

Ergonomic Assessment Method For Cockpit Layout Of Civil

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Human Factors and Ergonomics in Consumer Product Design - Waldemar Karwowski 2011-06-22
Every day we interact with thousands of consumer products. We not only expect them to perform their functions safely, reliably, and efficiently, but also to do it so seamlessly that we don't even think about it. However, with the many factors involved in consumer product design, from the application of human factors and ergonomics principles to reducing risks of malfunction and the total life cycle cost, well, the process just seems to get more complex. Edited by well-known and well-respected experts, the two-volumes of Handbook of Human Factors and Ergonomics in Consumer Product Design simplify this process. The second volume, Human Factors and Ergonomics in Consumer Product Design: Uses and Applications, discusses challenges and opportunities in the design for product safety and focuses on the critical aspects of human-centered design for usability. The book contains 14 carefully selected case studies that demonstrate application of a variety of innovative approaches that incorporate Human Factor and Ergonomics (HF/E) principles, standards, and best practices of user-centered design, cognitive psychology, participatory macro-ergonomics, and mathematical modeling. These case studies also identify many unique aspects of new product development projects, which have adopted a user-centered design paradigm as a way to attend to user requirements. The case studies illustrate how incorporating HF/E principles and knowledge in the design of consumer products can improve levels of user satisfaction, efficiency of use, increase comfort, and assure safety under normal use as well as foreseeable misuse of the product. The book provides a comprehensive source of information regarding new methods, techniques, and software applications for consumer product design.

Digital Human Modeling - Vincent G. Duffy 2011-06-27

This book constitutes the refereed proceedings of the Third International Conference on Digital Human Modeling, ICDHM 2011, held in Orlando, FL, USA in July 2011. The 58 revised papers presented were carefully reviewed and selected from numerous submissions. The papers accepted for presentation thoroughly cover the thematic area of anthropometry applications, posture and motion modeling, digital human modeling and design, cognitive modeling, and driver modeling.

Interventions, Controls, and Applications in Occupational Ergonomics - William S. Marras 2006-02-02

Completely revised and updated, taking the scientific rigor to a whole new level, the second edition of the Occupational Ergonomics Handbook is now available in two volumes. This new organization demonstrates the enormous amount of advances that have occurred in the field since the publication of the first edition. The editors have brought together

Advances in Physical Ergonomics and Safety - Tareq Z. Ahram 2012-07-10

Based on recent research, this book discusses physical ergonomics, which is concerned with human anatomical, anthropometric, physiological and biomechanical characteristics as they relate to physical activity. Topics include working postures, materials handling, repetitive movements, work-related musculoskeletal disorders, workplace layout, safety, and health.

Proceedings of the 14th International Conference on Man-Machine-Environment System Engineering - Shengzhao Long 2014-08-08

The integrated and advanced science research topic man-machine-environment system engineering (MMESE) was first established in China by Professor Shengzhao Long in 1981, with direct support from one of

the greatest modern Chinese scientists, Xuesen Qian. In a letter to Shengzhao Long from October 22nd, 1993, Xuesen Qian wrote: "You have created a very important modern science and technology in China!" MMESE primarily focuses on the relationship between man, machines and the environment, studying the optimum combination of man-machine-environment systems. In this system, "man" refers to people in the workplace (e.g. operators, decision-makers); "machine" is the general name for any object controlled by man (including tools, machinery, computers, systems and technologies), and "environment" describes the specific working conditions under which man and machine interact (e.g. temperature, noise, vibration, hazardous gases etc.). The three goals of optimization of man-machine-environment systems are to ensure safety, efficiency and economy. Proceedings of the 14th International Conference on Man-Machine-Environment System Engineering are an academic showcase of the best papers selected from more than 400 submissions, introducing readers to the top research topics and the latest developmental trends in the theory and application of MMESE. These proceedings are interdisciplinary studies on the concepts and methods of physiology, psychology, system engineering, computer science, environment science, management, education, and other related disciplines. Researchers and professionals working in these interdisciplinary fields and researchers on MMESE related topics will benefit from these proceedings.

