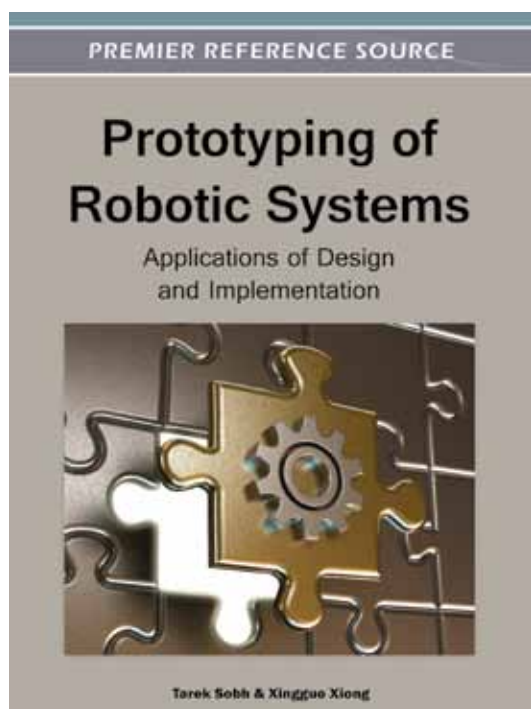


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Prototyping of Robotic Systems: Applications of Design and Implementation



Tarek Sobh (University of Bridgeport, USA) and
Xingguo Xiong (University of Bridgeport, USA)

As a segment of the broader science of automation, robotics has achieved tremendous progress in recent decades due to the advances in supporting technologies such as computers, control systems, cameras and electronic vision, as well as micro and nanotechnology. Prototyping a design helps in determining system parameters, ranges, and in structuring an overall better system. Robotics is one of the industrial design fields in which prototyping is crucial for improved functionality.

Prototyping of Robotic Systems: Applications of Design and Implementation provides a framework for conceptual, theoretical, and applied research in robotic prototyping and its applications. Covering the prototyping of various robotic systems including the complicated industrial robots, the tiny and delicate nanorobots, medical robots for disease diagnosis and treatment, as well as the simple robots for educational purposes, this book is a useful tool for those in the field of robotics prototyping and as a general reference tool for those in related fields.

Topics Covered:

- Medical robotics: Robotic Systems for Medical Applications
- Methodology and Case Studies for Prototyping Robotic Systems
- Modeling and Simulation of Discrete Event Robotic Systems
- Optimal Design of Three-link Planar Manipulators Using Grashof's Criterion
- Prototyping Autonomous Multi-robot Systems for Search, Rescue and Reconnaissance
- Prototyping Bipedal Humanoid Robots
- Prototyping Fully Autonomous Indoor Patrolling Mobile Robots
- Prototyping Portable Haptic Arm Exoskeleton
- Prototyping Unmanned Aerial Vehicle Platform for Personal Remote Sensing
- Robotic Hardware and Software Integration for Changing Human Intentions

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Tarek M. Sobh received the B.Sc. in Engineering degree with honors in Computer Science and Automatic Control from the Faculty of Engineering at Alexandria University of Egypt in 1988, and M.S. and Ph.D. degrees in Computer and Information Science from the School of Engineering, University of Pennsylvania in 1989 and 1991. He is currently the Vice President for Graduate Studies and Research, Dean of the School of Engineering and Distinguished Professor of Engineering and Computer Science at the University of Bridgeport (UB), Connecticut; the Founding Director of the Interdisciplinary Robotics, Intelligent Sensing, and Control (RISC) laboratory; the Founder of the High-Tech Business Incubator at UB (CTech IncUBator), and a Professor of Computer Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering.



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