipos and Ádám Domina	External sensing for vehicle state estimation: observability of vehicle states using exteroceptive and infrastructure-based sensors
114	Florin-Bogdan Scurt, Vlad Imre Tent, Tiberiu Vesselenyi, Horia Beles, Bogdan Adrian Tolea and Madalin Florin Popa	Sensory System for Data Acquisition of Vehicle Location and Obstacle Detection in Low-Speed Travel Environments
67	Ábel Góntér, Tibor Sipos and Lovas László	Spatial Prioritization for Electromobility Transition: An Integrated Index-Based Framework for Infrastructure Development and Policy Support
11:35-11:55	Coffee break	
11:55-13:55	Technical sessions 4 & Workshop	
Section D: Human-Machine Interaction & Behavioral Factors		
Chair: Tibor SIPOS		
24	Dr R Raja Guru, T Vinothini, M Meenadharshini, B Prem Kumar, M Lavanya and A Antony Nithin	CrowdFlow AI: An Explainable Digital Twin Framework for Predictive Crowd-Aware Public Transportation Recommendation and Adaptive Scheduling
76	Viktoria Otvos and Éva Barna	The "Backseat Generation" behind the wheel: Changing traffic socialization and its impact on novice drivers
80	Radovan Madleňák, Pavol Kudela, Michal Palčík and Daniel Gachulnec	Behavioral Road Safety KPIs in the Visegrad Four Countries: A Comparative Analysis
38	Csilla Berecz and Gábor Kiss	Artificial Intelligence as the main factor of technology acceptance
62	Szabolcs Fischer	Empirical Observation of the Influence of Locomotive Driver Style on the Acceleration-Energy Correction Factor of Hungarian InterCity Trains
Section C: Mobility Infrastructure & Resources 4		
Chair: Adrienn BOLDIZSAR		
100	Aleksandar Miltenović	Robotic Platform for Cognitive Railway Infrastructure Monitoring
61	Vivien Révész-Jóvér and Szabolcs Fischer	Asymmetric Track Geometry Degradation of Tramway Superstructure Systems: A Statistical Reassessment from Repeated Handheld Measurements in Budapest
66	Christoph Heinzelmann, Duo Liu, Mykola Sysyn and Szabolcs Fischer	Analysis of the Effectiveness of Superstructure Reinforcement Using Rail Bundles
94	Marek Vyhnanovský, Lukáš Křížan and Petr Kučera	Expanding capabilities and implementing Automatic Route Setting
60	László Ézsias and Szabolcs Fischer	The Most Important Aggregate Parameters for Asphalt Quality: A Performance-based Re-examination of Crushed Andesite for Stone Mastic Asphalt Wearing Courses
31	Kristóf György Nagy and Richárd Nagy	Metrological Validation of Close-Range Photogrammetry, Mobile LiDAR, and Structured Light 3D Scanning for Pavement Macrotecture and Volumetric Characterization
Section E: Vehicle Systems, Materials & Sensing		
Chair: Balint CSENDES / Jozsef Hlinka		
115	John Yawe	Mathematical Modelling of a Novel Hybrid Solar–Biogas Dryer for Sustainable Agricultural Drying: Towards AI-Driven Digital Twins and Cognitive Control
109	Melih Yildiz, Hanifa Teimourian, Arturas Kliikevičius and Gyorgyi Kale-Halasz	Physical Reality for Data-Driven Models for Predicting Steady-State Flow Fields Around Airfoils
39	Gábor Lekics, Dániel Hegedűs, Dániel Harrach, Gusztáv Baranyai, Albert Kamil, András Pollák, Attila Németh and Vivien Révész-Jóvér	Experiences from laboratory tests of cementitious filling thermal insulation mortar with glass foam and polystyrene additives
56	Hanna Csótár, Márton Gábor Légrádi, Szabolcs Szalai and Szabolcs Fischer	Optimization of Speckle Pattern Parameters for Fixed DIC ARAMIS Measurement Configurations in Civil Engineering Applications
