ICAR 2025 Program

DOWN TOWN

ROOM 1

	Slot	Session Topic (Track)	Articles (ID, Affiliation, Title)
We Mo	S1. 1	Legged and Humanoid Robots (LEG-1)	1. ID: #26 - RAKCMD: Reachability-Aware K-Order Markov Path Optimization... 2. ID: #49 - Learning Push Recovery Strategies for Humanoid Robots Using DRL 3. ID: #61 - Learning Terrain-Specialized Policies for Adaptive Locomotion...
We Eve	S1. 2	Legged and Humanoid Robots (LEG-2)	4. ID: #63 - Meta Reinforcement Learning Applied to Quadrupedal Robots for Blind Locomotion... 5. ID: #75 - Dopamine-Modulated Spiking Central Pattern Generators for Gait Selection... 6. ID: #108 - Human-Robot Gait Movements Mapping using Joint Projections to Ground
We Eve	S1. 3	Path Planning and Navigation (NAV-1)	1. ID: #21 - MapExRL: Human-Inspired Indoor Exploration with Predicted Environment Context 2. ID: #22 - RL-BIRRT: A Reinforcement Learning-Driven Framework for Intelligent Path Planning 3. ID: #32 - Motion Planning and Control of an Overactuated 4-Wheel Drive...
We Eve	S1. 4	Path Planning and Navigation (NAV-2)	4. ID: #51 - Semantics-Aware Path Planning for Quadrupedal Robots 5. ID: #54 - Safe Robot Navigation with Reinforcement Learning using Dirichlet Distributions 6. ID: #66 - A DRL-based trajectory planning strategy for UAV navigation...
We Eve	S1. 5	Biologically-Inspired Robot (BIO-1)	1. ID: #72 - Development of an Autonomous Hexapod Robot for Ant Trail Following 2. ID: #137 - Embodied Intelligence for Advanced Bioinspired Microrobotics: Examples and Insights 3. ID: #171 - Design and Validation of a Bio-Inspired Modular Peristaltic Call for Lunar...
Thu Mo	S1. 6	Path Planning and Navigation (NAV-3)	1. ID: #30 - Context-Aware Model-Based Reinforcement Learning for Autonomous Racing 2. ID: #139 - Safe Path Following for a Differential Drive Robot using Vector Field Guidance 3. ID: #153 - Behavior-based multi-sensor navigation in an unknown environment
Thu Mo	S1. 7	Path Planning and Navigation (NAV-4)	4. ID: #142 - Evaluating Coverage Path Planning Strategies for UAVs with Real-Time Obstacle Avoidance 5. ID: #173 - Adaptive Costmap-based Path Planning in Partially Known Environments... 6. ID: #182- A Comparative Study of Linear MPC and Feedback Linearization for an Omnidirectional Robot
Thu Mo	S1. 8	Robotics Vision and Perception (VIS-1)	1. ID: #20 - Diffusion- based RGB-D Semantic Segmentation with Deformable Attention 2. ID: #83 - Comparative Analysis of Transformer-Based Segmentation Networks for Off-Road Scenes 3. ID: #99 - Semantic-Aware Structure from Motion for Aerial Forest Reconstruction
Thu Eve	S1. 9	Robotics Vision and Perception (VIS-2)	4. ID: #136 - A Comparative Analysis of Class Imbalance-Aware Loss Functions for Semantic Segmentation 5. ID: #148 - Improved Real-Time Segmentation of Shrubs and Trees Using 2D-3D Voxel Analysis 6. ID: #172 - Appearance Based Terrain Classification Using Deep Learning for Autonomous Navigation
Fri Mo	S1. 10	Legged and Humanoid Robots (LEG-3)	1. ID: #61 - Nonlinear Disturbance Observer Based Force Control for the Hydraulic Actuator of the HyQ Robot 2. ID: #110 - Hierarchical Algebra-Based Control Architecture for Trajectory Tracking... 3. ID: #149 - Load-Based Variable Transmission Mechanism for Robotic Applications
Fri Mo	S1. 11	Robotics Vision and Perception (VIS-3)	1. ID: #180 - EPCS - Expert-based Point Cloud Segmentation of Off-Road LiDAR... 2. ID: #47 - Approximate Supervised Object Distance Estimation on Unmanned Surface Vehicles 3. ID: #145 - Planning to Reconstruct: Viewpoint Planning for Deep-Learning Based Underwater Sonar
Fri Mon	S1. 12	Robotics Vision and Perception (VIS-4)	4. ID: #130 - Generation and Registration of Multi-Domain Point Clouds of Offshore Structures... 5. ID: #107 - TerraSense: FPGA Accelerated Vision-Based Terrain Classification for Autonomous Robot Navigation 6. ID: #186 - This Place Looks Familiar: Vision-Based Semantic Mapping of Indoor Scenes

