Advances in Intelligent Systems and Computing

Volume 602

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The series “Advances in Intelligent Systems and Computing” contains publications on theory, applications, and design methods of Intelligent Systems and Intelligent Computing. Virtually all disciplines such as engineering, natural sciences, computer and information science, ICT, economics, business, e-commerce, environment, healthcare, life science are covered. The list of topics spans all the areas of modern intelligent systems and computing.

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Advances in Human Factors and Ergonomics 2017

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8th International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences
Proceedings of the AHFE 2017 International Conference on Physical Ergonomics and Human Factors, July 17–21, 2017, The Westin Bonaventure Hotel, Los Angeles, California, USA

<table>
<thead>
<tr>
<th>Advances in Affective and Pleasurable Design</th>
<th>WonJoon Chung and Cliff (Sungsoo) Shin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advances in Neuroergonomics and Cognitive Engineering</td>
<td>Carryl Baldwin</td>
</tr>
<tr>
<td>Advances in Design for Inclusion</td>
<td>Giuseppe Di Bucchianico and Pete Kercher</td>
</tr>
<tr>
<td>Advances in Ergonomics in Design</td>
<td>Francisco Rebelo and Marcelo Soares</td>
</tr>
<tr>
<td>Advances in Human Error, Reliability, Resilience, and Performance</td>
<td>Ronald L. Boring</td>
</tr>
<tr>
<td>Advances in Human Factors and Ergonomics in Healthcare and Medical Devices</td>
<td>Vincent G. Duffy and Nancy Lightner</td>
</tr>
<tr>
<td>Advances in Human Factors in Simulation and Modeling</td>
<td>Daniel N. Cassenti</td>
</tr>
<tr>
<td>Advances in Human Factors and System Interactions</td>
<td>Isabel L. Nunes</td>
</tr>
<tr>
<td>Advances in Human Factors in Cybersecurity</td>
<td>Denise Nicholson</td>
</tr>
<tr>
<td>Advances in Human Factors, Business Management and Leadership</td>
<td>Jussi Kantola, Tibor Barath and Salman Nazir</td>
</tr>
<tr>
<td>Advances in Human Factors in Robots and Unmanned Systems</td>
<td>Jessie Chen</td>
</tr>
<tr>
<td>Advances in Human Factors in Training, Education, and Learning Sciences</td>
<td>Terence Andre</td>
</tr>
<tr>
<td>Advances in Human Aspects of Transportation</td>
<td>Neville A. Stanton</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advances in Human Factors, Software, and Systems Engineering</td>
<td>Tareq Z. Ahram and Waldemar Karwowski</td>
</tr>
<tr>
<td>Advances in Human Factors in Energy: Oil, Gas, Nuclear and Electric</td>
<td>Paul Fechtelkotter and Michael Legatt</td>
</tr>
<tr>
<td>Power Industries</td>
<td></td>
</tr>
<tr>
<td>Advances in Human Factors, Sustainable Urban Planning and Infrastructure</td>
<td>Jerzy Charytonowicz</td>
</tr>
<tr>
<td>Advances in the Human Side of Service Engineering</td>
<td>Louis E. Freund and Wojciech Cellary</td>
</tr>
<tr>
<td>Advances in Physical Ergonomics and Human Factors</td>
<td>Ravindra Goonetilleke and Waldemar Karwowski</td>
</tr>
<tr>
<td>Advances in Human Factors in Sports, Injury Prevention and Outdoor</td>
<td>Tareq Z. Ahram</td>
</tr>
<tr>
<td>Recreation</td>
<td></td>
</tr>
<tr>
<td>Advances in Safety Management and Human Factors</td>
<td>Pedro Arezes</td>
</tr>
<tr>
<td>Advances in Social &amp; Occupational Ergonomics</td>
<td>Richard Goossens</td>
</tr>
<tr>
<td>Advances in Ergonomics of Manufacturing: Managing the Enterprise of</td>
<td>Stefan Trzcielinski</td>
</tr>
<tr>
<td>the Future</td>
<td></td>
</tr>
<tr>
<td>Advances in Usability and User Experience</td>
<td>Tareq Ahram and Christianne Falcão</td>
</tr>
<tr>
<td>Advances in Human Factors in Wearable Technologies and Game Design</td>
<td>Tareq Ahram and Christianne Falcão</td>
</tr>
<tr>
<td>Advances in Communication of Design</td>
<td>Amic G. Ho</td>
</tr>
<tr>
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<td>Mark Hoffman</td>
</tr>
</tbody>
</table>
The discipline of human factors and ergonomics (HF/E) is concerned with the design of products, process, services, and work systems to assure their productive, safe, and satisfying use by people. Physical ergonomics involves the design of working environments to fit human physical abilities. By understanding the constraints and capabilities of the human body and mind, we can design products, services, and environments that are effective, reliable, safe, and comfortable for everyday use.