Man-Machine-Environment System Engineering: Proceedings of the 21st International Conference on MMESE - Shengzhao Long 2021-09-21

Man-Machine-Environment System Engineering: Proceedings of the 21st Conference on MMESE is the academic showcase of best research papers selected from more than 500 submissions each year. From this book reader will learn the best research topics and the latest development trend in MMESE design theory and other human-centered system application. MMESE focus mainly on the relationship between Man, Machine and Environment. It studies the optimum combination of man-machine-environment systems. In the system, the Man means the working people as the subject in the workplace (e.g. operator, decision-maker); the Machine means the general name of any object controlled by the Man (including tool, Machinery, Computer, system and technology), the Environment means the specially working conditions under which Man and Machine occupy together (e.g. temperature, noise, vibration, hazardous gases etc.). The three goals of the optimization of the system are safety, efficiency and economy. In 1981 with direct support from one of the greatest modern Chinese scientists, Qian Xuesen, Man-Machine-Environment System Engineering (MMESE), the integrated and advanced science research topic was established in China by Professor Shengzhao Long. In the letter to Shengzhao Long, in October 22nd, 1993, Qian Xuesen wrote: "You have created a very important modern science subject and technology in China!"

Engineering Psychology and Cognitive Ergonomics. Cognition and Design - Don Harris 2020-07-10

This book constitutes the proceedings of the 17th International Conference on Engineering Psychology and Cognitive Ergonomics, EPCE 2020, held as part of the 22nd International Conference, HCI International 2020, which took place in Copenhagen, Denmark, in July 2020. The total of 1439 papers and 238 posters included in the 37 HCII 2020 proceedings volumes was carefully reviewed and selected from 6326 submissions. EPCE 2020 includes a total of 60 regular papers; they were organized in topical sections named: mental workload and performance; human physiology, human energy and cognition; cognition and design of complex and safety critical systems; human factors in human autonomy teaming and intelligent systems; cognitive

psychology in aviation and automotive. As a result of the Danish Government's announcement, dated April 21, 2020, to ban all large events (above 500 participants) until September 1, 2020, the HCII 2020 conference was held virtually.

Advances in Physical Ergonomics and Human Factors: Part I - Tareq Ahram 2018-07-19

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. 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 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.

HCI International 2020 – Late Breaking Papers: Digital Human Modeling and Ergonomics, Mobility and Intelligent Environments - Constantine Stephanidis 2020-11-03

This book constitutes late breaking papers from the 22nd International Conference on Human-Computer Interaction, HCII 2020, which was held in July 2020. The conference was planned to take place in Copenhagen, Denmark, but had to change to a virtual conference mode due to the COVID-19 pandemic. From a total of 6326 submissions, a total of 1439 papers and 238 posters have been accepted for publication in the HCII 2020 proceedings before the conference took place. In addition, a total of 333 papers and 144 posters are included in the volumes of the proceedings published after the conference as “Late Breaking Work” (papers and posters). These contributions address the latest research and development efforts in the field and highlight the human aspects of design and use of computing systems. The 42 late breaking papers presented in this volume were organized in topical sections as follows: HCI in Automotive; Interaction in Intelligent Environments; and Digital Human Modeling and Ergonomics.

Human Factors for Civil Flight Deck Design - Don Harris 2017-03-02

Human error is now the main cause of aircraft accidents. However, in many cases the pilot simply falls into a trap that has been left for him/her by the poor design of the flight deck. This book addresses the human factors issues pertinent to the design of modern flight decks. Comprising of invited chapters from internationally recognised experts in human factors and flight deck design, contributions span the world of industry, government research establishments and academia. The book brings together the practical experience of professionals across the human factors and flight deck design disciplines to provide a single, all-encompassing volume. Divided into two main parts, part one of the book examines: the benefits of human engineering; flight deck design process; head down display design; head-up display design; auditory warning systems; flight control systems, control inceptors and aircraft handling qualities; flight deck automation; and human-computer interaction on the flight deck and anthropometrics for flight deck design. Part two is concerned with flight deck evaluation - the human factors evaluation of flight decks; human factors in flight test and the regulatory viewpoint Of interest to all human factors professionals operating in high technology, high-risk dynamic industries as well as those engaged directly in aerospace activities, the book will also be of key importance to engineers with an interest in human factors for flight deck design, academics and third year and post-graduate human factors/ergonomics and psychology students.

