Disability Interactions

Cook & Hussey's Assistive Technologies

This book addresses emerging issues in usability, interface design, human–computer interaction, user experience and assistive technology. It highlights research aimed at understanding human interactions with products, services and systems and focuses on finding effective approaches for improving the user experience. It also discusses key issues in designing and providing assistive devices and services for individuals with disabilities or impairment, offering them support with mobility, communication, positioning, environmental control and daily living. The book covers modeling as well as innovative design concepts, with a special emphasis on user-centered design, and design for specific populations, particularly the elderly. Further topics include virtual reality, digital environments, gaming, heuristic evaluation and forms of device interface feedback (e.g. visual and haptic). Based on the AHFE 2021 Conferences on Usability and User Experience, Human Factors and Wearable Technologies, Human Factors in Virtual Environments and Game Design, and Human Factors and Assistive Technology, held virtually on 25–29
Assistive Technologies for the Interaction of the Elderly

The familiar image of the disabled tends to emphasize their limitations and reduced quality of life. However, many people with cognitive, motor, and other difficulties also have the capacity to enhance their social interactions, leisure pursuits and daily activities with the aid of assistive technology. Assistive devices from the simple to the sophisticated, have become essential to intervention programs for this population. And not surprisingly the numbers of devices available are growing steadily. Assistive Technologies for People with Diverse Abilities offers expert analysis of pertinent issues coupled with practical discussion of solutions for effective support. Its comprehensive literature review describes current and emerging devices and presents evidence-based guidelines for matching promising technologies to individuals. Program outcomes are assessed, as are their potential impact on the future of the field. In addition, chapters provide detailed descriptions of the personal and social needs of the widest range of individuals with congenital and acquired conditions, including: Acquired brain damage. Communication impairment. Attention and learning difficulties (with special focus on college students). Visual impairment and blindness. Autism spectrum disorders. Behavioral and occupational disorders. Alzheimer’s disease. Severe, profound and multiple impairments. The scope and depth of coverage makes Assistive Technologies for People with Diverse Abilities an invaluable resource for researchers, professionals and graduate students in developmental psychology, rehabilitation medicine, educational technology, occupational therapy, speech pathology and clinical psychology.

Assistive Technology from Adapted Equipment to Inclusive Environments

Providing a holistic and client-centered approach, Assistive Technologies and Environmental Interventions in Healthcare explores the individual’s needs within the environment, examines the relationship between disability and a variety of traditional and cutting-edge technologies, and presents a humanistic discussion of Technology-Environment Intervention (TEI). Written by a multidisciplinary team of authors, this text introduces readers to a variety of conceptual practice models and the clinical reasoning perspectives. It also provides insight into how designers go about solving human-tech problems, discusses best practices for both face-to-face and virtual teams, and looks at the psychological, sociocultural, and cognitive factors behind the development and provision of assistive technologies. Examines a wide range of technologies and environmental interventions Demonstrates how a
better understanding of the complexity of human interaction with both the physical and social environment can lead to a better use of technology. Explores the future of technology and research in TEI. Complete with a range of learning features such as keywords, case studies, and review questions, this book is ideal for undergraduate and graduate students in occupational therapy and other related health professions, as well as those undertaking certification and board examinations.

Gaze Interaction and Applications of Eye Tracking: Advances in Assistive Technologies

Assistive Technologies and Environmental Interventions in Healthcare

Individuals with disabilities often have difficulty accomplishing tasks, living independently, and utilizing information technologies; simple aspects of daily life taken for granted by non-disabled individuals. Assistive Technologies: Concepts, Methodologies, Tools, and Applications presents a comprehensive collection of research, developments, and knowledge on technologies that enable disabled individuals to function effectively and accomplish otherwise impossible tasks. These volumes serve as a crucial reference source for experts in fields as diverse as healthcare, information science, education, engineering, and human-computer interaction, with applications bridging multiple disciplines.

Advances in Assistive Technologies

Recent advances in the field of ambient assistive living have addressed the integration of assistive technologies, e-health and personalized healthcare with the aim of enabling improved social experience as well as achieving better health outcomes. This book focuses on ambient assisted living systems and services for healthcare, a multi-disciplinary field encompassing areas such as electrical engineering, computer science, user-centered design and medicine. The book is divided into three parts: personalized healthcare monitoring technologies; ICT for ambient assistive living; and healing environments. The topics covered include sensor systems, wearable technologies, patient monitoring, home monitoring, personalized healthcare, user-centered design, ethical challenges and clinical evaluation. Providing an overview of new developments in e-health and personalized healthcare, the book will be of interest to engineers, designers and others working in the healthcare industry, and to medical practitioners.