A thorough understanding of the physical characteristics of a wide range of people is essential in the development of consumer products and systems. Human performance data serve as valuable information to designers and help ensure that the final products will fit the targeted population of end users. Mastering physical ergonomics and safety engineering concepts is fundamental to the creation of products and systems that people are able to use, avoidance of stresses, and minimization of the risk for accidents.

This book focuses on the advances in the physical HF/E, which are a critical aspect in the design of any human-centered technological system. The ideas and practical solutions described in the book are the outcome of dedicated research by academics and practitioners aiming to advance theory and practice in this dynamic and all-encompassing discipline. A total of seven sections presented in this book:

I. Biomechanics and Ergonomic Modeling
II. Ergonomic Evaluation and Interventions
III. Physical Ergonomics Applications
IV. Risk Assessment and Management
V. Movement and Balance
VI. Applied Ergonomics in Fashion Design and Sports Technology
VII. Ergonomic Performance of Work Systems

Each section contains research that has been reviewed by members of the International Editorial Board. Our sincere thanks and appreciation to the Board members as listed below:
We hope that this book, which is the international state of the art in physical domain of human factors, will be a valuable source of theoretical and applied knowledge enabling human-centered design of variety of products, services, and systems for global markets.

July 2017

Ravindra Goonetilleke

Waldemar Karwowski
Contents

Biomechanics and Ergonomic Modeling

Hand Arm Vibration, Grip Strength Assessment and the Prevalence of Health Disorders Among Stone Crushing Workers ............... 3
Zahid Rashid, Muhammad Shafiq, Paola Cocca, Filippo Marciano, and Aisha Tayyab

Understanding Shoulder Injury ........................................ 14
Stephen Morrissey

Firing of a Cannon: Biomechanical Evaluation of Ergonomic Hazards .................................................. 23
Theresa Stack and Lee Ostrom

The Effects of a Combined Hip Flexion and Pelvis Movement Intervention on Postural Stability, Spinal Loading and Lumbar Flexion When Reaching and Lifting ............. 34
Grant A. Mawston, Wayne Milicich, and Mark G. Boocock

A Pilot Study of Gender Differences on Anthropometric Measurements in Singapore Population .......................... 42
Yu-Chi Lee, Chun-Hsien Chen, and Li Pheng Khoo

Anthropometric Evaluation of the Design of the Classroom Desk for the Eighth and the Ninth Grades of Benghazi Schools .......... 52
Ahamed Altaboli, Naja Nawras, Ahmed Mahdi, Hanin Alzardomi, Mohammed Alyseri, and Mhammed Alkendi

The Biomechanics and Ergonomics of the Impact of Anti-fatigue Mats on Decreasing Whole Body Vibration ....................... 60
Redha Taiar, Xavier Chiementin, Ellie Abdi, Guillaume Polidori, and Tareq Ahram
Ergonomic Evaluation and Interventions

Development of an Ergonomic Evaluation Tool for Health-Promoting Physical Workplaces ............................................. 69
Manfred Dangelmaier and Pablo Theissen