Physical Ergonomics and Human Factors - Ravindra S. Goonetilleke • Shuping Xiong 2022-07-24

Physical Ergonomics and Human Factors Proceedings of the 13th International Conference on Applied Human Factors and Ergonomics (AHFE 2022), July 24–28, 2022, New York, USA

Engineering Psychology and Cognitive Ergonomics - Don Harris 2016-07-04

This book constitutes the refereed proceedings of the 13th International Conference on Engineering Psychology and Cognitive Ergonomics, EPCE 2016, held as part of the 18th International Conference on

Human-Computer Interaction, HCII 2016, held in Toronto, ON, Canada, in July 2016. The total of 1287 regular papers and 186 poster papers presented at the HCII 2016 conferences was carefully reviewed and selected from 4354 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of human-computer interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The 47 contributions included in the EPCE proceedings were organized in the following topical sections: mental workload and performance; interaction and cognition; team cognition; cognition in complex and high risk environments; and cognition in aviation.

Digital Human Modeling - Vincent D. Duffy 2007-08-24

This book constitutes the refereed proceedings of the First International Conference on Digital Human Modeling, DHM 2007, held in Beijing, China in July 2007. The papers thoroughly cover the thematic area of digital human modeling, addressing the following major topics: shape and movement modeling and anthropometry, building and applying virtual humans, medical and rehabilitation applications, as well as industrial and ergonomic applications.

Applications of Human Performance Models to System Design - Grant R. McMillan 2013-06-29

The human factors profession is currently attempting to take a more proactive role in the design of man-machine systems than has been characteristic of its past. Realizing that human engineering contributions are needed well before the experimental evaluation of prototypes or operational systems, there is a concerted effort to develop tools that predict how humans will interact with proposed designs. This volume provides an overview of one category of such tools: mathematical models of human performance. It represents a collection of invited papers from a 1988 NATO Workshop. The Workshop was conceived and organized by NATO Research Study Group 9 (RSG.9) on "Modelling of Human Operator Behaviour in Weapon Systems". It represented the culmination of over five years of effort, and was attended by 139 persons from Europe, Canada, and the United States. RSG.9 was established in 1982 by Panel 8 of the Defence Research Group to accomplish the following objectives: * Determine the utility and state of the art of human performance modelling. * Encourage international research and the exchange of ideas. * Foster the practical application of modelling research. * Provide a bridge between the models and approaches adopted by engineers and behavioral scientists. * Present the findings in an international symposium.

Automotive Ergonomics - Nikolaos Gkikas 2016-04-19

In the last 20 years, technological developments have set new standards in driver-vehicle interaction. These developments affect the entire lifecycle, from the moment a customer enters a dealership to examine a prospective vehicle, to the driving experience during the vehicle lifecycle, and the interaction with other road users and facilities in pl

Engineering Psychology and Cognitive Ergonomics. Applications and Services - Don Harris 2013-07-01

This two-volume set (LNAI 8019 and LNAI 8020) constitutes the refereed proceedings of the 10th International Conference on Engineering Psychology and Cognitive Ergonomics, EPCE 2013, held as part of the 15th International Conference on Human-Computer Interaction, HCII 2013, held in Las Vegas, USA in July 2013, jointly with 12 other thematically similar conferences. The total of 1666 papers and 303 posters presented at the HCII 2013 conferences was carefully reviewed and selected from 5210 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of human-computer interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The total of 81 contributions included in the EPCE proceedings were carefully reviewed and selected for inclusion in this two-volume set. The papers included in this volume are organized in the following topical sections: driving and transportation safety, cognitive issues in aviation, military applications, cognitive issues in health and well-being.

