



Advances in telerobotics

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Ferré, M.

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Monografía

The main purpose of this book is to provide readers with recent advances in the field of Telerobotics. It describes methods, experimental results, applications, and developments, highly relevant for scientists, researchers, and students in Teleoperation. This book is structured in three parts: I. Human System Interfaces, II. Control, and III. Applications. Chapters in part I concentrate on human interface technology which allows a human operator to close the control loop of a remote robot. Topics related to control algorithms - in particular for the case with time delay in the communication network - are the focus in part II, concentrating on bilateral control methods. Part III presents a variety of advanced applications in surgery, space, and other fields relevant to everyday life. The book is complemented by a CD containing fifteen research videos, which make the contents of the book even more descriptive

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Contenido: To Advances in Telerobotics -- to Advances in Telerobotics -- Human System Interfaces -- The Human Role in Telerobotics -- Design, Control, and Evaluation of a Hyper-redundant Haptic Device -- A Novel Parallel Haptic Interface for Telerobotic Systems -- Exoskeletons as Man-Machine Interface Systems for Teleoperation and Interaction in Virtual Environments -- Stereoscopic Image Visualization for Telerobotics. Experiments with Active Binocular Cameras -- Stereoscopic 3-D Acquisition, Processing, and Display for Telerobotic Applications -- User Voice Assistance Tool for Teleoperation -- Computer Vision Body Modeling for Gesture Based Teleoperation -- Enhanced Teleoperation Through Virtual Reality Techniques -- Control -- Bilateral Control Architectures for Telerobotics -- Experimental Results on Bilateral Control Using an Industrial Telemanipulator -- Human Perceived Transparency with Time Delay -- Environment Estimation in Teleoperation Systems -- Power Scaling in Port-Hamiltonian Telemanipulation over Packet Switched Networks -- Adaptive Synchronization of Bilateral Teleoperators with Time Delay -- Bilateral Control of Teleoperation Systems Through

State Convergence -- Re-configurable Control Scheme for Guiding Telerobotics -- Teleprogramming: Capturing the Intention of the Human Operator -- Applications -- DLR's Advanced Telerobotic Concepts and Experiments for On-Orbit Servicing -- Underwater Telerobotics for Collaborative Research -- Robot Assisted Force Feedback Surgery -- Telerobotic Control by Virtual Fixtures for Surgical Applications -- Technologies for a Telesurgery Laboratory Implementation -- Proprio and Teleoperation of a Robotic System for Disabled Persons' Assistance in Domestic Environments -- Internet-Based Tele-Laboratory: Remote Experiments Using the SNRP Distributed Network Architecture -- Force Reflecting Teleoperation Via IPv6 Protocol with Geometric Constraints Haptic Guidance -- Telerobotics for Aerial Live Power Line Maintenance -- Advanced Telerobotics: Dual-Handed and Mobile Remote Manipulation

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