ROOM 2

	Slot	Session Topic (Track)	Articles (ID, Affiliation, Title)
We Mo	S2. 1	Rehabilitation Robotics (MED-1)	1. ID: #38 - Design of an Anti-lock Mechanism for Harmonic Drive Gearing... 2. ID: #57 - A Comparative Study of Interaction Force Estimation Methods for Transparency Control... 3. ID: #116 - Kinematic Evaluation of a Series Elastic Actuator-Powered Prosthetic Knee Joint
We Eve	S2. 2	Rehabilitation Robotics (MED-2)	4. ID: #109 - Comparison of Adaptive Control Strategies for a Unilateral Knee-Ankle Exoskeleton... 5. ID: #29 - Impedance Control With Neural Network Estimation of the Human-Exoskeleton Interaction Torques 6. ID: #128 - Integrated Dynamics and Control Framework for Human-Exoskeleton Interaction...
We Eve	S2. 3	Multi-Robot Systems (MRS-1)	1. ID: #67 - Distance-Based Control in Multi-Agent Systems via the Formation Matrix... 2. ID: #119 - MultiAgent-DeepQ: A Reinforcement Learning Framework for Multi-Agent Exploration 3. ID: #100 - Intermittent Rendezvous Plans with Mixed Integer Linear Program...
We Eve	S2. 4	Multi-Robot Systems (MRS-2)	1. ID: #42 - Elastic Formation Control for Robot Swarms Using Dynamic Boundary-Based... 2. ID: #138 - Multiple Line Coordination Approach in Robotic Swarms to Navigate Through Narrow... 3. ID: #156 - Comparative Analysis of Trajectory Generation Strategies for Multiple Mobile Robots...
We Eve	S2. 5	Human Robot Interaction (HR-1)	1. ID: #64 - A study on human behavior patterns in social navigation 2. ID: #27 - MiMiEaGe: A Mixed-Reality Interface for HRI via Gaze-Oriented Control 3. ID: #14 - Reducing Latency in LLM-Based Natural Language Commands for Robot Navigation
Thu Mo	S2. 6	Rehabilitation Robotics (MED-3)	1. ID: #46 - Designing a Multimodal Six-DoF Lower-Limb Exoskeleton for Overground... 2. ID: #77 - Preliminary Evaluation of Virtual Reality-Driven Muscle-Machine Training... 3. ID: #183 - Development of a Low-Cost Robotic Elbow Exoskeleton using the Series Elastic Actuation...
Thu Mo	S2. 7	Rehabilitation Robotics (MED-4)	4. ID: #115 - Robotic Cane Control via Admittance, Dynamic and Impedance: Post-Surgical User Case Study 5. ID: #78 - Preliminary Investigation of Virtual Reality versus Non-Virtual Reality... 6. ID: #45 - Designing a Compact and Lightweight Cycloidal Actuator for Knee Prosthesis
Thu Mo	S2. 8	Aquatic Robots (AQUA-1)	1. ID: #15 - Navigating the Sim-to-Real Gap: A Critical Analysis of Underwater Robotics Simulators 2. ID: #68 - Thrust Calculation Method and Motion Strategy for a Penguin-Inspired... 3. ID: #104 - Hierarchical LOS-Based Control in Polar Coordinates with Dynamic Feedback Compensation for a Differential USV
Thu Eve	S2. 9	Aquatic Robots (AQUA-2)	4. ID: #138 - A Navigation Approach For Autonomous Sailboat Based on Human Sailor Perception... 5. ID: #168 - AquaFeel+: an Underwater Vision Learning-based Enhancement Method... 6. ID: #178 - Model Predictive Contouring Control with Time-Optimal Trajectory Planning for Autonomous Surface Vehicles
Fri Mo	S2. 10	Multi-Robot Systems (MRS-3)	4. ID: #148 - Cooperative Control of Multiple Drones for Load Transportation... 5. ID: #182 - Multi-Robot Coordinated Motion Planner Ensuring Line-of-Sight Connectivity 6. ID: #117 - Formation Control of Heterogeneous Mobile Manipulators Based on Linear Algebra
Fri Mo	S2. 11	SLAM (SL-1)	1. ID: #55 - Change Detection and Model Update from Limited Query Data 2. ID: #58 - Investigation of ArUco Marker Placement for Planar Indoor Localization 3. ID: #59 - Validity of Inter-Row Orchard Position Estimation with Low-Salience...
Fri Mon	S2. 12	SLAM (SL-2)	4. ID: #60 - Bioinspired SLAM Approach for Unmanned Surface Vehicle 5. ID: #176 - Towards Bioinspired Localization and Mapping with Neuromorphic Computing 6. ID: #185 - High-quality keypoint robust global localization method for 2D LiDAR...