Intelligent Human Systems Integration 2019 - Waldemar Karwowski 2019-01-05

This book presents cutting-edge research on innovative human systems integration and human-machine interaction, with an emphasis on artificial intelligence and automation, as well as computational modeling and simulation. It covers a wide range of applications in the area of design, construction and operation of products, systems and services, including lifecycle development and human-technology interaction. The

book describes advanced methodologies and tools for evaluating and improving interface usability, new models, and case studies and best practices in virtual, augmented and mixed reality systems, with a special focus on dynamic environments. It also discusses various factors concerning the human user, hardware, and artificial intelligence software. Based on the proceedings of the 2nd International Conference on Intelligent Human Systems Integration (IHSI 2019), held on February 7–10, 2019, in San Diego, California, USA, the book also examines the forces that are currently shaping the nature of computing and cognitive systems, such as the need to reduce hardware costs; the importance of infusing intelligence and automation; the trend toward hardware miniaturization and power reduction; the need for a better assimilation of computation in the environment; and social concerns regarding access to computers and systems for people with special needs. It offers a timely survey and a practice-oriented reference guide for policy- and decision-makers, human factors engineers, systems developers and users alike.

Technology-Enabled Work-System Design - D. Bijulal 2022-03-02

This volume presents selected papers presented during the 16th International Conference on Humanizing Work and Work Environment (HWWE 2018). The book presents a confluence of ideas on ergonomics and technology implementation to improve workplace environments and work systems to maximize effectiveness and performance. The volume is thematically arranged, with papers covering different aspects of ergonomics and design. The volume will be of use to researchers, practitioners and students working in different fields of ergonomics.

Helicopter Test and Evaluation - Alastair Cooke 2009-02-12

Although a number of texts on helicopter aerodynamics have been written, few have explained how the various theories concerning rotorborne flight underpin practical flight test and evaluation. This book combines theoretical information on aerodynamics, stability, control and performance with details of evaluation methodologies and practical guidance on the conduct of helicopter flight tests. For each topic the relevant theory is explained briefly and followed by details of the practical aspects of testing a conventional helicopter. These include: * safety considerations * planning the tests * the most efficient way to conduct individual flights Where possible typical test results are presented and discussed. The book draws on the authors' extensive experience in flight test and flight test training and will appeal not only to professionals working in the area of rotorcraft test and evaluation, but also to helicopter pilots, rotorcraft designers and manufacturers and final year undergraduates of aeronautical engineering

Human-Computer Interaction. Theory, Methods and Tools - Masaaki Kurosu 2021-07-03

The three-volume set LNCS 12762, 12763, and 12764 constitutes the refereed proceedings of the Human Computer Interaction thematic area of the 23rd International Conference on Human-Computer Interaction, HCII 2021, which took place virtually in July 2021. The total of 1276 papers and 241 posters included in the 39 HCII 2021 proceedings volumes was carefully reviewed and selected from 5222 submissions. The 139 papers included in this HCI 2021 proceedings were organized in topical sections as follows: Part I, Theory, Methods and Tools: HCI theory, education and practice; UX evaluation methods, techniques and tools; emotional and persuasive design; and emotions and cognition in HCI Part II, Interaction Techniques and Novel Applications: Novel interaction techniques; human-robot interaction; digital wellbeing; and HCI in surgery Part III, Design and User Experience Case Studies: Design case studies; user experience and technology acceptance studies; and HCI, social distancing, information, communication and work

Digital Human Modeling. Applications in Health, Safety, Ergonomics and Risk Management - Vincent G. Duffy 2014-05-16

This book constitutes the refereed proceedings of the 5th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management 2014, held as part of the 16th International Conference on Human-Computer Interaction, HCII 2014, held in Heraklion, Crete, Greece in June 2014, jointly with 13 other thematically conferences. The total of 1476 papers and 220 posters presented at the HCII 2014 conferences were carefully reviewed and selected from 4766 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The 65 papers included in this volume are organized in topical sections on modeling

posture and motion; anthropometry, design and ergonomics; ergonomics and human modeling in work and everyday life environments; advances in healthcare; rehabilitation applications; risk, safety and emergency. [Advances in Ergonomics in Design](#) - Francisco Rebelo 2020-07-01

