Controller Design for Industrial Robots and Machine Tools 

F. Nagata 2013-09-30 Advanced manufacturing systems are vital to the manufacturing industry. It is well known that if a target work piece has a curved surface, then automation of the polishing process is difficult. Controller design for industrial robots and machine tools results where nowadays industrial robots have been successfully applied to such surfaces, presenting up to date information on these advanced manufacturing systems, including key technologies. Chapter four tackles specific fields of work such as velocity-based discrete-time control system for industrial robots; preliminary simulation of intelligent force control; CAM system for an articulated industrial robot; a robot solderer for artistic furniture; a machining system for wooden paint rollers; a polishing robot for PET bottles, and concludes with a summary. The aim is to aid those professionals working in industrial manufacturing, and engineering students at undergraduate and postgraduate level. Presents results where industrial robots have been used successfully to polish difficult surfaces. Presents the latest technology in the field that highlights key systems and applications within this area. The book discusses new ways of thinking, enhancing the design of products and manufacturing processes. This synergy enables the creation and evolution of such manufacturing systems. The Handbook of Research on Advancements in Robotics and Mechatronics integrates modern engineering science and technologies with new ways of thinking, enabling the design of products and manufacturing processes. This enables the evolution and creation of new areas of knowledge. The book discusses new ways of thinking, enhancing the design of products and manufacturing processes. This synergy enables the creation and evolution of new areas of knowledge. This book is aimed at students, researchers, and practitioners looking to develop autonomous and smart products and systems for meeting today's challenges. The book provides key concepts and applications, which concern e.g. decision-making, autonomy, cooperation, communication, task scheduling, motion generation, and distribution of control between different devices. The state of the art and presents the latest information, the book offers a valuable asset for a broad readership.

Clinical Robotics: Control and Applications 

S. Tezuka 2012-12-02 One of the most important problems in the field of engineering and technology is the development of so-called intelligent systems, which can perform various intellectual tasks. This book is dedicated to the current progress in research of these systems and specifically explores the topics of robotics, mechatronics, and manufacturing systems. Industrial Robot Applications - Rainer Schair 1989 The World Yearbook of Robotics Research and Development - 1985

Mechanical Structural Analysis and Design Optimization of Industrial Robots Felix Hotz 1988

Intelligent Robotics and Applications

Salman Naghsh 2011-12-03 The two volumes LNAI 7101 and LNAI 7102 constitute the refereed proceedings of the 4th International Conference on Intelligent Robotics and Applications ICIRA 2011, held in Aachen, Germany, in November 2011. The two revised full papers presented were thoroughly reviewed and selected from numerous submissions. They are organized in topical sections on progress in indoor UAV, robotics intelligence, industrial robotics, rehabilitation robotics, mechanisms and their applications, multi robot systems, robot control systems, human-robot interaction, applications and stability, design, dynamics and interpretation, evolutionary robotics, bio-inspired robotics, and image-processing applications.

A Study on Kinematics of an Industrial Robot-Duong Tran 1986

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Advances in Industrial Machines and Mechanisms—Y. V. D. Rao 2021-07-20 This book presents the select proceedings of the 1st International 13th National Conference on Industrial Problems on Machines and Mechanism (IPRMN 2020) and examines issues in the design, manufacture, and performance of mechanical and mechatronic elements and systems that are employed in modern machines and devices. The topics covered include robotics, industrial CAD/CAM systems, mechatronics, machinery associated with conventional and unconventional manufacturing systems, material handling and automated assembly, mechanical and electro-mechanical systems of modern machinery and equipment, micro-devices, compliant mechanisms, hybrid electric vehicle and electric vehicle mechanisms, acoustic and noise control. This book also discusses the recent advances in the integration of IoT and Industry 4.0 in mechanism and machines. The book will be a valuable reference for academics, researchers, and professionals interested in the design and development of industrial machines.

