

Preface

Successful interaction with products, tools, and technologies depends on usable designs and accommodating the needs of potential users without requiring costly training. In this context, this book is concerned with emerging ergonomics in design concepts, theories and applications of human factors knowledge focusing on the discovery, design and understanding of human interaction, and usability issues with products and systems for their improvement.

This book will be of special value to a large variety of professionals, researchers, and students in the broad field of human modeling and performance, who are interested in feedback of devices' interfaces (visual and haptic), virtual reality, user-centered design, design for special populations, particularly the elderly and assistive technology. We hope this book is informative, but even more that it is thought provoking. We hope it inspires, leading the reader to contemplate other questions, applications, and potential solutions in creating good designs for all.

This book is organized into eleven sections focusing on the following subject matters: Virtual Reality Challenges, Devices and User Interfaces and Digital Environment, User Studies, Product Design and Evaluation, and Prospective Ergonomics. In the sections that cover Assistive Technology and User Interfaces, the focus is on optimization of user devices, with emphasis on visual and haptic feedback. In the sections that cover Product Design and Human Work Interactions, the focus goes to the limits and capabilities of special populations, particularly the elderly, which can influence the design. Generally, the effect of changes in force and kinematics, physiology, cognitive performance, in the design of consumer products, tools, and workplaces is discussed. The sections that cover Virtual Reality and Digital Environment, Product and Design Evaluation and Sustainable Design employs a variety of research methods and user-centered evaluation approaches, for developing products that can improve safety and human performance and at same time the efficiency of the system. Usability evaluations are reported for different kinds of products and technologies.

Section 1: Virtual Reality Challenges in Design

Section 2: Product Design and Human Work Interactions

Section 3: Interaction and Interface Design

Section 4: Methodology Issues in Design

Section 5: Prospective Ergonomics

Section 6: Assistive Technology I

Section 7: Assistive Technology II

Section 8: Ergonomics Design and Evaluation

Section 9: Design for High Performance and Comfort

Section 10: Ergonomics in Clothing, Fashion and Footwear Design

Section 11: Anthropometry in Design

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We would like to thank the Editorial Board members for their contributions.

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