

Day One

Session 1a — Path Planning for Ground Robots

PAPER_11 — *Path Planning for Mobile Robot on Narrow Road by Imitation Learning*

PAPER_17 — *Path planning including velocity command generation for Two-Wheeled Robot*

PAPER_20 — *Mobile Robot Localization Using One-Dimensional Monte Carlo Localization*

Session 1b — Mechatronic Engineering Education

PAPER_44 — *Mechatronic Systems Design based on the MBSE Approach: a Teaching Retrospective Study*

PAPER_13 — *Robotics Outreach: Laboratory Demonstrations for Diverse Audiences*

PAPER_62 — *Miniature Arduino-Compatible Rover for Accessible Mechatronics Education*

Session 2a — Robotized Manufacturing

PAPER_41 — *Physics-Informed Neural Networks for Fast Thermal Simulation in Laser Wire Additive Manufacturing*

PAPER_50 — *Fast Spectral Thermal Simulation for Wire Laser Additive Manufacturing*

PAPER_04 — *Fabrication of Multi-Material Stator Core with Advanced Additive Manufacturing*

Session 2b — Virtual & Mixed Reality for Industrial Systems

PAPER_45 — *Design and Implementation of a Mixed Reality Architecture for Human-Guided Reconfiguration of Cyber-Physical Production Systems*

PAPER_07 — *Recognition of 3D identifiers in mixed reality systems for industrial applications*

PAPER_39 — *Intelligent Gesture Recognition for Safety Assessment of Mechanical Manufacturing Learners Using Immersive VR and AI Technologies*

Session 3a — Robotic Manipulation

PAPER_31 — *Implementation of a Pick-and-Place Application Using Computer Vision and Robotics Algorithms*

PAPER_16 — *Development and Implementation of Inverse Kinematics for a KUKA KR6 R900 in MATLAB*

PAPER_40 — *Robotic Pre-grasp Strategy Based on Feeling for Surfaces with Proximity Sensors*

Session 3b — Industrial Diagnostics & Monitoring

PAPER_53 — *Noninvasive Ultrasonic Level Measurement in High-Pressure Alkaline Electrolyzers*

PAPER_60 — *Structural Diagnosability of an Electrolyser*

PAPER_51 — *Toward an incremental Anderson-Darling algorithm for drift detection on cable-driven robots*

Day Two

Session 4a — Multi-Robot Coordination

PAPER_59 — *MRDG: Multi-Robots Dataset Generator for CSLAM Backend*

PAPER_47 — *Multi-Robot Cooperative Decision-Making with Hierarchical QMIX: Application to Soccer Offense*

PAPER_49 — *Cooperative UAV Swarm System for Acoustic Explosion Localization Using ROS2 and PX4*

Session 4b — Sustainable Mechatronics

PAPER_12 — *Electronics Design for Circularity Using a Fuzzy Decision Making System*

PAPER_57 — *Liquid Deposition Modeling - Shrinkage behaviour of 3D-Printed Parts made from Spent Coffee Grounds*

PAPER_25 — *Absolute positioning in automated wiring for a mechanized current collector of a trolley bus*

Session 5a — Assistive & Prosthetic Mechatronics

PAPER_06 — *Biomechanical Analysis and Preliminary Transtibial Prosthesis Design for Pedal Harpists*

PAPER_22 — *Preliminary design and characterisation of a force and position sensor for a prosthetic finger*

PAPER_28 — *Deep Learning-based Robust sEMG Intention Detection for a 1-DOF elbow Exoskeleton*

Session 5b — Control & Robustness in Aerial/Vehicle Systems

PAPER_58 — *Parrot mambo altitude control: Fixed-Time Sliding mode control approach with input saturation*

PAPER_10 — *Detection and Mitigation of Sensor-Data Tampering Attacks for Leader-Follower CACC Systems with Multiple Inter-Vehicle Distance Sensors*

PAPER_15 — *Model-Free Time-Delay Compensation Architecture for Leader-Follower CACC Systems*

Session 6a — Smart Energy Systems

PAPER_33 — *From Real-World Data to Design Insights: Battery Storage in Highly Self-Sufficient Neighbourhoods*

PAPER_29 — *Smart Energy Training Kit: A Tangible Mini-Lab Approach for Systems-Oriented Energy Education*

Session 6b — High-Speed Sensing & Localization

PAPER_64 — *Event-Based Imaging for High-Precision Object Tracking: A Technology Overview and Application to Real-Time Position Sensing Highspeed-Cable-Driven Robot*

PAPER_27 — *A Hardware and Software System for Time-Stamped Multi-Modal Sensor-Data*

PAPER_19 — *Evaluating the Effect of Sensor Data Filtering on the Localization Performance of Mobile Robots in Human Crowds*

Day Three

Session 7a — Human-Centric Industry 5.0

PAPER_26 — *Human-Centric Competency Maturity Modeling in Industry 5.0 Using Optimized Neural Networks and Ergonomic Assessment Analysis*

PAPER_63 — *From Data to Bottlenecks: Enhancing Workshop Performance Via Discrete-Event Simulation and Operator Modelling*

PAPER_61 — *Safe Human-Robot Interaction via Pose Semantic Updates*

Session 7b — Service Robotics

PAPER_24 — *A Fully Autonomous Mechanical Weed-Cutting Robotic System for Orchards*

PAPER_32 — *Wheelchairs Unleashed: System Design For Using Electric Wheelchairs As Mobile Robotic Platforms*

PAPER_34 — *Development of a preliminary prototype robotic gripper inspired by the tentacles of cuttlefish*

Session 8a — Applied Machine Learning for Mechatronics

PAPER_35 — *Learning Multistage Robotic Manipulation Using Chained Options and Composable Subtask Rewards*

PAPER_14 — *Unsupervised Anomaly Detection in NSL-KDD Using beta-VAE: A Latent Space and Reconstruction Error Approach*

PAPER_21 — *Keeping it Local, Tiny and Real: Automated Report Generation on Edge Computing Devices for Mechatronic-Based Cognitive Systems*