Real-time control of industrial robots in multiple microcomputers—S. Ahmad 1984

Automated Precision Deburring Using Industrial Robots—Reginald Lawrence Gott 1985

Sourcebook on Robots in Manufacturing—1995

Recent Awards in Engineering—1983

Robotics, Machinery and Engineering Technology for Precision Agriculture—Mark Shambysian

The Robotics Careers Handbook—Annie Cardoza 1985

Mechatronics and Robotics Engineering for Advanced and Intelligent Manufacturing—Zai Zhang 2016-08-22 Featuring selected contributions from the 2nd International Conference on Mechatronics and Robotics Engineering, held in Nice, France, February 18-19, 2016, this book introduces recent advances and state-of-the-art technologies in the field of advanced intelligent manufacturing. This systematic and carefully detailed collection provides a valuable reference source for mechanical engineering researchers who want to learn about the latest developments in advanced manufacturing and automation, readers from industry seeking potential solutions for their own applications, and those involved in the robotics and mechatronics industry.

Hierarchical Fuzzy Force Control for Industrial Robots—Jong-Keong Haung 1996

Advances in Service and Industrial Robotics—Sud Zohreh 2021-06-04 This book presents the proceedings of the 39th International Conference on Robotics in Algea-Adria-Danube Region, BAND 2021, held in Poitiers, France, 21-23 June 2021. It gathers contributions by researchers from several countries on all major areas of robotic research, development and innovation, as well as new applications and current trends. The topics covered include: novel designs and applications of robotic systems, intelligent cooperating and service robots, advanced robot control, human-robot interfaces, robot vision systems, mobile robots, humanoid and walking robots, bio-inspired and swarm robotic systems, aerial, underwater and spatial robots, robots for ambient assisted living, medical robots and biotic protheses, cognitive robots, cloud robotics, ethical and social issues in robotics, etc. Given its scope, the book offers a source of information and inspiration for researchers seeking to improve their work and gather new ideas for future developments.

Service Robots and Robotics: Design and Application—Cecacarri, Marco 2012-03-31 "This book offers the latest research within the field of service robotics, using a mixture of case studies, research, and future direction in this burgeoning field of technology."

Advances in Italian Robotics—Guido Rosati 2020-07-01 This book disseminates the latest research achievements, findings, and ideas in the robotics field, with particular attention to the Italian scenario. Book coverage includes topics that are related to the theory, design, practice, and applications of robots, such as robotic systems and kinematics, dynamics of robots and multi-body systems, linkages and manipulators, control of robotic systems, trajectory planning and optimization, innovative robots and applications, industrial robotics, collaborative robotics, medical robotics, assistive robotics, and service robotics. Book contributions include, but are not limited to, revised and substantially extended versions of selected papers that have been presented at the 2nd International Conference of IFToMM Italy (IFIT 2018).

Interfacing Bar Code Reader with Industrial Robot for Automated Part Recognition—Kishorbhai N. Patel 1965

Direct-drive Robots—Harushiko Asada 1987-01 This book describes the design concept and discusses the control issues related to the performance of a direct-drive robot, specifically, a direct-drive mechanical arm capable of carrying up to 10 kilograms, at 10 meters per second, accelerating at 5 G (a unit of acceleration equal to the acceleration of gravity). These remarkable achievements compared to current industrial robots that move with speeds on the order of 1 meter per second.Direct-Drive Robot presents the most current research in manipulator design and control, emphasizing the high-performance direct-drive robot arm in which the shafts of articulated joints are directly coupled to the motors of high torque. It describes fundamental technologies of key components such as motors, amplifiers and sensors, arm linkage design, and control system design, and makes significant contributions in the areas of power efficiency analysis, dynamic mass balancing, and decoupling theory. The book provides a good balance between theory and practice, covering the practical design and implementation of this special robot as well as the theoretical design tools. Contents: Part I: Direct-Drive Technologies. Introduction. Components. Part II: Arm Design Theory. Power Efficiency. Arm Design for Simplified Dynamics. Actuator Relocation. Design of Decoupled Arm Structures. Part III: Development of the MIT Arm. Mechanisms. Control Systems. Part IV: Selected Papers on Direct-Drive Robot Design and Control. Harushiko Asada is an Associate Professor, Kyoto University, and Lecturer at MIT He has built two prototypes of this direct-drive arm described here. Kameshwar Trivedi is an Assistant Professor, Department of Mechanical Engineering, System Dynamics and Controls Division at MIT. He has worked for three years with Asada on the development of the MIT high speed direct-drive robot.
