# *Advances in*

# *Ergonomics In Design, Usability & Special Populations*

## *Part III*

## *Advances in Human Factors and Ergonomics 2014*

## *5th International Conference on Applied Human Factors and Ergonomics*

## *20 Volume Set: Proceedings of the 5th AHFE Conference 19-23 July 2014*

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# *Advances in*

# *Ergonomics In Design, Usability & Special Populations*

## *Part III*

*Edited By*

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***Published by AHFE Conference © 2014***

*Published by AHFE Conference © 2014*



Printed in the United States of America on acid-free paper

Version Date: 20140710

International Standard Book Number: 978-1-4951-2108-1 (Hardback)



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# 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), 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.

The book is organized into three volumes with a total of thirty-eight sections that focus on the following subject matters: Devices and user interfaces, Virtual Reality and Digital Environment , User Studies, Product Design and Evaluation, and Sustainable Design. In the sections that cover "Devices and user interfaces" the focus is on optimization of user devices, with emphasis on visual and haptic feedback. In the sections 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 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.

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July 2014

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