59	András Brautigam and Szabolcs Fischer	Life-Cycle Costs and Sustainability in the Management of Grooved Rail Side Wear
13:55-15:00	Closing lunch	

Section B: Human-Machine Interaction & Behavioral Factors		
Chair: Utku Kale		
73	Omar Alharasees, Haitham Al Hasanat, Mohammad Fawaier, Farzad Zolfaghari, Artūras Kliikevičius and Utku Kale	Deep Learning Synthesis of Decoupled PEAR Human Factors Vectors for Autonomous UAV Mission Risk Classification
75	Mohammad Fawaier, Omar Alharasees, Haitham Al Hasanat, Farzad Zolfaghari, Artūras Kliikevičius and Utku Kale	Personnel Competence in Airport Safety Risk Management: The Queen Alia Case
91	Farzad Zolfaghari, Omar Alharasees, Gyorgyi Kale-Halasz and Artūras Kliikevičius	Physiological Responses to Engine Failure in Real Flight: A Multi-Signal Wearable Study Across Pilot Experience Levels
107	Müzeyyen Şule Baklaci, Artūras Kliikevičius and Utku Kale	Occupational Health and Safety in Aviation: An Evaluation of Human Factors and Operational Communication in Pushback Operations
14	Faten Salman and László Jóna	Reliability and Timing of Public Transport Information: A User Experience Study of Mobility Challenges for People with Disabilities
Section D: Cognitive Powertrain & Propulsion Technology 3		
Chair: Ádám Nyerges		
102	Mahmoud Said Jineid and Mohamed El Amine Chaabane	Coordinated Torque Vectoring and Active Air-Suspension Control for Yaw and Roll Stability of a Battery-Electric Vehicle: A Simulation Study
87	Aleksandr Šabanović, Jonas Matijosius, Gyorgyi Kale-Halasz, Kristina Kliikevičienė and Arturas Kliikevičius	Cognitive Hybrid DPF-ESP Filtration System: Adaptive Pulsed High-Voltage Regimes for Enhanced Efficiency and Particulate Matter Pre-collection
111	Jesu Godwin, Edwin Geo Varuvel, Jonas Matijošius, Artūras Kliikevičius and Utku Utku Kale	AI-DRIVEN DIGITAL TWIN FOR PREDICTING EMISSIONS IN SPARK-IGNITION ENGINES
51	Frank Lujaji, Akos Bereczky, Adam Torok, Mate Zoldy, Esebi Alois Nyari and Gerutu Gerutu	Europe-Africa Biomass-to-CHP Pathways for Sustainable Regional Mobility: A Conceptual Framework for Bio-Oil Upgrading and Dispatchable Electricity

Section B: Cognitive Decision-Making in Mobility		
Chair: Szabolcs Fischer		
34	Peter Bakucz and Gábor Kiss	Autonomous Driving Reliability Assessment of High-Performance Computing Systems Based on Imbalanced Thermal Data Using Entropy-Based Fuzzy Fault Tree Analysis
41	Áron Dávid Agg and András Horváth	Scene-Specific State-Space Acceleration Modelling for Short-Term Vehicle Motion Prediction from Surveillance Trajectories
72	Roland Csongvai and Péter Pál Bakucz	Regime-Conditional Runtime Coupling Between Safety and Cybersecurity at a Naturalistic Single-Lane Roundabout
83	Farzad Zolfaghari, Omar Alharasees, Artūras Kliikevičius and Utku Kale	Explainable Machine Learning for Operational Stress Scenario Classification in Rail Simulation
35	Csaba Ferenc Szatmári and Szilárd Aradi	Experience with the multimodal RAG process developed for railway regulations
104	Tomáš Blodek, Pavel Vrtal, Tomáš Kohout and Jonáš Maleček	Influence of Vertical Sign Condition and Placement on Traffic Sign Recognition Systems
Section D: Cognitive Powertrain & Propulsion Technology 4 - Roundtable + Workshop		
Chair: Csaba Tóth-Nagy		
	Csaba Tóth-Nagy; representatives of OEMs, Tier1 suppliers and leading universities	Panel discussion: Mobility Education for a Changing Industry
	Csaba Tóth-Nagy	Workshop on new education methods (lesson, subject, curriculum)