A Study of Incentive Stimulating Human Error Activity on Public Service. ................................................................. 75
Risako Shiraishi, Minami Wakata, Kumiko Takahashi, and Yusaku Okada

An Interview Study on Children’s Spectacle Frame Fit .............. 81
Jiaxin Zhang and Yan Luximon

A Comparative Study of the Effects of Electrical Stimulation and Intermittent Compressive Forces on Soft Tissue Mechanical Properties .................................................. 89
Ben-Yi Liau, Chien-Liang Chen, Yih-Kuen Jan, Hsin-Ying Chiu, Pei-Syuan He, and Chi-Wen Lung

Prospective Design of Seating Systems for Digitalized Working Worlds ................................................................. 98
Nico Feller, Ulf Müller, Kim-Hoa Huynh, Wolfgang Potthast, Thomas Dupré, and Joanna Funck

Human Factors Field Evaluation of a Blast Debris Protection Design Concept .................................................. 106
Katherine Blake Mitchell, Jay McNamara, and Kristine Isherwood

An Ergonomic Analysis of the Traditional Sorbetes Cart ............ 114
Angela Marie Fausto, Carla Ocampo, Krisella Robles, and Benette Custodio

Adoption of Construction Ergonomic Interventions on Building Construction Sites in Nigeria .......................... 124
Ibrahim AbdulHafeez and John Smallwood

The Impact of Ergonomics Interventions on Musculoskeletal Injuries Among Construction Workers .................. 134
Emmanuel Bamfo-Agyei and Lawrence Atepor

Assessment in Office Work and Productivity ............................. 145
Jenny Rodriguez-García and Fernanda Maradei

Evaluation of Bodily Discomfort of Employees in a Slaughterhouse . . . . 153
Adriana Seára Tirloni, Diogo Cunha dos Reis, Eliane Ramos, and Antônio Renato Pereira Moro
Contents

Physical Ergonomics

Use of Soft Tissue Properties for Ergonomic Product Design .......... 165
Parth Shah, Yan Luximon, and Ameersing Luximon

Assessment of Human Balance Due to Recoil Destabilization
Using Smart Clothing .......................................................... 172
Sofia Scataglini, Elie Truyen, Paolo Perego, Johan Gallant,
Damien Van Tiggelen, and Giuseppe Andreoni

Systems Anthropometry of Digital Human Models for Seat Design .... 184
Herbert Reynolds and Gunther Paul

The Veronesi Method - Judicial Expertise for Physical Therapists ...... 196
José Ronaldo Veronesi Jr.

Total Force of Pinch and Grasp by Hand Postures ................. 208
Kyung-Sun Lee and Myung-Chul Jung

Investigation of Musculoskeletal Symptoms and Associated Risk
Factors in the HORECA Sector ........................................... 213
Rute Alves, Rui B. Melo, and Filipa Carvalho

Risk Assessment and Management

Investigation of the Effectiveness of European Assembly Worksheet
in Assessing Organizational Measures for MSD Risk Assessment .... 229
Tobias Hellig, Vera Rick, Robert Stranzenbach, Philipp Przybysz,
Alexander Mertens, and Christopher Brandl

Analysis of Exoskeleton Introduction in Industrial Reality:
Main Issues and EAWS Risk Assessment ............................... 236
Stefania Spada, Lidia Ghibaudo, Silvia Gilotta, Laura Gastaldi,
and Maria Pia Cavatorta

A Successful Ergonomic Solution Based on Lean Manufacturing
and Participatory Ergonomics ............................................. 245
Symone A. Miguez, João F.A. Garcia Filho, José Eduardo Faustino,
and Anderson A. Gonçalves

Assessments of Ergonomic Risks in Banana Cultivation and
Production ................................................................. 258
Oswaldo Jara, Fanny Ballesteros, and Esteban Carrera

A Proposal for Field-Oriented System to Support Medical Risk
Management. Support of Risk Management in Small
and Medium Sized Hospital ............................................... 264
Akifumi Hiranuma and Yusaku Okada
Risk of Developing Musculoskeletal Disorders in a Meat Processing Plant ............................................. 271
Diogo Cunha dos Reis, Adriana Seára Tirloni, Eliane Ramos, and Antônio Renato Pereira Moro

