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Nota di contenuto	Intro -- Preface -- Organization -- Contents - Part III -- Robotic Machining -- An Intelligent Path Generation Method of Robotic Grinding for Large Forging Parts -- 1 Introduction -- 2 Methods -- 2.1 Algorithm Overview -- 2.2 Recognition of Random Features Based on Point Clouds -- 2.3 Generation Method of Robotic Grinding Paths -- 3 Experiments -- 4 Conclusions -- References -- Research and Analysis on Energy Consumption of Underwater Hexapod Robot Based on Typical Gait -- 1 Introduction -- 2 Configuration and Walking Gait of Robot -- 2.1 Configuration of Robot -- 2.2 Walking Gaits of Robot -- 3 Dynamic Model of Robot -- 3.1 One Leg Dynamic Model -- 3.2 Body Dynamic Model -- 3.3 Contact Force Distribution -- 4 Energy Consumption Model -- 5 Modeling and Simulation Results -- 6 Conclusion -- References -- Bearing Fault Diagnosis Based on Attentional Multi-scale CNN -- 1 Introduction -- 2 Theoretical Background -- 2.1 Convolutional Neural Network -- 2.2 Squeeze and Excitation Block -- 3 Proposed Network -- 4 Experiment -- 4.1 Dataset and Implementation Details -- 4.2 Fault Identification Results -- 5 Conclusion -- References -- Robot Hand-Eye Calibration Method Based on Intermediate Measurement System -- 1 Introduction -- 2 Analysis of the Principle of Hand-Eye Calibration -- 3 The Center Coordinate of the Marker Point in the Calibration Board Coordinate System -- 3.1 Image Preprocessing -- 3.2 Calculate the Coordinates of the Center of the Marker Point in the Pixel Coordinate System -- 3.3 Calculate the Coordinates of the Marker Point in the Coordinate System {CCF} -- 4 Homogeneous Transformation Matrix Between Coordinate Systems -- 4.1 Homogeneous Transformation Matrix MFCCF T -- 4.2 Homogeneous Transformation Matrix FFBF T -- 4.3 Homogeneous Transformation Matrix CCFCF T -- 4.4 Homogeneous Transformation Matrix MFCDF T. 4.5 Homogeneous Transformation Matrix BFCDF T -- 5 Experiment and Discussion -- 5.1 Experiment Platform -- 5.2 Results and Discussion -- 6 Conclusion -- References -- Review on Energy Consumption Optimization Methods of Typical Discrete Manufacturing Equipment -- 1 Introduction -- 2 Typical Equipment Energy Consumption Optimization Method -- 2.1 Hardware Approaches -- 2.2 Software Approaches -- 2.3 Hybrid Approaches -- 3 Intelligent Optimization Method -- 3.1 Industrial Robots -- 3.2 Machine Tools -- 4 Conclusions -- References -- Medical Robot -- Development and Control of a CT Fluoroscopy Guided Lung Puncture Robot -- 1 Introduction -- 2 Related Work -- 3 CT Fluoroscopy Guided Puncture Procedure -- 4 Development of the Puncture Robot -- 5 RCM Control of the Puncture Robot -- 6 Conclusion -- References -- Unmarked External Breathing Motion Tracking Based on B-spline Elastic Registration -- 1 Introduction -- 2 Design of Abdominal Breathing Simulator -- 2.1 Structure Design -- 2.2 Motion Control -- 3 Design of Tracking Method -- 3.1 Image Preprocessing -- 3.2 Tracking Method -- 3.3 Model Optimization -- 4 Experiments and Results -- 4.1 Data Acquisition -- 4.2 Camera Error Test -- 4.3 Abdominal Breathing Simulator Test -- 4.4 Model Method Validation -- 5 Conclusion -- References -- Design, Development, and Preliminary Experimental Analysis of a Novel Robotic Laparoscope with Continuum Mechanism --

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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.