

# Preface

Successful interaction with products, tools, and technologies depends on usable designs and accommodating the needs of potential users without requiring costly training. This book is concerned with emerging 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), user-centered design, and design for special populations, particularly the elderly. 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 seven parts that focus on the following subject matters: usability evaluation, devices and user interfaces, assistive technology and accessibility, interface design, user studies, product design and evaluation, and sustainable design. In the parts that cover devices and user interfaces and ergonomics modeling for industry, the focus is on the optimization of user devices, with an emphasis on visual and haptic feedback. In the parts that cover user studies, the focus goes to the limits and capabilities of special populations, particularly the elderly, which can influence the design. Generally, the effect of changes on force and kinematics, physiology, and cognitive performance in the design of consumer products, tools, and workplaces is discussed. The parts that cover environmental design, product and design evaluation, and sustainable design employ a variety of research methods and user-centered evaluation approaches, for developing products that can improve safety and human performance and at the same time the efficiency of the system. Usability evaluations are reported for different kinds of products and technologies.

*Part 1: Applied Design, Modeling and Usability Evaluation I*

*Part 2: Applied Design, Modeling and Usability Evaluation II*

*Part 3: Ergonomics and Design for All*

*Part 4: Ergonomics and Environmental Design*

*Part 5: Ergonomic Design, Assistive Technology and Accessibility*

*Part 6: Interface Design and Usability Evaluation for Healthcare and Safety*

*Part 7: Ergonomics Modeling for Industry*

We hope that this book will inspire leading the reader to contemplate other questions, applications, and potential solutions in creating good designs for all. We would like to thank the Editorial Board members for their contributions.

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