Using Haptic and Thermal Feedback Interaction in Assistive Technologies

"This book presents cutting-edge research in the field of assistive technologies, including both theoretical frameworks and empirical research to benefit individuals with motor and cognitive disabilities"--Provided by publisher.

WIPO Technology Trends 2019 - Artificial Intelligence

The future of disability in America will depend on how well the U.S. prepares for and manages the demographic, fiscal, and technological developments that will unfold during the next two to three decades. Building upon two prior studies from the Institute of Medicine (the 1991 Institute of Medicine's report Disability in America and the 1997 report Enabling America), The Future of Disability in America examines both progress and concerns about continuing barriers that limit the independence, productivity, and participation in community life of people with disabilities. This book offers a comprehensive look at a wide range of issues, including the prevalence of disability across the lifespan; disability trends the role of assistive technology; barriers posed by health care and other facilities with inaccessible buildings, equipment, and information formats; the needs of young people moving from pediatric to adult health care and of adults experiencing premature aging and secondary health problems; selected issues in health care financing (e.g., risk adjusting payments to health plans, coverage of assistive technology); and the organizing and financing of disability-related research. The Future of Disability in America is an assessment of both principles and scientific evidence for disability policies and services. This book's recommendations propose steps to eliminate barriers and strengthen the evidence base for future public and private actions to reduce the impact of disability on individuals, families, and society.

Cerebral Palsy
Individuals with disabilities that impede their range of motion often have difficulty accessing technologies. With the use of computer-based assistive technology, devices, tools, and services can be used to maintain and improve the functional capabilities of motor disabilities. Assistive Technologies and Computer Access for Motor Disabilities investigates solutions to the difficulties of impaired technology access by highlighting the principles, methods, and advanced technological solutions for those with motor impairments. This reference source is beneficial to academia, industry, and various professionals in disciplines such as rehabilitation science, occupational therapy, human-computer interface development, ergonomics, and teaching in inclusive and special education. This publication is integrated with its pair book Disability Informatics and Web Accessibility for Motor Limitations.

**Assistive Technology for Blindness and Low Vision**

This book presents a wealth of insights and new conceptualizations for the development of Assistive Technologies for the Interaction of the Elderly. The book arranges the chapters according to important aspects of maximizing the use value in innovation projects. Every chapter will include an executive summary reporting the main results, a storyline using everyday language, and scientific excursions, wherever useful. The book shows how an innovation project should be structured towards maximum use value and how a project should be structured in order to make a difference. It describes the useful categorization of the large group of the elderly to maximize the focus of the innovation and demonstrates the user involvement into innovation activities. Of course, the assessment of such innovative projects is discussed as well as the “lessons learned”. The book also explores the business opportunities and the financial evaluation of aspects of assistive technology.

**Recent Advances in Intelligent Assistive Technologies: Paradigms and Applications**

**The Future of Disability in America**

Assistive Technology (AT) is an umbrella term indicating any product or technology-based service that enables people of all ages with activity limitations in their daily life, education, work or leisure. It is a highly interdisciplinary field, encompassing research, development, manufacture, supply, provision and policy. This book presents the proceedings of the 12th biennial European conference of the Association for the Advancement of Assistive Technology in Europe, AAATE 2013, held in Vilamoura, Portugal, in September 2013. The full papers included here cover a diverse range of subjects, including: ageing, disability and technology; accessibility in Europe; ambient assisted living; AT and Cloud computing; communication access for all; monitoring and telecare; and user perspective, to name but a few. The aim of the AAATE conference is to promote a more effective dialogue between manufacturers, researchers, developers, professionals and end users, and this book will be of interest to all those directly or indirectly involved in the field of AT.

**Assistive Technologies in Smart Cities**

This book discusses the design of the new mobility assistive information and communication technologies (ICT) devices for the visually impaired. The book begins with a definition of the space concept, followed by the concept of interaction with a space during mobility and this interaction characteristics. The contributors will then examine the neuro-cognitive basis of space perception for mobility and different theories of space perception. The text presents the existing technologies for space perception (sense recovery with stem and iPS cells, implants, brain plasticity, sensory substitution devices, multi modal technologies, etc.), the newest technologies for mobility assistance design, the way the feedback on environment is conveyed to the end-user. Methods for formative and summative evaluations of the mobility devices will also be discussed. The book concludes with a look to the future trends in research and technology development for mobility assistive information and communication technologies.

