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Descrizione fisica	1 online resource (X, 241 p. :)
Collana	Studies in Systems, Decision and Control, , 2198-4182 ; ; 272
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Soggetti	Robotics Industry 4.0 Automatic control Computational intelligence Automation
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Object recognition of the robotic system with using a parallel convolutional neural network -- Mathematical model of a swarm robotic system with wireless bi-directional energy transfer -- Pareto - Optimal Solutions and Their Application in Designing Robots and Robotic Systems -- Control and Ergonomic problems of Collaborative Robotics -- The Concept of Failure- and Fault-Tolerance on Base of the Dynamic Redundancy for Distributed Control Systems of Spacecraft Groups -- Industrial Robotics Review -- Development of an Information Control System for a Remotely Operated Vehicle with Hybrid Propulsion System -- Control system of a starting -landing platform with parallel kinematics for pilotless flying machines in the conditions of uncertainty -- Intuitive Industrial Robot Programming Interface with Augmented Reality Environment.
Sommario/riassunto	This book focuses on open issues of new intelligent control paradigms and their usage. Industry 4.0 requires new approaches in the context of secure connection, control, and maintenance of robotic systems, as well as enhancing their interaction with humans. The book presents recent advances in industrial robotics, and robotic design and modeling

for various domains, and discusses the methodological foundations of the collaborative robotics concept as a breakthrough in modern industrial technologies. It also describes the implementation of multi-agent models, programs and methods that could be used in future processes for control, condition assessment, diagnostics, prognostication, and proactive maintenance. Further, the book addresses the issue of ensuring the space robotics systems and proposes reliable novel solutions. The authors also illustrate the integration of deep-learning methods and mathematical modeling based on examples of successful robotic systems in various countries, and analyze the connections between robotic modeling and design from the positions of new industrial challenges. The book is intended for practitioners and enterprise representatives, as well as scientists and Ph.D. and Master's students pursuing research in the area of cyber-physical system development and implementation in various domains.

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