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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Mass Equivalent Pantographs for Synthesis of Balanced Focal Mechanisms -- Compliant Serial 3R Chain with Spherical Flexures -- Combining Tube Design and Simple Kinematic Strategy for Follow-the-Leader Deployment of Concentric Tube Robots -- A Screw-Based Dynamic Balancing Approach, Applied to a 5-bar Mechanism -- A Novel S-C-U Dual Four-Bar Linkage -- Inverse Kinematics Analysis of a P2CuP2Cu Concentric Tube Robot with Embedded Micro-Actuation for 3T-1R Contactless Tasks -- Structural Synthesis of Hands for Grasping and Manipulation Tasks -- Generalized Construction of Bundle-Folding Linkages -- A Complete Analysis of Singularities of a Parallel Medical Robot -- Workspace Analysis of a 3-PSP Motion Platform -- Posture Optimization of a Functionally Redundant Parallel Robot -- Analysis Methods for the 3-RRR with Uncertainties in the Design Parameters -- A Study on Simplified Dynamic Modeling Approaches of Delta Parallel

Robots -- Nonsingular Change of Assembly Mode Without any Cusp -- Some Mobile Overconstrained Parallel Mechanisms -- On the Line-Symmetry of Self-Motions of Linear Pentapods -- On Some Notable Singularities of 3-RPR and 3-RRR PPRMs -- Minimized-Torque-Oriented Design of Parallel Modular Mechanism for Humanoid Waist -- Kinematic Analysis of the Delthaptic, a New 6-DOF Haptic Device -- A Family of Non-Overconstrained 3-DoF Reconfigurable Parallel Manipulators -- Dealing with Redundancy of a Multiple Mobile Coil Magnetic Manipulator: a 3RPR Magnetic Parallel Kinematics Manipulator -- A new Generic Approach for the Inverse Kinematics of Cable-Driven Parallel Robot with 6 Deformable Cables -- Rolling Contact in Kinematics of Multifingered Robotic Hands -- Synergies Evaluation of the SCHUNK S5FH for Grasping Control -- Velocity-field Tasks for In-Hand Manipulative Synthesis -- Synthesis of Linkages to Trace Plane Curves -- Subject-Specific Model of Knee Natural Motion: a Non-Invasive Approach -- An Approach for Bone Pose Estimation via Three External Ellipsoid Pressure Points -- Robot Dynamics Constraint for Inverse Kinematics -- Path Planning in Kinematic Image Space Without the Study Condition -- The 2D Orientation Interpolation Problem: A Symmetric Space Approach -- Closure Polynomials for Strips of Tetrahedra -- Robust Design of Parameter Identification -- Isotropic Design of the Spherical Wrist of a Cable-Driven Parallel Robot -- Dynamic Recovery of Cable-Suspended Parallel Robots After a Cable Failure -- Workspace and Interference Analysis of Cable-Driven Parallel Robots with an Unlimited Rotation Axis -- Elasto-Static Model for Point Mass Sagged Cable-Suspended Robots -- Determination of a Dynamic Feasible Workspace for Cable-Driven Parallel Robots -- Adaptive Human Robot Cooperation Scheme for Bimanual Robots -- Influence of the Wind Load in the Trolley-Payload System with a Flexible Hoist Rope -- Towards a Unified Notion of Kinematic Singularities for Robot Arms and Non-Holonomic Platforms -- Dynamic Singularities of Non-holonomic Robotic Systems: An Analytic Approach -- A Taylor-Based Continuation Method for the Determination and Classification of Robot Singularities -- Identifying Singularity-Free Spheres in the Position Workspace of Semi-Regular Stewart Platform Manipulators -- Geometric Algebra Based Kinematics Model and Singularity of a Hybrid Surgical Robot -- Kinematic Singularities of a 3-DoF Planar Geared Robot Manipulator.

Sommario/riassunto

This book brings together 46 peer-reviewed papers that are of interest to researchers wanting to know more about the latest topics and methods in the fields of the kinematics, control and design of robotic systems. These papers cover the full range of robotic systems, including serial, parallel and cable-driven manipulators, both planar and spatial. The systems range from being less than fully mobile, to kinematically redundant, to over-constrained. In addition to these more familiar areas, the book also highlights recent advances in some emerging areas: such as the design and control of humanoids and humanoid subsystems; the analysis, modeling and simulation of human-body motions; mobility analyses of protein molecules; and the development of machines that incorporate man.