**Assistive Technology Assessment Handbook**

Recent advances in eye tracking technology will allow for a proliferation of new applications. Improvements in interactive methods using eye movement and gaze control could result in faster and more efficient human computer interfaces, benefitting users with and without disabilities. Gaze Interaction and Applications of Eye Tracking: Advances in Assistive Technologies focuses on interactive communication and control tools based on gaze tracking, including eye typing, computer control, and gaming, with special attention to assistive technologies. For researchers
Hands-Free Signal Control for Human Computer Interaction in Assistive Technologies

The field of assistive technology is influenced by the ongoing and rapid development of mainstream technologies on the one hand and continuing changes to social systems in relation to societal events - such as the ageing of the population - on the other. The articles in this book provide a broad overview of developments in technical support for people with functional restrictions: key technologies like telecommunications and IT are addressed, while low-tech practical solutions are also considered.

Assistive Augmentation

Cities are the places where the greatest technological advances will take place in the near future, and important efforts are being directed towards autonomy and independence for each and every citizen. However, these efforts are rarely coordinated or integrated among governments, citizens, and private firms. In this book, assistive technology solutions are approached considering the smart cities scenario. The book discusses how assistive technologies can be adapted to this new reality. In fact, several challenges arise, stimulating the evolution of current technologies, relying on ubiquitous sensing, big data, and anytime/anywhere access and control. The book presents research under development, not necessarily with consolidated results. Even though the idea of smart cities is still not a recognized concept in most countries, its relevance and application are spreading rapidly.

Rules

Points towards the difficulty encountered in research and development carried out by laboratories to reach the users. This book aims at alerting developers so that they pay attention to the outcome of their work. Inventive research and technologies which have a high potential in the field of Assistive Technology are described in this publication.

Assistive Technologies for the Interaction of the Elderly

Assistive technology has made it feasible for individuals with a wide range of impairments to engage in many activities, such as education and employment, in ways not previously possible. The key factor is to create consumer-driven technologies that solve the problems by addressing the needs of persons with visual impairments. Assistive Technology for Blindness and Low Vision explores a broad range of technologies that are improving the lives of these individuals. Presenting the current state of the art, this book emphasizes what can be learned from past successful products, as well as what exciting new solutions the future holds. Written by world-class leaders in their field, the chapters cover the physiological bases of vision loss and the fundamentals of orientation, mobility, and information access for blind and low vision individuals. They discuss technology for multiple applications (mobility, wayfinding, information access, education, work, entertainment), including both established technology and cutting-edge research. The book also examines computer and digital media access and the scientific basis for the theory and practice of sensory substitution. This volume provides a holistic view of the elements to consider when designing assistive technology for persons with visual impairment, keeping in mind the need for a user-driven approach to successfully design products that are easy to use, well priced, and fill a specific need. Written for a broad audience, this book provides a comprehensive overview and in-depth descriptions of current technology for designers, engineers, practitioners, rehabilitation professionals, and all readers interested in the challenges and promises of creating successful assistive technology.

Assistive Technologies and Environmental Interventions in Healthcare

The concept of Assistive Technology is moving away from adopting the most appropriate devices to overcome the limitations of users, to the designing and setting up of total environments in which people can live, supported by suitable services and additional support devices integrated within the environment. These two perspectives are deeply intertwined, both from technological and social points of view, and the relationship between them currently
The primary challenge for the field of Assistive Technology is to develop technologies for the benefit of people with disabilities, including elderly people. This conference seeks to bridge the gap between these two complementary approaches, providing an opportunity to clarify differences and common points, and better define future direction. Topics covered by the conference include: technological innovation in assistive technology; the need for multidisciplinary approaches; equipment interconnectivity and compatibility; cultural aspects and the acceptance of different approaches; and the role of Europe in building inclusion competence worldwide. Disability results not only from a person’s intrinsic attributes but also from the context in which they live. This publication is a significant contribution to the advancement of inclusion for people living with a disability everywhere.

**Assistive Technology Research, Practice, and Theory**

The first report in a new flagship series, WIPO Technology Trends, aims to shed light on the trends in innovation in artificial intelligence since the field first developed in the 1950s.

**Assistive Technologies and Computer Access for Motor Disabilities**

This book contains a comprehensive overview of all current uses of robots in rehabilitation. The underlying principles in each application are provided. This is followed by a critical review of the technology available, of the utilization protocols, and of user studies, outcomes, and clinical evidence, if existing. Ethical and social implications of robot use are also discussed. The reader will have an in depth view of rehabilitation robots, from principles to practice.

