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Nota di contenuto	-- Hand-Centric Human-Robot Collaboration Advances in Perception, Control, and Interaction -- Electrotactile Artifact Denoisingvia Function Interpolation for Integrated sEMG-Based Prosthetic Control. --

Admittance-Controlled Compliant Remote Center-of-Motion for Tele-OperatedTransurethral Resection. -- Bioinspired Prosthetic Hand System with Multimodal Sensory Fusion for Naturalistic Grasping Behaviors. -- RoboImagine: A Robotic Video Generation Model, For Autoregressive Long-Term Task Video Generation With Geometric And Dynamic Consistency Augmentation. -- A Soft-Skin Facial Robot Capable of Real-Time Emotion-Driven Actuation through Visual Perception. -- Enhancing Robustness of Hand Gesture Recognition against Sensor Data Loss by Fusing High-Density SEMG and Kinematics. -- Simulation-Driven Learning for Vision-Based Tactile Force Reconstruction in Surgical Master Manipulators Using Random Marker Particles. -- A Low-Cost Multisensor IMU-VIO Framework for Real-Time Full-Body Human Pose Estimation. -- Shape Matching Method based on Growing Neural Gas. -- Enhancing 4D ViT-Driven Gesture Recognition with Decomposed HD-SEMG. -- Intelligent Technology in Healthcare -- Mamdani Fuzzy Assessment System for Oral Motor Exercise Tasks. -- Motion Planning of Self-balancing Exoskeleton Robot Based on Spring-Loaded Inverted Pendulum. -- Doctor-Centered Mixed Reality Tele-Guidance Training System Design. -- A Novel Deep Learning Enhanced Particle Swarm Optimization for Puncture Path Planning. -- Driving Logic Optimization and Fine Control of a Peripheral Electrical Stimulator Based on FPGA. -- Design and Implementation of A 4-DOF Wearable Assisted Puncture Robot. -- Towards Early Intervention of Knee Osteoarthritis: A Wearable System for Gait Analysis and Functional Evaluation. -- A Flexible Fruit Wearable System for Real-Time and Long-Term Tomato Growth Monitoring. -- LLM-Based Structured Information Extraction for Urinary Incontinence from Multi-Modal Clinical Data. -- A Tactile-driven Multiple Instance Learning Framework for Automated Industrial Detection. -- Hip Joint Angle Prediction for Lower Limb Continuous Movement in Multitasking Scenarios. -- Design of a Soft Pneumatic Exosuit for Stroke-Induced Knee Rehabilitation. -- Dynamic Collision Avoidance for Slave Instruments in Robotic Cardiac Surgery. -- Benchmarking State-of-the-Art Lower Limb Joint Moment Estimator Against Advanced Time Series Models. -- A Mixed Reality-Based SSMVEP Brain-Computer Interface for Exoskeletons. -- Outward Electrical Impedance Tomography for Atherosclerotic Arterial Wall Detection. -- A CNN–LSTM-Based Prediction Method of LowerLimb Parameters Across Multiple Locomotion Modes. -- Binocular Vision-Based Spatiotemporal Feature Fusion Model for Elderly Fall Risk Prediction. -- Advanced Localization, Navigation and Control Technologies in Intelligent Robotic Systems -- Lie Group Variational Integrators For Hybrid Flexible-rigid Multibody System Dynamics Based on Projective Geometric Algebra. -- High-Order Adaptive Integration of Contact Dynamics in MuJoCo. -- Path planning in the anode block area for Underwater Cleaning Robots. -- Experimental Optimization of Clap-and-Fling Wing Stroke Kinematics and Geometry Configuration. -- Agile and Versatile Bipedal Robot Tracking Control through Reinforcement Learning. -- Multi-Robot Path Planning Based on IPPO Reinforcement Learning and Imitation Learning. -- Design and Control of a Multi-UAV Cabin System. -- M2PT Dataset: A Multi-Motion Pattern Dataset for SLAM Evaluation on Diverse Terrains. -- Design and Evaluation of a Generic Safe Control Transition System for Human-machine Cooperative Driving. -- Research on Robotic Visual Inspection Path and Pose Planning for Automotive Paint Defects Considering Curvature Weights. -- Multi-Agent Active Exploration Framework Based on Topological Map Fusion for Indoor Environments. -- An Attention-based Diffusion Policy with Hybrid Farthest Point Sampling

