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Nota di contenuto	<p>Intro -- Preface -- Organization -- Contents - Part IV -- Novel Mechanisms, Robots and Applications -- Optimal Design of Cam Curve Dedicated to Improving Load Uniformity of Bidirectional Antagonistic VSA -- 1 Introduction -- 2 Overall Structural Design -- 3 Stiffness Adjustment Principle and Nonlinear Compensation -- 3.1 Stiffness Adjustment Principle and Nonlinear Analysis -- 3.2 Stiffness Nonlinear Compensation -- 4 Optimization Design of Cam Drive Profile -- 4.1 Constraint Analysis of Cam Curve Design Parameters -- 4.2 Cam Curve Design Optimization and Result Analysis -- 5 Conclusion -- References</p> <p>-- Research on Foot Slippage Estimation of Mammal Type Legged Robot -- 1 Introduction -- 2 Foot Terrain Interaction for Slippage -- 3 Data Fusion Method Based on EKF -- 3.1 Calibration for Sensor Data -- 3.2 State Estimation by Data Fusion -- 4 Slippage Estimation and State Determination -- 4.1 Acceleration Model of Foot Slippage for Mammal Type Walking -- 4.2 Foot Slippage State Analysis Based on EKF -- 5 Experimental Verification -- 6 Conclusion -- References</p> <p>-- Design of Deformable Flapping Structure of Bat-Like Flapping Air Vehicle -- 1 Introduction -- 2 Structural Design -- 2.1 Flapping Mechanism -- 2.2 Deformable Mechanism -- 2.3 Coupling Design Mechanism -- 3 Simulation -- 4 Conclusion -- References</p> <p>-- An Autonomous Flight Control Strategy Based on Human-Skill Imitation for Flapping-Wing Aerial Vehicle -- 1 Introduction -- 2 Control Strategy -- 2.1 Manual Control -- 2.2 Human-Skill Imitation -- 3 Experiment -- 3.1 Takeoff -- 3.2 Cruise -- 3.3 Landing -- 4 Conclusions -- References</p> <p>-- A New Moving Target Interception Algorithm for an AUV in the Ocean Current Environment -- 1 Introduction -- 2 The Basic Model for an AUV Intercepting Moving Target -- 2.1 The Overview of Interception Problem -- 2.2 A Model of the Underwater Environment.</p> <p>3 The Proposed APF-VS-KF Algorithm -- 3.1 Planning Intercept Path of the AUV -- 3.2 Update Moving Position of Target Based on KF -- 4 Simulation Results and Analysis -- 4.1 The AUV Intercepts a Target Moving Along a Constant Straight Line in a 2-D Environment with Ocean Vurrent of 90 -- 4.2 The AUV Intercepts a Target Moving Along a Constant Straight Line in a 2-D Environment with Ocean Current of 180 -- 5 Conclusion -- References</p> <p>-- Design and Control of In-Pipe Inspection Robot forPre-commissioning -- 1 Introduction -- 2 Kinematic Properties of HL-6 Robot in Pipes -- 2.1 Overview of the LH-6 Robotic System -- 2.2 Kinematics of HL-6 Robot in Pipes -- 3 Dynamical Model of HL-6 Robot in Pipes -- 4 Control of HL-6 Robot Based on Kinetic Model -- 4.1 Control of CoM's Position and Trunk's Orientation -- 4.2 Computation of the Desired Supporting Force -- 4.3 Details of Control -- 5 Experiments -- 6 Conclusions -- References</p> <p>-- Research on Technology of Pipeline Detection Robot Based on Spiral Propulsion -- 1 Introduction -- 2 Pipeline Robot Design -- 2.1 Structure Composition of Pipeline Robot -- 2.2 Robot Travel Method -- 3 Robot Control System -- 4 Pipeline Inner Wall Scanning Detection Strategy -- 4.1 Point Cloud Data Acquisition -- 4.2 Poisson Surface Reconstruction -- 4.3 Pipe Roundness Detection -- 5 Experimental Verification -- 5.1 Robot Pipeline Travel Test -- 5.2 Point Cloud Surface Reconstruction -- 6 Conclusion -- References</p> <p>-- Dynamic Characteristics of Two-Mass Inertial Pipeline Robot Driven</p>

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Design and Development of Multi-arm Cooperative Rescue Robot Actuator Based on Variant Scissor Mechanism -- 1 Introduction -- 2 Design of Robot Actuator -- 3 Kinematics Analysis of the Actuator -- 3.1 Establish the Kinematic Model -- 3.2 Positive Solution of Position -- 3.3 Velocity Analysis -- 3.4 Trajectory Simulation -- 4 Prototype Development -- 5 Conclusion -- References --

WPFBot: A Novel and Highly Mobile Amphibious Robot -- 1 Introduction -- 2 Principle and Preliminary Control Strategy -- 2.1 Thrusting Principle -- 2.2 Underwater Motion -- 2.3 Lift-Up and Descending -- 3 System Design -- 3.1 The Overall Design and Specifications -- 3.2 Shell Sealing Design -- 3.3 Shaft Sealing -- 3.4 Electric System Integration -- 4 Simulation and Experiments -- 4.1 Underwater Simulation -- 4.2 Experiments -- 5 Conclusion and Future Work -- References --

A Class of Double-Delta-Based 6-DOF Pick-and-Place Robots with Integrated Grippers -- 1 Introduction -- 2 Architecture Design -- 2.1 Basic Structures of AMP. 2.2 Deduction of Delta Robot as Limb.

Sommario/riassunto

The 4-volume set LNAI 13013 – 13016 constitutes the proceedings of the 14th International Conference on Intelligent Robotics and Applications, ICIRA 2021, which took place in Yantai, China, during October 22-25, 2021. The 299 papers included in these proceedings were carefully reviewed and selected from 386 submissions. They were organized in topical sections as follows: Robotics dexterous manipulation; sensors, actuators, and controllers for soft and hybrid robots; cable-driven parallel robot; human-centered wearable robotics; hybrid system modeling and human-machine interface; robot manipulation skills learning; micro_nano materials, devices, and systems for biomedical applications; actuating, sensing, control, and instrumentation for ultra-precision engineering; human-robot collaboration; robotic machining; medical robot; machine intelligence for human motion analytics; human-robot interaction for service robots; novel mechanisms, robots and applications; space robot and on-orbit service; neural learning enhanced motion planning and control for human robot interaction; medical engineering.