ROOM 3

	Slot	Session Topic (Track)	Articles (ID, Affiliation, Title)
We Mo	S3. 1	Control, Dynamics and Manipulation (CTRL-1)	1. ID: #17 - Development and Genetic Algorithm Optimization of a Constant-torque Robotic Gripper... 2. ID: #56 - Development of Metrics based on the Impedance Space for... Hybrid Impedance Controllers 3. ID: #90 - Design and Implementation of a Hybrid Sliding Mode Controller...
We Eve	S3. 2	Control, Dynamics and Manipulation (CTRL-2)	4. ID: #52 - Efficient Dynamic Modeling for 3D Deformable Object Manipulation... 5. ID: #80 - AffordGen: Affordance-Based Dataset Generator for Robot Manipulation Learning 6. ID: #167 - Geometry-Driven Graspable Area Extraction with Gripper-Aware Constraints
We Eve	S3. 3	Simulation and Learning (SIM-1)	1. ID: #18 - Quantum Game Models for Interaction-Aware Decision-Making in Automated Driving 2. ID: #69 - Architecture and hybrid model for overheating prediction in a self-diagnostic system... 3. ID: #147 - BiguaSim: A Hybrid Multi-Domain Simulator for Robotics...
We Eve	S3. 4	Simulation and Learning (SIM-2)	4. ID: #132 - Adabatic Reinforcement Learning 5. ID: #156 - 6-DOF Modeling and Simulation of a Collaborative Catamaran Unmanned Vehicle... 6. ID: #13 - SAGE: Scalable Automated Generation of Environments for Robotics
We Eve	S3. 5	Unmanned Aerial Vehicles (UAV-1)	1. ID: #12 - Parrot Anafi: Model Identification for Outdoor Control Applications... 2. ID: #54 - A Comparative Study of Drone Dynamic Controllers Based on Linear MPC... 3. ID: #151 - Linear Parameter Varying Control for a Foldable Quadrotor
Thu Mo	S3. 6	Control, Dynamics and Manipulation (CTRL-3)	1. ID: #28 - Task-Critical Part Alignment Improves Imitation of Object Interactions 2. ID: #41 - Sample-Efficient Motion Generalization via Task-Parameterized GMMs... 3. ID: #97 - Smooth Trajectory Generation for Robotic Manipulators Using Adaptive Tanh-Based S-Curve
Thu Mo	S3. 7	Control, Dynamics and Manipulation (CTRL-4)	4. ID: #125 - Stability and Performance Analysis of Pneumatic Levitation System... 5. ID: #179 - Leveraging Port-Hamiltonian Theory for Impedance Control Benchmarking 6. ID: #185 - Teleoperation of Aerial Manipulators with Passivity-Based Haptic Feedback
Thu Mo	S3. 8	Unmanned Aerial Vehicles (UAV-2)	4. ID: #141 - Cloud4AuRoRA: an Open and Interactive Framework for UAV Simulation and Control 5. ID: #159 - Model Predictive Control with Soft Constraints for UAV Trajectory Tracking... 6. ID: #144 - UniPilot: Enabling GPS-Denied Autonomy Across Embodiments
Thu Eve	S3. 9	Unmanned Aerial Vehicles (UAV-3)	1. ID: #65 - Outdoor Drone Navigation: Evaluating Communication Limits of an Offboard Controller 2. ID: #123 - Autonomous Mapping and Navigation Unit for Aerial Robots 3. ID: #157 - A New Type of Axis-Angle Attitude Control Law for Rotational Systems
Fri Mo	S3. 10	Unmanned Aerial Vehicles (UAV-4)	4. ID: #183 - Scalable real-time multi-UAV coverage path planning for large geographical areas 5. ID: #93 - Wind turbine inspection: An autonomous UAV-based approach 6. ID: #101 - Parametrized Dynamic Model for Off-the-Shelf Quadrotors...
Fri Mo	S3. 11	Industrial and Service Robotics (IND-1)	1. ID: #44 - An Autonomous Floor Cleaning Strategy to Tidy up Unknown Home Environments 2. ID: #48 - Ethically-Aligned Safety Monitoring in CNC Machining via Ontological Modeling 3. ID: #43 - Tulabo-1: Towards Real-time Capable AI-based Safety Systems for HRC
Fri Mon	S3. 12	Industrial and Service Robotics (IND-2)	4. ID: #126 - Automation of Coning and Deconing of heatsticks in Port Operations... 5. ID: #111 - Vision-Based Docking for Robotic Towing of Mobile Platforms 6. ID: #150 - Parametric Modeling and Interactive Simulation of Yoshimura-Pattern Origami Grippers...