for Robotic Intelligent Manipulation. -- Relative Pose Estimation of Substation Equipment for UAV Inspection via Deep Point Cloud Registration. -- Wearable Robotics for Gait Analysis, Training, and Rehabilitation -- Humanoid Locomotion with Roller Screw-Driven Knee Joints: Design, Control, and Deployment. -- Design and Implementation of a Multifunctional Desktop Pet Robot Dog Based onArduino Nano and ESP32-S3. -- From Sim-to-Real to Learn-in-Real: Real-world Online Learning for Humanoid Robots. -- Smart Shoe System for Accurate Gait Phase Recognition. -- Wearable AI-Driven Smart Insole for Long-Term Monitoring of Lower-Limb Joint Mobility: A Pilot study. -- Tri-Plane Rhythmic Signal Generation and Adaptive Oscillator Tracking:A Novel Framework for Motion Analysis. -- A Marker-Free Motion Capture System Built on Unsynchronized Cameras. -- Embodied Intelligence in Biomimetic Robotics, Humanoid Robotics -- Fluid Dynamics Around a Whisker. -- Interaction-Friendly Trajectories via Torque-and-Jerk-Constrained Optimization. -- Tactile Servo Control Based on Reinforcement Learning Applied to Flexible Wires Manipulation. -- An In-situ Excitation Trajectory Optimizer for Industrial Robots in Constrained Space with Human Collaboration. -- Terrain-Adaptive Bipedal Locomotion via Reinforcement Learning with Human-Inspired Stepping Strategy. -- Research on Autonomously Exterior Wall Spraying Technology for Tethered Unmanned Aerial Vehicles. -- A Study of the Effectiveness of Various Combined Control Schemes Based on MPC and WBC in humanoid control. -- Development and autonomous tracking of miniature continuum endscope for intraocular microsurgery. -- Air-ground-wall Robot with Multimodal Morphological Adaptation. -- Design and Human-Robot Collaborative Control of Reconfigurable Supernumerary Robotic Limb for Overhead Work. -- Learning Whole-body Motion Control through Instruction Learning and Human Motion Data.

Sommario/riassunto

The 3-volume set, LNAI 16074-16076, constitutes the proceedings of the 18th International Conference on Intelligent Robotics and Applications, ICIRA 2025, which took place in Okayama, Japan, during August 6-9, 2025. The 165 full papers included in these proceedings were carefully reviewed and selected from 329 submissions. They were organized in topical sections as follows: Part 1: Robotic Dexterous Manipulation and Intelligent Control; Intelligent Perception and Control Technologies for Marine Robotic Systems; Intelligent Technology in Neural Decoding, Modulation, and Interfacing; Wearable Robots for Assistance, Augmentation and Rehabilitation of Human Movements; Soft Robotics. Part 2: Hand-Centric Human-Robot Collaboration Advances in Perception, Control, and Interaction; Intelligent Technology in Healthcare; Advanced Localization, Navigation and Control Technologies in Intelligent Robotic Systems; Wearable Robotics for Gait Analysis, Training, and Rehabilitation; Embodied Intelligence in Biomimetic Robotics, Humanoid Robotics. Part 3: Magnetic Actuated Microrobots for Biomedical EngineeringDesign, Control, and Application; Innovative Design and Performance Evaluation of Robot Mechanisms; Sensation-Perception-Actuation-Rehabilitation Oriented Technologies for Wearable Exoskeletons; Pattern Analysis and Machine Intelligence: Vision, Language, Multimodal Learning, and Applications; Bio-mechatronic Integration and Rehabilitation Robots.