Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering)

By M.D. Zivanovic, M. Vukobratovic

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic

Several consistent solutions for cooperative system control have recently been identified by the authors of the current monograph. This was achieved by solving three separate tasks that are essential for solving the problem of cooperative manipulation as a whole. The first task is related to the understanding of the physical nature of cooperative manipulation and finding a way for a sufficiently exact characterization of cooperative system statics, kinematics and dynamics. After successfully completing this task, in the frame of the second task, the problem of coordinated motion of the cooperative system is solved. Finally, as a solution to the third task, the control laws of cooperative manipulation are synthesized.

The starting point in dealing with the above three tasks of cooperative manipulation was the assumption that the problem of force uncertainty in cooperative manipulation can be resolved by introducing elastic properties into the cooperative system, at least in the part where force uncertainty appears. In static and dynamic analysis of the elastic structure of cooperative systems the finite element method is applied. In contrast to the procedure used in the major part of the available literature where deformation work is expressed by deviations from the unloaded state of fixed elastic structure, in this monograph the deformation work is expressed by internal forces as a function of the absolute coordinates of contacts of mobile elastic structure. Coordinated motion and control in cooperative manipulation are solved as the problem of coordinated motion and control of a mobile elastic structure, taking into account the specific features of cooperative manipulation. Coordinated motion and control laws in cooperative manipulation are synthesized on the basis of a non-linear model where the problem of uncertainty is solved, which is not the case in the available literature. Simple examples demonstrate the consistent procedure of mathematical modeling and synthesis of nominal coordinated motion, as well as control of the cooperative system.

This book will be useful to a wide audience of engineers, ranging from undergraduate and graduate students, new and advanced academic researchers, to practitioners (mechanical and electrical engineers, computer and system

scientists). It is intended for readers whose work involves manufacturing, industrial, robotics, automation, computer and control engineering, and who wish to find out about this important new technology and its potential advantages for control engineering applications.

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering)

By M.D. Zivanovic, M. Vukobratovic

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic

Several consistent solutions for cooperative system control have recently been identified by the authors of the current monograph. This was achieved by solving three separate tasks that are essential for solving the problem of cooperative manipulation as a whole. The first task is related to the understanding of the physical nature of cooperative manipulation and finding a way for a sufficiently exact characterization of cooperative system statics, kinematics and dynamics. After successfully completing this task, in the frame of the second task, the problem of coordinated motion of the cooperative system is solved. Finally, as a solution to the third task, the control laws of cooperative manipulation are synthesized.

The starting point in dealing with the above three tasks of cooperative manipulation was the assumption that the problem of force uncertainty in cooperative manipulation can be resolved by introducing elastic properties into the cooperative system, at least in the part where force uncertainty appears. In static and dynamic analysis of the elastic structure of cooperative systems the finite element method is applied. In contrast to the procedure used in the major part of the available literature where deformation work is expressed by deviations from the unloaded state of fixed elastic structure, in this monograph the deformation work is expressed by internal forces as a function of the absolute coordinates of contacts of mobile elastic structure. Coordinated motion and control in cooperative manipulation are solved as the problem of coordinated motion and control of a mobile elastic structure, taking into account the specific features of cooperative manipulation. Coordinated motion and control laws in cooperative manipulation are synthesized on the basis of a non-linear model where the problem of uncertainty is solved, which is not the case in the available literature. Simple examples demonstrate the consistent procedure of mathematical modeling and synthesis of nominal coordinated motion, as well as control of the cooperative system.

This book will be useful to a wide audience of engineers, ranging from undergraduate and graduate students, new and advanced academic researchers, to practitioners (mechanical and electrical engineers, computer and system scientists). It is intended for readers whose work involves manufacturing, industrial, robotics, automation, computer and control engineering, and who wish to find out about this important new technology and its potential advantages for control engineering applications.

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic Bibliography

- Sales Rank: #5036808 in Books
- Brand: Brand: Springer

- Published on: 2006-02-10
- Original language: English
- Number of items: 1
- Dimensions: 9.21" h x .75" w x 6.14" l, 1.34 pounds
- Binding: Hardcover
- 288 pages

Download and Read Free Online Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic

Editorial Review

About the Author

Users Review

From reader reviews:

David Pimentel:

The book Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) give you a sense of feeling enjoy for your spare time. You can utilize to make your capable more increase. Book can to become your best friend when you getting pressure or having big problem with your subject. If you can make examining a book Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) to be your habit, you can get more advantages, like add your current capable, increase your knowledge about several or all subjects. You could know everything if you like open up and read a e-book Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering). Kinds of book are a lot of. It means that, science e-book or encyclopedia or other people. So , how do you think about this guide?

Wilma Bates:

The book with title Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) posesses a lot of information that you can discover it. You can get a lot of advantage after read this book. This book exist new understanding the information that exist in this guide represented the condition of the world at this point. That is important to yo7u to know how the improvement of the world. This specific book will bring you throughout new era of the globalization. You can read the e-book in your smart phone, so you can read it anywhere you want.

Peter Christensen:

Reading a book to get new life style in this 12 months; every people loves to study a book. When you go through a book you can get a wide range of benefit. When you read guides, you can improve your knowledge, since book has a lot of information upon it. The information that you will get depend on what types of book that you have read. If you want to get information about your study, you can read education books, but if you act like you want to entertain yourself look for a fiction books, this kind of us novel, comics, as well as soon. The Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) will give you a new experience in studying a book.

John Johnson:

That publication can make you to feel relax. That book Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) was multi-colored and of course has pictures around. As we know that book Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) has many kinds or genre. Start from kids until young adults. For example Naruto or Private eye Conan you can read and believe that you are the character on there. Therefore , not at all of book are make you bored, any it makes you feel happy, fun and relax. Try to choose the best book for you and try to like reading which.

Download and Read Online Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic #VGSQ60I2JB8

Read Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic for online ebook

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic books to read online.

Online Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic ebook PDF download

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic Doc

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic Mobipocket

Multi-Arm Cooperating Robots: Dynamics and Control (Intelligent Systems, Control and Automation: Science and Engineering) By M.D. Zivanovic, M. Vukobratovic EPub