**Assistive Technologies and Environmental Interventions in Healthcare**

Providing a holistic and client-centered approach, Assistive Technologies and Environmental Interventions in Healthcare explores the individual’s needs within the environment, examines the relationship between disability and a variety of traditional and cutting-edge technologies, and presents a humanistic discussion of Technology-Environment Intervention (TEI). Written by a multidisciplinary team of authors, this text introduces readers to a variety of conceptual practice models and the clinical reasoning perspectives. It also provides insight into how designers go about solving human-tech problems, discusses best practices for both face-to-face and virtual teams, and looks at the psychological, sociocultural, and cognitive factors behind the development and provision of assistive technologies. Examines a wide range of technologies and environmental interventions Demonstrates how a better understanding of the complexity of human interaction with both the physical and social environment can lead to better use of technology Explores the future of technology and research in TEI Complete with a range of learning features such as keywords, case studies and review questions, this book is ideal for undergraduate and graduate students in occupational therapy and other related health professions, as well as those undertaking certification and board examinations.

**Enhancing the Human Experience through Assistive Technologies and E-Accessibility**

Providing a holistic and client-centered approach, Assistive Technologies and Environmental Interventions in Healthcare explores the individual’s needs within the environment, examines the relationship between disability and a variety of traditional and cutting-edge technologies, and presents a humanistic discussion of Technology-Environment Intervention (TEI). Written by a multidisciplinary team of authors, this text introduces readers to a variety of conceptual practice models and the clinical reasoning perspectives. It also provides insight into how designers go about solving human-tech problems, discusses best practices for both face-to-face and virtual teams, and looks at the psychological, sociocultural, and cognitive factors behind the development and provision of assistive technologies. Examines a wide range of technologies and environmental interventions Demonstrates how a better understanding of the complexity of human interaction with both the physical and social environment can lead to better use of technology Explores the future of technology and research in TEI Complete with a range of learning features such as keywords, case studies and review questions, this book is ideal for undergraduate and graduate students in occupational therapy and other related health professions, as well as those undertaking certification and board examinations.
This research monograph provides a clear overview of the hands-free signals, necessary to develop assistive devices in HCI. It will give researchers in this multidisciplinary field the factors required to interpret user's information in gesture, speech signals and bioelectric signals. The concept of using bioelectric signals in assistive devices has been found to be more effective due to the development of technologies such as Bluetooth and Wi-Fi. In order to design, state-of-the-art human centered systems for people with varying disabilities it is essential to combine the knowledge of experts in a number of fields. This book aims to do this by integrating, the principles, theories and methods involving signal detection, signal processing and pattern recognition from bioelectric signals across a range of disciplines including anatomy and physiology, engineering and computer science. Hands-free Signal Control for Human Computer Interaction in Assistive Technologies will appeal to students and researchers in need of a comprehensive guide to design assistive devices and will find it an excellent resource for further work in this area.

Information Communication Technologies (ICT) have become an increasingly prevalent part of everyday life. Today, there are many cases in which ICT assist the elderly and people with disabilities to complete tasks once thought impossible. Enhancing the Human Experience through Assistive Technologies and E-Accessibility discusses trends in ICT in relation to assistive technologies and their impact on everyday tasks for those with disabilities. This reference work provides different perspectives on upcoming technologies and their impact on e-accessibility and e-inclusion, essential topics for researchers, businesses, and ICT product developers in the field of assistive technologies.

Ten years after coming into force of the Stockholm Convention on Persistent Organic Pollutants (POPs), a wide range of organic chemicals (industrial formulations, plant protection products, pharmaceuticals and personal care products, etc.) still poses the highest priority environmental hazard. The broadening of knowledge of organic pollutants (OPs) environmental fate and effects, as well as the decontamination techniques, is accompanied by an increase in significance of certain pollution sources (e.g. sewage sludge and dredged sediments application, textile industry), associated with a potential generation of new dangers for humans and natural ecosystems. The present book addresses these aspects, especially in the light of Organic Pollutants risk assessment as well as the practical application of novel analytical methods and techniques for removing OPs from the environment. Providing analytical and environmental update, this contribution can be particularly valuable for engineers and environmental scientists.

This book offers the reader new achievements within the Assistive Technology field made by worldwide experts, covering aspects such as assistive technology focused on teaching and education, mobility, communication and social interactivity, among others. Each chapter included in this book covers one particular aspect of Assistive Technology that invites the reader to know the recent advances made in order to bridge the gap in accessible technology for disabled or impaired individuals.