This book provides readers with a timely snapshot of ergonomics research and methods applied to the design, development and prototyping—as well as the evaluation, training and manufacturing—of products, systems and services. Combining theoretical contributions, case studies and reports on technical interventions, it covers a wide range of topics in ergonomic design including ecological design; cultural and ethical aspects in design; interface design, user involvement and human–computer interaction in design; as well as design for accessibility and many others. The book particularly focuses on new technologies such as virtual reality, state-of-the-art methodologies in information design, and human–computer interfaces. Based on the AHFE 2020 Virtual Conference on Ergonomics in Design, held on July 10–16, 2020, the book offers a timely guide for both researchers and design practitioners, including industrial designers, human–computer interaction and user experience researchers, production engineers and applied psychologists.

[Cockpit Displays: Test and Evaluation](#) - Richard L. Newman 2017-03-02

Cockpit Displays is an in-depth examination of the design rationales, test philosophy and test procedures for cockpit systems. Whilst its main emphasis is on cockpit displays, it also includes an important discussion of flight management systems and mission computers. Areas covered include: the cockpit design process, test techniques for flight displays and equipment, and situation awareness testing. Comparing civil and military requirements, it is an important analysis of the lessons learned from test and evaluation and will be of interest to cockpit systems design engineering staff at major airframe manufacturers, procurement executives and program managers at military aircraft program offices and flight test engineers and test pilots.

Advances in Mechanical Design - Jianrong Tan 2017-11-14

Focusing on innovation, these proceedings present recent advances in the field of mechanical design in China and offer researchers, scholars and scientists an international platform to present their research findings and exchange their ideas. In the context of the “Made in China 2025” development strategy, one central aspect of the ICMD2017 was Innovative Design Pushes “Made in China 2025.” The book highlights research hotspots in mechanical design, such as design methodology, green design, robotics and mechanics, and reliability design, while also combining industrial design and mechanical design.

Transdisciplinary Engineering: A Paradigm Shift - C.-H. Chen 2017-07-20

Concurrent Engineering is based on the concept that different phases of a product life cycle should be conducted concurrently and initiated as early as possible within the Product Creation Process (PCP). Its main goal is to increase the efficiency and effectiveness of the PCP and reduce errors in the later stages, and to incorporate considerations for the full lifecycle, through-life operations, and environmental issues of the product. It has become the substantive basic methodology in many industries, and the initial basic concepts have matured and become the foundation of many new ideas, methodologies, initiatives, approaches and tools. This book presents the proceedings of the 24th ISPE Inc. International Conference on Transdisciplinary (formerly: Concurrent) Engineering (TE 2017), held in Singapore, in July 2017. The 120 peer-reviewed papers in the book are divided into 16 sections: air transport and traffic operations and management; risk-aware supply chain intelligence; product innovation and marketing management; human factors in design; human engineering; design methods and tools; decision supporting tools and methods; concurrent engineering; knowledge-based engineering; collaborative engineering; engineering for sustainability; service design; digital manufacturing; design automation; artificial intelligence and data analytics; smart systems and the Internet of Things. The book provides a comprehensive overview of recent advances in transdisciplinary concurrent engineering research and applications, and will be of interest to researchers, design practitioners and educators working in the field.

[Human Factors on the Flight Deck](#) - Katie J. Parnell 2023-05-01

This book presents the Human Factors methodologies and applications thereof that can be utilised across the design, modelling and evaluation stages of the design lifecycle of new technologies entering future commercial aircraft. As advances are made to the architecture of commercial aircraft cockpits, Human Factors on the Flight Deck argues that it is vitally important that these new interfaces are safely incorporated

and designed in a way that is usable to the pilot. Incorporation of Human Factors is essential to ensuring that engineering developments to avionic systems are integrated such that pilots can maintain safe interactions while gaining information of value. Case study examples of various technological advancements during their early conceptual stages are given throughout to highlight how the methods and processes can be applied across each stage. The text will be useful for professionals, graduate students and academic researchers in the fields of aviation, Human Factors and ergonomics.

