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-- Dexterous Hand-Object Interaction Control Based on Adaptive Impedance Algorithm -- Design and Control of a Two-Segment Rotatable wire-driven Flexible Arm -- Design and Research of a New Underactuated Manipulator -- Medical Imaging for Biomedical Robotics -- Accelerated Unfolding Network for Medical Image Reconstruction with Efficient Information Flow -- Examining the Impact of Muscle-Electrode Distance in sEMG Based Hand Motion Recognition -- Fast calibration for ultrasound imaging guidance based on depth camera -- Zero-Shot Kidney Stone Segmentation Based on Segmentation Anything Model for Robotic-Assisted Endoscope Navigation -- Sutures and Landmarks Joint Detection Method Based on Convolutional Neural Network for Rat Stereotactic Surgery -- Prior Region Mask R-CNN for thyroid nodule segmentation in ultrasound images -- Digital Twin Model Based Robot-Assisted Needle Insertion Navigation System with Visual and Force Feedback -- A Modified BiSeNet for Spinal Segmentation -- Retinal Vascular Segmentation Based on Depth-Separable Convolution and Attention Mechanisms -- SW-YOLO: Improved YOLOv5s algorithm for Blood Cell Detection -- A Novel Full Prediction Model of 3D Needle Insertion Procedures Combining the Kriging and Local Constrained Method -- Autofocusing for Cleavage-Stage Embryos in Brightfield Microscopy: Towards Automated Preimplantation Genetic Testing -- Advanced Underwater Robot Technologies -- Cooperative pursuit-evasion game for multi-AUVs in the ocean current and obstacle environment -- Rock-climbing fish inspired skeleton-embedded rigid-flexible coupling suction disc design for adhesion enhancement -- An Underwater Inductively Coupled Power Transfer System with a Ring-shaped Coupler for ROV Charging -- Micro-needle Dynamic Anchoring Foot Design for Underwater Drilling Robot -- Adaptive Control for Compact Vector-Propelled ROVs in Underwater Detection: Enhancing Stability and Maneuverability -- Dual-Arm Dynamic Planning with Considering Arm Reachability Constraint in Task Space -- SLAM Algorithm of Underwater Vehicle Based on Multi-beam Sonar -- Design and Development of ROV for Ship Hull Inspection -- Research on Structure Design and Drive Control of Soft Joint on Underwater Snake-like Robot -- Reconfigurable Torso-Based Quadruped Robot for Post-Tilt Recovery -- Innovative Design and Performance Evaluation of Robot Mechanisms - -- Kinematics Analysis of a New Parallel Mechanism with Complete Separation of Constraints and Drives -- Design of Flexure Hinges Using Topology Optimization Based on Isogeometric Analysis -- Design and Workspace Evaluation of a Novel Parallel Grasping Manipulator with Configurable Platform -- Research on Forward Kinematics Solutions of 3RPUPc-UPS Parallel Mechanism Based on Particle-Artificial Bee Colony Algorithm -- Stiffness calculation method and deformation energy of lattice filled structure -- Analytical Backlash Model for 3K-Type Planetary Gear Train with Flexure-Based Anti-Backlash Carrier -- Design and Analysis of a Novel Membrane Deployable Solar Array Based on STACER Deployable Mechanism for CubeSats -- Graded Error Compensation Method for Heavy-Load Manipulators Based on Laser Tracking Measurement -- A Flexible Parallel Robotic Wrist Towards Transluminal Endoscopic Surgery -- Parameterizing Dexterous Workspace of Industrial Robots -- Design and Kinematic Analysis of a Mobile Parallel Mechanism with Over Constrained Branch Chains -- Design and Analysis of Space Extra Long deployable Telescopic Boom Based on Cable Drive -- Extenics Networking Method of Generalized Deployable Units -- Research on Foot Slippage Suppression of Mammal Type Legged Robot based on Optimal Force Allocation -- Evaluation of Wearable Robots for Assistance and Rehabilitation -- Improved Notch Filter Method for

Vibration Suppression of Flexible Joint Robots with Harmonic Reducers -- Design of a Locust-Like Robot Based on Metamorphic Mechanism -- A Reconfigurable Cable-Driven Hybrid Robot Synchronous Calibration Method Considering Multiple Mapping Relationships -- Wearable Robots Improve Upper Limb Function in Stroke Patients -- Design and Evaluation of a Pelvic-Assisted Gait Training Method for Mobility Improvement in Stroke Patients -- Effect of Lower Limb Exoskeleton Robot on Walking Function of Stroke Patients -- Design and Control of a Novel Underactuated Soft Exosuit -- Morphology Design of Soft Strain Sensors with Superior Stability for Wearable Rehabilitation Robots -- The Feasibility, Safety and Efficacy of Robot-Assisted Gait Training Based on a Wearable Ankle Robot in Stroke Rehabilitation -- 3D Printing Soft Robots -- Design and Control of a Miniature Soft Robotic Fish Actuated by Artificial Muscles -- A Single-DOF Quadrilateral Pyramid Deployable Unit and Its Networking Mechanism -- A Rigid-Soft Pneumatic Wrist with Fixed Rotation Axes and Active Jamming Variable Stiffness Mechanisms.

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.