Sustainable Mobility and Transportation Symposium 2026

Programme · Thursday, 8 October 2026 · Management Campus (MC), Széchenyi István University, Győr

10 sessions · 56 presentations · 21 posters · 4 parallel rooms

Time	Room 122 · 1st floor	Room 123 · 1st floor	Room 227 · 2nd floor	Room 228 · 2nd floor
08:00	**Registration** · Management Campus			
08:45	**Opening Ceremony – Opening and Welcome Speech (Gábor Dogossy)** · Management Campus, Room 001–002			
09:00 –10:30	**A1 Autonomous Vehicles I.** Chair: Ernő Horváth **09:00** Gaussian Process–Based Radar Point Cloud Filtering *Dávid Józsa, Gergő Ignéczi and Ernő Horváth* **09:15** An auto-labeling solution for road boundaries based on map and point cloud data *Bálint Antal, Tamás Dobay* **09:30** Orthophoto-based Occupancy Grid Map Generator and Editor Interface in a ROS2 Environment *Levente Kovács, Áron Ballagi* **09:45** Route Planning with Reverse Motion for Skid-Steer Differential-Drive Mobile Robot Platforms *István Milán, Krecht Rudolf* **10:00** Curvature-Constrained Path Planning for Skid-Steer Mobile Robots in Constrained Environments *Milán Majoros, Rudolf Krecht* **10:15** Implementation of a Cost Map Based Trajectory Planner for Automated Vehicles *Gergő Ignéczi, Zoltán Pusztai, Mátyás Mesics*	**A2 AI and Control I.** Chair: Viktor Szabó **09:00** Assessing Simulation-Based Dataset Generation for Object Detection *Richárd Reisinger, János Hollósi* **09:15** Dynamic Foreground Filtering for Real-Time Stereo Visual Odometry in Urban Traffic Scenes *Armand Nagy, János Hollósi* **09:30** Vision-guided Cone Manipulation with Collaborative Robotic Arm *Levente Lantos, János Hollósi* **09:45** Comparison of CARLA and aiSim in Testing Object Detection Neural Networks *Bence Török, János Hollósi* **10:00** Artificial Intelligence in Technical Project Management: A Critical Incident Study *Csenge Kálmán, Barbara Eszter Huszár, András Aschenbrenner* **10:15** Persistent Identity Tracking of Traffic Cones for Autonomous Robotic Grasping *János Hollósi, Levente Lantos*	**A3 Vehicle Development** Chair: Péter Raffai **09:00** Aerodynamic simulation test of a front wing of racing car *Levente Zsolt Chudi, Ferenc Szlivka, Ákos Jányoki, Gusztáv Fekete, Ildikó Molnár* **09:15** Methodology Development for Detecting Feedback Loops within Simulink-based Digital Twins *József Richárd Lennert, Dénes Fodor, István Szalay* **09:30** Prediction of Vibrational Behavior of a High-Speed Turbocharger Rotor-Bearing System *Ghofrane Baazaoui, Csaba Tóth-Nagy* **09:45** Data-Driven Reconstruction of Real Driving Maneuvers Using Non-Contact CAN Acquisition and Simulation Replay *Balázs Baráth, Máté Ihász* **10:00** Construction of a mathematical model of a chain drive for energy optimization purposes *József Polák* **10:15** Design of a real-time torque sensor based on generative parameter optimization *Balázs Lőrincz, Balázs Kupó, István Hatos*	**A4 Applied Mechanics and Manufacturing and Technology I.** Chair: Balázs Pere **09:00** Numerical Investigation of Non-Central Vehicle Impact on Urban Protective Barrier System Using LS-DYNA *Dávid Riedl, René Čechmánek, Martina Drdlová, Pavel Kopeček, Kamil Řehák* **09:15** Nonlinear Vibration Analysis and Neutron Noise Validation of VVER-1000 Core Barrel Dynamics *Miklós Berta, Zoltán Molnár, Kornél Kovács* **09:30** Numerical studies of the dynamics of loose wheels *Gábor Kupi* **09:45** Finite Element-Based Failure Analysis and Parametric Redesign of a Clamping Jaw *Péter Horváth* **10:00** Enhancing Sustainability and Efficiency of DIC ARAMIS Measurements through Optimized Speckle Pattern and Production Techniques *Hanna Csótár, Márton Gábor Légrádi, Szabolcs Szalai, Szabolcs Fischer*
10:30	**Coffee Break** · Management Campus, Ground Floor Hall			