Design, User Experience, and Usability. Design for Contemporary Interactive Environments - Aaron Marcus 2020-07-10

This book constitutes the refereed proceedings of the 9th International Conference on Design, User Experience, and Usability, DUXU 2020, held as part of the 22nd International Conference on Human-Computer Interaction, HCII 2020, in Copenhagen, Denmark, in July 2020. The conference was held virtually due to the COVID-19 pandemic. From a total of 6326 submissions, a total of 1439 papers and 238 posters has been accepted for publication in the HCII 2020 proceedings. The 50 papers included in this volume were organized in topical sections on interactions in intelligent and IoT environments, usability aspects of handheld and mobile devices, designing games and immersive experiences, and UX studies in automotive and transport.

Handbook of Human Factors and Ergonomics in Consumer Product Design, 2 Volume Set - Waldemar Karwowski 2020-05-18

A comprehensive resource, this handbook covers consumer product research, case study, and application. It discusses the unique perspective a human factors approach lends to product design and how this perspective can be critical to success in the market place. Divided into two volumes, the handbook includes introductory and summary chapters on case study design, design methods and process, error and hazards, evaluation methods, focus groups, and more. It discusses white goods, entertainment systems, personnel audio devices, mobile phones, gardening products, computer systems, and leisure goods.

Advances in Human Aspects of Aviation - Steven J. Landry 2012-07-11

Since the very earliest years of aviation, it was clear that human factors were critical to the success and safety of the system. As aviation has matured, the system has become extremely complex. Bringing together the most recent human factors work in the aviation domain, *Advances in Human Aspects of Aviation* covers the design of aircrafts for the comfort and well being of the passenger. The book discusses strategies and guidelines for maximizing comfort, the design of aircrafts including cockpit design, and the training and work schedules for flight attendants and pilots. It is becoming increasingly important to view problems not as isolated issues that can be extracted from the system environment, but as embedded issues that can only be understood as a part of an overall system. In keeping with a system that is vast in its scope and reach, the chapters in this book cover a wide range of topics, including: Interface and operations issues from the perspectives of pilots and air traffic controllers, respectively. Specific human performance issues, studied from within the context of the air transportation system Issues related to automation and the delineation of function between automation and human within the current and future system The U.S. air traffic modernization effort, called NextGen Diverse modeling perspectives and methods Safety and ethics as driving factors for change Cognition and work overload Empirical research and evaluation of the air transportation domain As air traffic modernization efforts begin to vastly increase the capacity of the system, the issues facing engineers, scientists, and other practitioners of human factors are becoming more challenging and more critical. Reflecting road themes and trends in this field, the book documents the latest research in this area.

Scientific and Technical Aerospace Reports - 1995

Modeling And Simulation Based Systems Engineering: Theory And Practice - Lin Zhang 2023-02-02

Modeling and simulation (M&S) based systems engineering (MSBSE) is the extension of MBSE, which enhances the value of MBSE and the ability of digitally evaluating and optimizing the whole system through comprehensive applications of M&S technologies. This book puts together the recent research in MSBSE, and hopefully this will provide the researchers and engineers with reference cases in M&S technologies to support the R&D of complex products and systems.

Analysis, Design & Evaluation of Man-Machine Systems - G. Mancini 2014-06-28

Provides a valuable overview of human-machine interaction in technological systems, with particular emphasis on recent advances in theory, experimental and analytical research, and applications related to man-machine systems. Topics covered include: Automation and Operator - task analysis, decision support, task allocation, management decision support, supervisory control, artificial intelligence, training and teaching, expert knowledge; System Concept and Design - software ergonomics, fault diagnosis, safety, design concepts; Man-machine Interface - interface design, graphics and vision, user adaptive interfaces; Systems Operation - process industry, electric power, aircraft, surface transport, prostheses and manual control. Contains 53 papers and three discussion sessions.

