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Inverse geometric model of decoupled six degree-of-freedom robots; 4.5. Inverse geometric model of general robots; 4.6. Conclusion; Chapter 5. Direct kinematic model of serial robots; 5.1. Introduction; 5.2. Computation of the Jacobian matrix from the direct geometric model; 5.3. Basic Jacobian matrix; 5.4. Decomposition of the Jacobian matrix into three matrices; 5.5. Efficient computation of the end-effector velocity; 5.6. Dimension of the task space of a robot; 5.7. Analysis of the robot workspace 5.8. Velocity transmission between joint space and task space 5.9. Static model; 5.10. Second order kinematic model; 5.11. Kinematic model associated with the task coordinate representation; 5.12. Conclusion; Chapter 6. Inverse kinematic model of serial robots; 6.1 Introduction; 6.2. General form of the kinematic model; 6.3. Inverse kinematic model for a regular case; 6.4. Solution in the neighborhood of singularities; 6.5. Inverse kinematic model of redundant robots; 6.6. Numerical calculation of the inverse geometric problem; 6.7. Minimum description of tasks; 6.8. Conclusion Chapter 7. Geometric and kinematic models of complex chain robots 7.1. Introduction; 7.2. Description of tree structured robots; 7.3. Description of robots with closed chains; 7.4. Direct geometric model of tree structured robots; 7.5. Direct geometric model of robots with closed chains; 7.6. Inverse geometric model of closed chain robots; 7.7. Resolution of the geometric constraint equations of a simple loop; 7.8. Kinematic model of complex chain robots; 7.9. Numerical calculation of q_p and q_c in terms of q_a ; 7.10. Number of degrees of freedom of robots with closed chains 7.11. Classification of singular positions

Sommario/riassunto

Written by two of Europe's leading robotics experts, this book provides the tools for a unified approach to the modelling of robotic manipulators, whatever their mechanical structure. No other publication covers the three fundamental issues of robotics: modelling, identification and control. It covers the development of various mathematical models required for the control and simulation of robots.

- World class authority
- Unique range of coverage not available in any other book
- Provides a complete course on robotic control at an undergraduate and graduate level

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Sommario/riassunto	BarCharts' best-selling quick reference to biology has been updated and expanded in this latest edition. With updated content and an additional panel of information, this popular guide is not only an essential companion for students in introductory biology courses but also a must-have refresher for students in higher-level courses. Author Randy Brooks, PhD, a scientist and university professor, has a gift for making the complicated subject of biology easy to understand, from evolution to population genetics--without the fluff. In this new edition, you will find more coverage of the subject, including expanded sections on reproduction in animals, as well as helpful illustrations and diagrams, making this a study tool you won't want to be without.