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Tracking Algorithm Based on Dual layer Attention -- Realtime 3D Reconstruction at Scale and Object Pose Estimation for Bin Picking System -- Large-Parallax Multi-camera Calibration Method for Indoor Wide-Baseline Scenes -- A Real-time and Globally Consistent Meshing Reconstruction without GPU -- All-in-One Image Dehazing Based on Attention Mechanism -- Reliable AI on Machine Human Reactions -- A Feature Fusion Network for Skeleton-based Gesture Recognition -- Dynamic Hand Gesture Recognition Based on Multiskeletal Features for Sign Language Recognition System -- An amended time-scaling algorithm for kino-dynamic trajectories -- Adapted Mapping Estimator in Visual Servoing Control for Model-Free Robotics Manipulator -- FairShare: An Incentive-based Fairness-aware Data Sharing Framework for Federated Learning -- Combating label ambiguity with smooth learning for facial expression recognition -- EMG denoising based on CEEMDAN-PE-WT algorithm -- AS-TransUnetCombining ASPP and Transformer for Semantic Segmentation -- Trajectory Planning of Aerial Manipulators Based on Inertial Decomposition -- Wearable Sensors and Robots -- Adaptive Assessment via Wearable Inertial Sensors Using Hybrid Dynamic Recurrent Fuzzy Neural Network -- A Strain Gauge Based FMG Sensor for sEMG-FMG Dual Modal Measurement of Muscle Activity Associated with Hand Gestures -- Enable Intuitive and Immersive Teleoperation: Design, Modeling and Control of a Novel Wearable Exoskeleton -- Design and Fabrication of an Artificial Skin Integrated with Soft Ultrasonic Waveguides for Finger Joint Motion Detection -- Noncontact heart rate variability monitoring based on FMCW Radar -- A Diving Glove with Inertial Sensors for Underwater Gesture Recognition -- Low-hysteresis Flexible Strain Sensors Based on Liquid Metal for Human-Robot Interaction -- A clinic-oriented ground reaction force prediction method in gait -- Development of a Novel Plantar Pressure Insole and Inertial Sensor System for Daily Activity Classification and Fall Detection -- Visual-Inertial Sensor Fusion and OpenSim Based Body Pose Estimation -- A Rotary-Cage Valve (RCV) for Variable Damper in Prosthetic Knee -- Flexible Sensors Used for Lower Assisting Exoskeleton -- Highly Compressible and Stretchable Piezoresistive Sensor Based 3D Graphene-Melamine Composite Foam for Gait Motion Detection -- Wearable Robots for Assistance, Augmentation and Rehabilitation of Human Movements -- Research on Fuzzy Iterative Learning Control of Pneumatic Artificial Muscle -- Decoding Discrete Gestures across Different Arm Positions Based on Multimodal Fusion Strategy -- A brain-controlled spherical robot based on augmented reality (AR) -- Research on interactive force control method of upper limb exoskeleton based on active intention recognition -- A Feature Extraction Algorithm for Exoskeleton Speech Control System Based on Noisy Environment -- Design and Control of a Soft Hip Exoskeleton for Assisting Human Locomotion -- Design and Control of a Portable Soft Exosuit by Musculoskeletal Model-Based Optimization -- Structural Design and Stiffness Characteristics of a Passive Variable Stiffness Joint -- A Development Control and HRI of Supernumerary Robotic Limbs Based on ROS -- Hybrid APFPSO Algorithm for Accurate Model-Free Motion Control of a Knee Exoskeleton -- The Influence of Task Objectives and Loads on the Synergies Governing Human Upper Limb Movement -- Design and Development of Wearable Upper Limb Soft Robotics for Load Lifting Task Assistance -- A Novel Lower Limb Rehabilitation Exoskeleton Combined with Wheelchair -- Biomechanical design and evaluation of a lightweight back exoskeleton for repetitive lifting tasks -- Biomechanical design, modeling and control of an Ankle-Exosuit system -- A Binocular Vision Based Intelligent Upper Limb Exoskeleton

for Grasp Assisting -- Perception and Manipulation of Dexterous Hand for Humanoid Robot -- Contact Force and Material Removal Simulation for a Virtual Robotic Polishing Platform -- Soft Humanoid Hand with C-Shaped Joint and Granular-Jamming Palm -- Design of a Three-finger Underactuated Robotic Gripper Based a Flexible Differential Mechanism -- Design and Development of a Composite Compliant Two-Finger Gripper -- A Novel Skill Learning Framework for Redundant Manipulators Based on Multi-Task Dynamic Movement Primitives -- Research on Configuration Optimization of Space Robot for Satellite Capture -- Multifunctional Wound Monitoring Sensor Based on Laser-Induced Graphene -- Soft Fingertip with Sensor Integrated for Continuous in-hand Manipulation.

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.