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Human Body and Motion - Vincent G. Duffy 2019-07-10

This two-volume set LNCS 11581 and 11582 constitutes the thoroughly refereed proceedings of the 10th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, DHM 2019, which was held as part of the 21st HCI International Conference, HCII 2019, in Orlando, FL, USA, in July 2019. The total of 1275 papers and 209 posters included in the 35 HCII 2019 proceedings volumes were carefully reviewed and selected from 5029 submissions. DHM 2019 includes a total of 77 papers; they were organized in topical sections named: Part I, Human Body and Motion: Anthropometry and computer aided ergonomics; motion prediction and motion capture; work modelling and industrial applications; risk assessment and safety. Part II, Healthcare Applications: Models in healthcare; quality of life technologies; health dialogues; health games and social communities.

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management.

Anthropometry, Human Behavior, and Communication - Vincent G. Duffy 2022-06-16

This two-volume set LNCS 1319 and 13320 constitutes the thoroughly refereed proceedings of the 13th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, DHM 2022, which was held virtually as part of the 24rd HCI International Conference, HCII 2022, in June/July 2022. The total of 1271 papers and 275 poster papers included in the 39 HCII 2022 proceedings volumes was carefully reviewed and selected from 5487 submissions. DHM 2022 includes a total of 56 papers. The first volume focuses on topics related to ergonomic design, anthropometry, and human modeling, as well as collaboration, communication, and human behavior. The second volume focuses on topics related to task analysis, quality and safety in healthcare, as well as occupational health and operations management, and Digital Human Modeling in interactive product and service design.

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Posture, Motion and Health - Vincent G. Duffy 2020-07-10

This two-volume set LNCS 12198 and 12199 constitutes the thoroughly refereed proceedings of the 11th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, DHM 2020, which was supposed to be held as part of the 22st HCI International Conference, HCII 2020, in Copenhagen, Denmark, in July 2020. The conference was held virtually due to the COVID-19 pandemic. A total of 1439 papers and 238 posters have been carefully reviewed and accepted for publication in HCII 2020. DHM 2020 includes a total of 77 papers; they were organized in topical sections named: Part I, Posture, Motion and Health: Posture and motion modelling in design; ergonomics and occupational health; applications for exercising, physical therapy and rehabilitation; health services; DHM for aging support. Part II, Human Communication, Organization and Work: Modelling human communication; modelling work, collaboration and the human environment; addressing ethical and societal challenges; new research issues and approaches in digital human modelling.

Man-Machine-Environment System Engineering - Shengzhao Long 2018-09-24

These proceedings showcase the best papers selected from more than 500 submissions, and introduce readers to the hottest research topics and the latest developmental trends in the theory and application of MMESE. The integrated and advanced science research topic Man-Machine-Environment System Engineering (MMESE) was first established in China by Professor Shengzhao Long in 1981, with direct support from one of the greatest modern Chinese scientists, Xuesen Qian. In a letter to Long from October 22nd, 1993, Qian wrote: "You have created a very important modern science and technology in China!" MMESE primarily

focuses on the relationship between Man, Machine and Environment, studying the optimum combination of man-machine-environment systems. In this system, "Man" refers to working people as the subject in the workplace (e.g. operators, decision-makers); "Machine" is the general name for any object controlled by Man (including tools, machinery, computers, systems and technologies), and "Environment" describes the specific working conditions under which Man and Machine interact (e.g. temperature, noise, vibration, hazardous gases etc.). The three main goals of optimizing man-machine-environment systems are to ensure safety, efficiency and economy. These proceedings present interdisciplinary studies on essential concepts and methods from physiology, psychology, system engineering, computer science, environmental science, management, education, and other related disciplines. As such, they offer a valuable resource for all researchers and professionals whose work involves interdisciplinary areas touching on MMESE subjects.