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ROOM 1

	Slot	Session Topic (Track)	Articles (ID, Affiliation, Title)
Fri Eve	A1. 1	Special Multi-topic Session (SMS-1)	1. ID: #6 - MMVLA-EXT: Multi-Modal Vision-Language-Action Model... 2. ID: #91 - Probabilistic Reasoner Integrating Multiple Gestures and Language Instructions... 3. ID: #169 - Gino -Bot: Arduino-Powered Solar Tracker for Environmental Awareness... 4. ID: #161 - Gait Phase Classification using Deep Neural Networks with Weighted Cross-Entropy Loss...
Fri Eve	A1. 2	Special Multi-topic Session (SMS-3)	1. ID: #1 - The SLAM Confidence Trap 2. ID: #87 - Can LLM Agents Solve Collaborative Tasks? A Study on Urgency-Aware Planning 3. ID: #135 - Tactile Gesture Recognition with Built-in Joint Sensors for Industrial Robots
Fri Eve	A1. 3	Special Multi-topic Session (SMS-5)	1. ID: #132 - A Gesture-Controlled Navigation System for Mobile Robots using ApriltTag... 2. ID: #174 - Multimodal Attention Evaluation in Child-Robot Storytelling: A Machine Learning Framework... 3. ID: #37 - Subsumption over ROS2: An implementation faithful to the Brooks theoretical proposal 4. ID: #88 - Blockly-ROS Platform for Libras-Based Robotic Navigation...

ROOM 2

	Slot	Session Topic (Track)	Articles (ID, Affiliation, Title)
Fri Eve	A2. 1	Special Multi-topic Session (SMS-2)	1. ID: #170 - Overview of Educational Robotics in Latin America: A Systematic Study... 5. ID: #95 - Robotic Rollators for Mobility Assistance: A Review of Recent Advances and Future Directions 6. ID: #103 - Experimental Gait Exploration for Climbing Slopes Using a Modular Caterpillar Robot 10. ID: #33 - IMU-Preintegrated Radar Factors for Asynchronous Radar-LiDAR-Inertial SLAM
Fri Eve	A2. 2	Special Multi-topic Session (SMS-4)	11. ID: #4 - Leveraging Voxel-Based Structures (Point-LIO-iVox) for Efficient SLAM... 12. ID: #10 - LegUp: Legged Robots Assisting each Other over High Obstacles... 8. ID: #138 - Force Characterization of Insect-Scale Aquatic Propulsion Based on Fluid-Structure Interaction
Fri Eve	A2. 3	Special Multi-topic Session (SMS-6)	2. ID: #23 - VIGS-Fusion: Fast Gaussian Splatting SLAM processed onboard... 3. ID: #24 - QuasarCAMP: an RGB-D dataset for robust Visual SLAM 3. ID: #121 - Path Accuracy and Repeatability Evaluation of a Lightweight and Low-Cost Parallel Delta Robot

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Fri Eve	P1	POSTERS	1. ID: #76 - Unified Safety-Aware Physical Human-Robot Collaborative Controller... 2. ID: #92 - From Human to Height-Field: Predictive Shotcrete Simulation... 3. ID: #25 - IstEFormer: A Hybrid State Estimator for Humanoid Robots 4. ID: #19 - Incremental Mapping with Measurement Synchronization & Compression 5. ID: #74 - Hybrid Safety Verification of Multi-Agent Systems...