### **Advances in Intelligent Systems and Computing**

### Volume 1219

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Isabella Corradini · Enrico Nardelli · Tareq Ahram Editors

# Advances in Human Factors in Cybersecurity

AHFE 2020 Virtual Conference on Human Factors in Cybersecurity, July 16–20, 2020, USA



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# **Advances in Human Factors and Ergonomics 2020**

AHFE 2020 Series Editors

Tareq Z. Ahram, Florida, USA Waldemar Karwowski, Florida, USA



11th International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences

AHFE 2020 Virtual Conference on Human Factors in Cybersecurity, July 16–20, 2020, USA

Advances in Neuroergonomics and Cognitive Engineering	Hasan Ayaz and Umer Asgher
Advances in Industrial Design	Giuseppe Di Bucchianico, Cliff Sungsoo Shin, Scott Shim, Shuichi Fukuda, Gianni Montagna and Cristina Carvalho
Advances in Ergonomics in Design	Francisco Rebelo and Marcelo Soares
Advances in Safety Management and Human Performance	Pedro M. Arezes and Ronald L. Boring
Advances in Human Factors and Ergonomics in Healthcare and Medical Devices	Jay Kalra and Nancy J. Lightner
Advances in Simulation and Digital Human Modeling	Daniel N Cassenti, Sofia Scataglini, Sudhakar L. Rajulu and Julia L. Wright
Advances in Human Factors and Systems Interaction	Isabel L. Nunes
Advances in the Human Side of Service Engineering	Jim Spohrer and Christine Leitner
Advances in Human Factors, Business Management and Leadership	Jussi Ilari Kantola, Salman Nazir and Vesa Salminen
Advances in Human Factors in Robots, Drones and Unmanned Systems	Matteo Zallio
Advances in Human Factors in Cybersecurity	Isabella Corradini, Enrico Nardelli and Tareq Ahram

(continued)

### (continued)

Advances in Human Factors in Training, Education, and Learning Sciences	Salman Nazir, Tareq Ahram and Waldemar Karwowski
Advances in Human Aspects of Transportation	Neville Stanton
Advances in Artificial Intelligence, Software and Systems Engineering	Tareq Ahram
Advances in Human Factors in Architecture, Sustainable Urban Planning and Infrastructure	Jerzy Charytonowicz
Advances in Physical, Social & Occupational Ergonomics	Waldemar Karwowski, Ravindra S. Goonetilleke, Shuping Xiong, Richard H.M. Goossens and Atsuo Murata
Advances in Manufacturing, Production Management and Process Control	Beata Mrugalska, Stefan Trzcielinski, Waldemar Karwowski, Massimo Di Nicolantonio and Emilio Rossi
Advances in Usability, User Experience, Wearable and Assistive Technology	Tareq Ahram and Christianne Falcão
Advances in Creativity, Innovation, Entrepreneurship and Communication of Design	Evangelos Markopoulos, Ravindra S. Goonetilleke, Amic G. Ho and Yan Luximon

### **Preface**

This book deals with role of the human factors in cybersecurity. It is in fact the human element what makes the cyberspace the complex and adaptive system it is.

According to international cybersecurity reports, people are both an essential part of the cybersecurity problem and of its solution. Understanding how people behave in the digital environment and the role of human error in successful security attacks is therefore fundamental for developing an effective approach to cybersecurity.

Cyberintrusions and attacks have increased dramatically over the last decade, exposing sensitive personal and business information, disrupting critical operations, and imposing high costs on the economy.

This book gathers studies on the social, economic, and behavioral aspects of the cyberspace and reports on technical and analytical tools for increasing cybersecurity. It describes new education and training methods for management and employees aimed at **raising** cybersecurity awareness. It **discusses** key psychological and organizational factors influencing cybersecurity.

Gathering the proceedings of the AHFE Conference on Human Factors in Cybersecurity, held virtually on July 16–20, 2020, this book offers a comprehensive perspective on ways to manage cybersecurity risks for a range of different organizations and individuals, presenting inclusive, multidisciplinary and integrated approaches combining the technical and behavioral elements.

Contributions have been organized into four sections:

- Section 1 Cognitive Factors, Personality and Decisions Making
- Section 2 Cybersecurity Tools and Analytics
- Section 3 Awareness, Training and Education
- Section 4 Social, Economic and Behavioral Aspects of Cybersecurity

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Each section contains research papers that have been reviewed by members of the International Editorial Board. Our sincere thanks and appreciation to the board members as listed below:

- P. Aggarwal, USA
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July 2020

Isabella Corradini Enrico Nardelli Tareq Ahram

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