Human Factors and Ergonomics in Sport - Paul M. Salmon 2020-09-04

Sport is an integral part of society, playing a key role in human health and well-being, and cultural, political and economic development. As sport is becoming more complex, competitive, diverse, and increasingly reliant on technology, HFE theories, methods, and principles are progressively being applied to help understand and optimize sports systems. *Human Factors and Ergonomics in Sport: Applications and Future Directions* showcases the latest in sports HFE research and practice. Including contributions from both HFE and sports science researchers, it provides a collection of state-of-the-art studies, reviews and commentaries covering a diverse set of sports and sporting issues. "This book is an excellent resource for all academics and students in general. It provides updated theoretical foundations and applications that conceive a world where everything is connected and embedded in technology that allows us to capture, process and visualise actions and interactions, also at transdisciplinary levels." Professor Jaime Sampaio, Head of the Research Center in Sports Sciences, Health and Human Development (CIDESD), University of Trás-os-Montes e Alto Douro, Portugal "With the changing nature of work comes an ever-greater focus on leisure. Sport is a major dimension of this crucial form of human activity. Now comes Salmon and his colleagues who have assembled a panoply of world leaders who each provide their own individual perspectives on this intriguing world. Their emphasis on the human factors and ergonomics of these activities brings us new and exciting insights. A great read for the specialist and generalist alike." Professor Peter Hancock, Pegasus Professor, Provost Distinguished Research Professor and Trustee Chair, University of Central Florida, USA. "Finally, the complexity of sports and health is being considered in full. This book challenges contemporary thinking toward the prevention of injuries in sports, and provides tangible solutions to help our field into a new decade." Professor Evert Verhagen, Amsterdam Collaboration on Health and Safety in Sports & Department of Public and Occupational Health, VU University Medical Center

Advances in Physical, Social & Occupational Ergonomics - Ravindra S. Goonetilleke 2021-07-07

This book reports on cutting-edge findings and developments in physical, social and occupational ergonomics. It covers a broad spectrum of studies and evaluation procedures concerning physical and

mental workload, work posture and ergonomic risk. Further, it reports on significant advances in the design of services and systems, including those addressing special populations, for purposes such as health, safety and education, and discusses solutions for a better and safer integration of humans, automated systems and digital technologies. The book also analyzes the impact of culture on people's cognition and behavior, providing readers with timely insights into theories on cross-cultural decision-making, and their diverse applications for a number of purposes in businesses and societies. Based on the AHFE 2021 conferences on Physical Ergonomics and Human Factors, Social & Occupational Ergonomics, and Cross-Cultural Decision Making, held virtually on 25-29 July, 2021, from USA, it provides readers with a comprehensive overview of the current challenges in physical, social and occupational ergonomics, including those imposed by technological developments, highlights key connections between them, and puts forward optimization strategies for sociotechnical systems, including their organizational structures, policies and processes.

Situational Awareness - Eduardo Salas 2017-07-05

Situational awareness has become an increasingly salient factor contributing to flight safety and operational performance, and the research has burgeoned to cope with the human performance challenges associated with the installation of advanced avionics systems in modern aircraft. The systematic study and application of situational awareness has also extended beyond the cockpit to include air traffic controllers and personnel operating within other complex, high consequence work domains. This volume offers a collection of essays that have made important contributions to situational awareness research and practice. To this end, it provides unique access to key readings that address the conceptual development of situational awareness, methods for its assessment, and applications to enhance situational awareness through training and design.

Proceedings of the 21st Congress of the International Ergonomics Association (IEA 2021) - Nancy L. Black 2021-06-12

This book presents the proceedings of the 21st Congress of the International Ergonomics Association (IEA 2021), held online on June 13-18, 2021. By highlighting the latest theories and models, as well as cutting-edge technologies and applications, and by combining findings from a range of disciplines including engineering, design, robotics, healthcare, management, computer science, human biology and behavioral science, it provides researchers and practitioners alike with a comprehensive, timely guide on human factors and ergonomics. It also offers an excellent source of innovative ideas to stimulate future discussions and developments aimed at applying knowledge and techniques to optimize system performance, while at the same time promoting the health, safety and wellbeing of individuals. The proceedings include papers from researchers and practitioners, scientists and physicians, institutional leaders, managers and policy makers that contribute to constructing the Human Factors and Ergonomics approach across a variety of methodologies, domains and productive sectors. This volume includes papers addressing the following topics: Working with Computer Systems, Human Modelling and Simulation, Neuroergonomics, Biomechanics, Affective Design, Anthropometry, Advanced Imaging.