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10:45 –12:15	**B1 AI and Control II.** Chair: János Hollósi **10:45** Sensitivity-Based Robustness Evaluation of a Reinforcement Learning Controller for the Furuta Pendulum under Parametric Uncertainty *Radka Janečková, Aleš Prokop, Petr Koňas, Zoja Barančoková* **11:00** Initial Study of Machine Learning Algorithm Selection for Crash Box Performance Prediction Using AutoGluon *Zoja Barančoková, Petr Koňas, Kamil Řehák, Radka Janečková* **11:15** Deep Learning Strategies for Radar-Based In-Vehicle Child Presence Detection *Arnold Prebszl, Bendegúz Jankovics, Markó Norbert* **11:30** Exploring Possibilities of AI for Generating Synthetic Data of Highly Dynamic Processes to Improve ML Model Generalization *Pavel Kopeček, Kamil Řehák, Dávid Riedl, Petr Koňas* **11:45** AI-Enhanced Radiowave Propagation Modeling for Reliable Communication in Mountainous Transportation Environments *Tamás István Unger, Miklós Kuczmann* **12:00** Systematic design of a robotic arm for sensor calibration *Dávid Törőcsik, Csaba Hajdu, Flóra Hajdu*	**B2 Materials and Technology I.** Chair: Ibolya Zsoldos **10:45** The Effect of Mesh Type and Meshing Strategy on the Finite Element Simulation of a Stack Compression Test *Martin László Kölüs, Imre Nagy-Gombai, Gábor Jozsef Béres, Gábor Kalácska* **11:00** Finite Element Comparison of Ti-6Al-4V and 3Y-TZP Dental Implants Based on a CT-Reconstructed Mandible *Klaudia Papp, Hanna Pásztor, István Attila Piros* **11:15** Dynamic mechanical analysis of non-biodegradable polyester/MWCNT recycled nanocomposite *Kashif Ullah Khan, Dorottya Antaliczné Nagy, Balázs Ádám, Andrea Ádámné Major* **11:30** Effect of Melamine Cyanurate on the Crystallization Behavior of PLA *Balázs Ádám, Dorottya Antaliczné Nagy, Kashif Ullah Khan, Andrea Ádámné Major* **11:45** Thermomechanical degradation of poly(lactic acid) in an internal mixer *Virág Luca Kőszegi-Bódi, Sándor Kálmán Jakab, László Lendvai*	**B3 Electromobility and Vehicle Development** Chair: Miklós Kuczmann **10:45** A Modular Test Bench for Experimental Analysis of Rotational Oil Spray Cooling in Electric Machines *Antonín Krmíček, Pavel Novotný, Jakub Súkeník, Marek Toman* **11:00** Investigation of Metamaterial-Based Torque Sensing in Electric Drive Control Systems *Benedek Botond Kállay, Zoltán Németh, András Lajos Nagy* **11:15** Application of Submodeling in the Aerodynamic and Structural Analysis of a Formula Student Race Car Rear Wing *Magyar Zsombor István, Varga Attila, Szabó Veronika Anna, Gusztáv Fekete, Ildikó Molnár* **11:30** Traffic-Oriented Spatial Assessment of Hungary's DC Fast-Charging Network *Dávid Nagy, Gábor Saly, Dániel Csikor* **11:45** Testing Bluetooth Signals for Device Identification Using Neural Network *Pap Martin, Bálint Dugár, Balázs Lukács, Ferenc Lilik*	**B4 Manufacturing Technology II. · Materials and Technology II.