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Time Detection and Tracking of Express Parcels Based on Improved YOLOv5+DeepSORT -- Micro Speaker Quality Inspection Based on Time-Frequency Domain Feature Learning -- Micro Speaker Quality Inspection Based on Time-Frequency Domain Feature Learning -- Robotic Tactile Sensation, Perception, and Applications -- FBG Tactile Sensor Integrated on Bronchoscope for Force and Contact Position Sensing -- Soft Humanoid Finger with Magnetic Tactile Perception -- Learning Tactilemotor Policy For Robotic Cable Following via Sim-to-Real Transfer -- Electric Fish-Inspired Proximity and Pressure Sensing Electronic Skin -- A Novel Tactile Palm for Robotic Object Manipulation -- Tactile-Based Slip Detection Towards Robot Grasping -- A Faster and More Robust Momentum Observer for Robot Collision Detection Based on Loop Shaping Techniques -- Dynamic and static performance analysis of a linear solenoid elastic actuator with a large load capacity -- Fully tactile dexterous hand grasping strategy combining visual and tactile senses -- Intelligent Tactile System and Human-Robot Interaction for Collaborative Robots -- Tacformer : A Self-attention Spiking Neural Network for Tactile Object Recognition -- MC-Tac: Modular Camera-based Tactile Sensor for Robot Gripper -- Advanced Sensing and Control Technology for Human-robot Interaction -- Integrated Direct/Indirect Adaptive Robust Control for Electrical Driven Injection Machine Mold Closing with Accurate Parameter Estimations -- Admittance Control of Flexible Joint with Dual-Disturbance Observer -- Physical Reality Constrained Dynamics Identification of Robots Based on CAD Model -- Constant Force Tracking Using Dynamical System with External Force Estimation -- Demonstration Shaped Reward Machine for Robot Assembly Reinforcement Learning Tasks -- The Construction of Intelligent Grasping System Based on EEG -- Comparing of Electromyography and Ultrasound for Estimation of Joint Angle and Torque -- An Efficient Robot Payload Identification Method Based on Decomposed Motion Experimental Approach -- A Force Exertion Method for Redundant Mobile Manipulators Safely Operating in Small Spaces -- Prediction of Elbow Torque Using Improved African Vultures Optimization Algorithm in Neuromusculoskeletal Model -- Usability Evaluation of FURS Robot Control Panel Interface Design Based on SUS -- Knowledge-based Robot Decision-making and Manipulation -- Obstacle-Avoidance State Characterization Models Based on Hybrid Geometric Descriptions for Mobile Manipulators -- Performance Optimization of Robotic Polishing System With a 3-DOF End-Effector Using Trajectory Planning Method -- KGGPT: Empowering Robots with OpenAI's ChatGPT and Knowledge Graph -- Robot Trajectory Optimization with Reinforcement Learning Based on Local Dynamic Fitting -- ChatGPT for Robotics: A New Approach to Human-Robot Interaction and Task Planning -- Precision Control and Simulation Verification of Hydraulic Manipulator under Unknown Load -- Experience Adapter: Adapting Pre-Trained Language Models for Continual Task Planning -- Nonlinear Disturbance Observer-Based Continuous Fixed-Time Tracking Control for Uncertain Robotic Systems -- Optimized Adaptive Impedance Control Based on Robotic Seven-Axis Linkage Grinding Platform -- Decision-Making in Robotic Grasping with Large Language Models -- Language Guided Grasping of Unknown Concepts Based on Knowledge System -- A Review of Nonlinear Systems Based on Optimal Control Theory -- Design and Control of Legged Robots -- A Locust-Inspired Energy Storage Joint for Variable Jumping Trajectory Control -- Design and Control of a Novel Six-Legged Robot for Flat, Downhill, and Uphill Skiing -- Structure Design and Fall Trajectory Planning of an Electrically Driven Humanoid Robot -- HexGuide: A Hexapod Robot for Autonomous Blind Guidance

in Challenging Environments -- Force-Estimation Based Interaction of Legged Robots through Whole-Body Dynamics -- Lightweight Design and Property Analysis of Humanoid Robot Thigh Integrated Structure With Appearance -- Joint Torque and Ground Reaction Force Estimation for a One-Legged Hopping Robot -- Predefined-Time External Force Estimation for Legged Robots -- Movement Analysis of a Landing Buffer Mobile Mechanism with Eccentric Load -- A Lightweight Manipulator Design for Quadruped Robots and Stable Locomotion Control with the Manipulator -- Recovery from Injury: Learning Bipedal Jumping Skills with a Motor Output Torque Limit Curriculum -- Recovery Planning for the Legged Mobile Lunar Lander.

Sommario/riassunto

The 9-volume set LNAI 14267-14275 constitutes the proceedings of the 16th International Conference on Intelligent Robotics and Applications, ICIRA 2023, which took place in Hangzhou, China, during July 5–7, 2023. The 413 papers included in these proceedings were carefully reviewed and selected from 630 submissions. They were organized in topical sections as follows: Part I: Human-Centric Technologies for Seamless Human-Robot Collaboration; Multimodal Collaborative Perception and Fusion; Intelligent Robot Perception in Unknown Environments; Vision-Based Human Robot Interaction and Application. Part II: Vision-Based Human Robot Interaction and Application; Reliable AI on Machine Human Reactions; Wearable Sensors and Robots; Wearable Robots for Assistance, Augmentation and Rehabilitation of Human Movements; Perception and Manipulation of Dexterous Hand for Humanoid Robot. Part III: Perception and Manipulation of Dexterous Hand for Humanoid Robot; Medical Imaging for Biomedical Robotics; Advanced Underwater Robot Technologies; Innovative Design and Performance Evaluation of Robot Mechanisms; Evaluation of Wearable Robots for Assistance and Rehabilitation; 3D Printing Soft Robots. Part IV: 3D Printing Soft Robots; Dielectric Elastomer Actuators for Soft Robotics; Human-like Locomotion and Manipulation; Pattern Recognition and Machine Learning for Smart Robots. Part V: Pattern Recognition and Machine Learning for Smart Robots; Robotic Tactile Sensation, Perception, and Applications; Advanced Sensing and Control Technology for Human-Robot Interaction; Knowledge-Based Robot Decision-Making and Manipulation; Design and Control of Legged Robots. Part VI: Design and Control of Legged Robots; Robots in Tunnelling and Underground Space; Robotic Machining of Complex Components; Clinically Oriented Design in Robotic Surgery and Rehabilitation; Visual and Visual-Tactile Perception for Robotics. Part VII: Visual and Visual-Tactile Perception for Robotics; Perception, Interaction, and Control of Wearable Robots; Marine Robotics and Applications; Multi-Robot Systems for Real World Applications; Physical and Neurological Human-Robot Interaction. Part VIII: Physical and Neurological Human-Robot Interaction; Advanced Motion Control Technologies for Mobile Robots; Intelligent Inspection Robotics; Robotics in Sustainable Manufacturing for Carbon Neutrality; Innovative Design and Performance Evaluation of Robot Mechanisms. Part IX: Innovative Design and Performance Evaluation of Robot Mechanisms; Cutting-Edge Research in Robotics.