Work Related Musculoskeletal Disorders (WRMSD) in Construction Workers and Main Causes ....................... 279
Zenija Roja, Henrijs Kalkis, Inara Roja, and Janis Zalkalns

Ultraviolet Radiation in Sunlight and Artificial Lighting Systems: Are They Alike? ............................... 287
Sandra Preto and Cristina Caramelo Gomes

Ergonomic Risks of Physical Load on Administrative Workers in a Higher Education Institution 2015-Cartagena .................. 299
Irina Escudero

Movement and Balance
What are the Major Risk Factors for Falls Among Community-Dwelling Korean Older Women? ..................... 311
Taekyoung Kim and Shuping Xiong

Acupuncture/Acupressure for Knee Osteoarthritis (OA) Relieving in the Elderly: A Review .......................... 323
Zidan Gong, Winnie Yu, Thomas Wong, and Yuanqi Guo

Effect of Motion Type and Inclination on Muscle Activity and Edema ................................................. 335
Vishnu Mahesh, Yueqing Li, and Brian Craig

Applied Ergonomics in Fashion Design and Sports Technology
Women’s Clothing Choices are Being Inhibited by Poor Fit ........ 345
Tanya Dove

Reading Task Investigation of the Kindle app in Three Mediums .... 357
Kimberly Anne Sheen, Yan Luximon, and Jiaxin Zhang

Fashion Education Innovations Based on Ergonomic Design ........ 365
Hong Wu, Huang Chao, and Ameersing Luximon

An Explorative Study of Elderly Fashion ................................. 372
Huang Chao, Ameersing Luximon, Chit Sin Cheung, and Yan Mo

Old Fashion to New Fashion: The Creative Fashion Design Concepts from Nail Cover of Qing Dynasty ................... 380
Yan Mo, Huang Chao, and Zhimei Kan
Investigation on Human Body Movements and the Resulting Body Measurement Variations .......................... 387
Ningrong Xie and P.Y. Mok

Ergonomic Performance of Work Systems

On Ergonomic Perception ................................................ 403
Emine Koca and Özlem Kaya

Formulation of Field Data Base Model of Productivity for Standalone Sewing Machine Operation Based on Ergonomic Considerations ............. 411
Vishwas Deshpande, Swapna R. Ghatole, and J.P. Modak

Formulation of Field Data Based Model of Human Energy Expenditure During Wheat Grinding Operation Based on Anthropometric and Ergonomic Considerations .......................... 422
Abhijeet A. Agashe and Vishwas S. Deshpande

Posture Analysis of Face Drilling Operation in Underground Mines in India: A Case Study ........................................ 435
Rahul Mondal and Pradip Kumar Ray

Heart Rate Based Evaluation of Operator Fatigue and Its Effect on Performance During Pipeline Work ................................. 446
Yanbin Wu, Takashi Miwa, and Makoto Uchida

Assessment of Heat Stress Impacts on Construction Workers: A South African Exploratory Study ......................... 455
Katlane Seema and Clinton Aigbavboa

Characteristics of Cutting Performance for Japanese Sewing Scissors Made by the “So-hizukuri” Forging Process ......................... 466
Yasuko Kitajima, Hayato Nakatani, Akihiko Goto, and Hiroyuki Hamada

Eye Movement Analysis of Japanese Sewing Scissors Craftsman ....... 479
Yasuko Kitajima, Hayato Nakatani, Yoichiro Ogura, Akihiko Goto, Hiroyuki Hamada, and Norimichi Nanami

Investigation on Effect of Mattress Hardness on Sleep Comfort of Middle-Aged and Old Women .......................... 491
Huimin Hu, Fan Yang, Chaoyi Zhao, Hong Luo, Ying Zhang, Linghua Ran, Xin Zhang, and Haimei Wu

Author Index ................................................................. 503