** Chair: Zoltán Pál Lukács **10:45** Deformation Analysis of Bending Tests Using the GOM TRI-TOP System *Vivien Nemes, Brigitta Fruzsina Szívós* **11:00** Thermal analysis of polyolefin blend / multi-walled carbon nanotube nanocomposites *Dorottya Antaliczné Nagy, Balázs Ádám, Kashif Ullah Khan, Andrea Ádámné Major* **11:15** Comparative Investigation of the Viscoelastic Behavior of Virgin and Recycled PET by DMA: The Role of Rigid and Mobile Amorphous Fractions *Pál Hansághy, Péter Gerse, Attila Bata* **11:30** The Effect of Weaving Pattern on the Material Characteristics of the Textile Composite Layer *Gergely Bojtár* **11:45** Uncertainty in SAC305 CABGA Solder Joint Lifetime Prediction Using Modified Norris–Landzberg Models *Béla Bődi, Viktor Gonda* **12:00** A MILP model and heuristic approach for Optimizing Cutting Sequences to Minimize Work-in-Progress Inventory in Multi-Product Manufacturing *Miklós Szabó, Zoltán András Nagy, Tamás Hajba, Tamás Hartványi*
12:15	**Lunch Break & Poster Section** · Management Campus, First Floor Hall · 21 posters, listed separately			
14:30 –16:00	**C1 AI and Control III. · Autonomous Vehicles II.** Chair: Zoltán Pusztai **14:30** Comparative Evaluation of Baseline and Retrieval-Augmented Generative AI Chatbot Architectures for Customer Support Use Cases *Gergő László Novák, András Aschenbrenner* **14:45** Human in the Loop: A Comparative Study of Human and Artificial Visual Search Strategies in a VR-Based Dynamic Environment for Defense Applications *Ferenc Samu, Ádám Koleszár, and Ágoston Pál Sándor* **15:00** Development of a High-Fidelity Simulation of Silesia Ring with ROS 2 Integration for Shell Eco-Marathon Autonomous Urban Concept Racing *Rózsa Tündér Lajtmann, Rudolf Krecht* **15:15** Time- and Frequency-Domain Analysis of PRBS-Excited Lateral Dynamics of a Road Vehicle *György Istenes, Mátyás Mesics, Dániel Pup* **15:30** Real-Time Torque-Constrained Motion Control for Skid-Steer Robots Using a QP-Based Command Governor *Rudolf Krecht, Áron Ballagi* **15:45** An AI-Driven Multi-Camera Stereo Vision Framework for Real-Time 3D Human Movement Tracking, Biomechanical Analysis, and Sustainable Performance Optimization *Zoltán Kaszai, Ákos Kovács*	**C2 Diagnostics and Testing · Transportation and Logistics** Chair: Ádám Titrik **14:30** Effect of Engine Bench Operation with R43 Bioethanol-Based Fuel on Lubricant Ageing and Resulting Friction and Wear in Three- and Four-Cylinder Gasoline Engines *Sándor Kovács, Krisztián Szegedi, Tamás Molnár, Dorina Szikszai* **14:45** Vehicle dashboard interface design in Mixed Reality: A driving simulator study *Viktor Nagy, Márk Györe, Gábor Szabó* **15:00** Driving Under Pressure: Quantifying the Impact of Escalating Cognitive Stressors on Professional Driver Behavior *Márton Nagy, Viktor Nagy* **15:15** Optimization of Production Scheduling under Set Completion Constraints with Earliness Reward and Tardiness Costs *Tamás Hajba, Balázs Ferenczi* **15:30** Modeling the Effects of Cognitive Biases in Logistics Decisions Using Fuzzy Signature-Based Systems *Eszter Sós, Balázs Ferenczi, Ferenc Lilik*	—	—

Rooms 122 and 123 are on the 1st floor, rooms 227 and 228 on the 2nd floor of the MC building. Each presentation is 15 minutes.