People go traveling for two reasons: because they are searching for something, or they are running from something. Katie’s world is shattered by the news that her headstrong and bohemian younger sister, Mia, has been found dead at the bottom of a cliff in Bali. The authorities say that Mia jumped—that her death was a suicide. Although they’d hardly spoken to each other since Mia suddenly left on an around-the-world trip six months earlier, Katie refuses to accept that her sister would have taken her own life. Distraught that they never made peace, Katie leaves her orderly, sheltered life in London behind and embarks on a journey to find out the truth. With only the entries in Mia’s travel journal as her guide, Katie retraces the last few months of her sister’s life and—page by page, country by country—begins to uncover the mystery surrounding her death. . . .
Assistive Technologies: Concepts, Methodologies, Tools, and Applications

As the editor, I feel extremely happy to present to the readers such a rich collection of chapters authored/co-authored by a large number of experts from around the world covering the broad field of guided wave optics and optoelectronics. Most of the chapters are state-of-the-art on respective topics or areas that are emerging. Several authors narrated technological challenges in a lucid manner, which was possible because of individual expertise of the authors in their own subject specialties. I have no doubt that this book will be useful to graduate students, teachers, researchers, and practicing engineers and technologists and that they would love to have it on their book shelves for ready reference at any time.

Recent Advances in Ambient Assisted Living - Bridging Assistive Technologies, E-Health and Personalized Health Care

Research on assistive technologies is undergoing many developments in its effectiveness in helping those with varying impairments. New technologies are constantly being created, researched, and implemented for those who need these technological aides in daily life. Assistive Technologies for Physical and Cognitive Disabilities combines worldwide cases on people with physical and cognitive disabilities with the latest applications in assistive technologies. This reference work brings different researchers together under one title to discuss current findings, developments, and ongoing research in the area of rehabilitative technology. This reference book is of critical use to professionals, researchers, healthcare practitioners, caretakers, academicians, and students.

Assistive Technology: From Research to Practice

It's here: the latest edition of the one text you need to master assistive strategies, make confident clinical decisions, and help improve the quality of life for people with disabilities. Based on the Human Activity Assistive Technology (HAAT) model, Assistive Technologies: Principles and Practice, 4th Edition provides detailed coverage of the broad range of devices, services, and practices that comprise assistive technology, and focuses on the relationship between the human user and the assisted activity within specific contexts. Updated and expanded, this new edition features coverage of new ethical issues, more explicit applications of the HAAT model, and a variety of global issues highlighting technology applications and service delivery in developing countries. Human Activity Assistive Technology (HAAT) framework demonstrates assistive technology within common, everyday contexts for more relevant application. Focus on clinical application guides you in applying concepts to real-world situations. Review questions and chapter summaries in each chapter help you assess your understanding and identify areas where more study is needed. Content on the impact of AT on children and the role of AT in play and education for children with disabilities demonstrates how AT can be used for early intervention and to enhance development. Coverage of changing AT needs throughout the lifespan emphasizes how AT fits into people’s lives and contributes to their full participation in society. Principles and practice of assistive technology provides the foundation for effective decision-making. NEW! Global issues content broadens the focus of application beyond North America to include technology applications and service delivery in developing countries. NEW! Ethical issues and occupational justice content exposes you to vital information as you start interacting with clients. NEW! More case studies added throughout the text foster an understanding of how assistive technologies are used and how they function. NEW! Updated content reflects current technology and helps keep you current. NEW! Explicit applications of the HAAT model in each of the chapters on specific technologies and more emphasis on the interactions among the elements make content even easier to understand.

Human-Computer Interaction: Users and Contexts

This book illustrates the rapid pace of development in intelligent assistive technology in recent years, and highlights some salient examples of using modern IT&C technologies to provide devices, systems and application software for persons with certain motor or cognitive disabilities. The book proposes both theoretical and practical approaches to intelligent assistive and emergent technologies used in healthcare for the elderly and patients with chronic diseases. Intelligent assistive technology (IAT) is currently being introduced and developed worldwide as an important tool for maintaining independence and high quality of life among community-living people with certain disabilities, and as a key enabler for the aging population. The book offers a valuable resource for students at technical, medical and
Robotic Assistive Technologies

This book addresses Assistive Augmentation, highlighting the design and development of assistive technologies, user interfaces, and interactions that seamlessly integrate with a user’s mind, body, and behavior, providing an enhanced perception. Our senses are the dominant channel we use to perceive the world around us. Whether they have impairments or not, people often find themselves at the limits of their sensorial capabilities. Some seek assistive or enhancing devices that enable them to carry out specific tasks or even transform them into a “superhuman” with capabilities well beyond the ordinary. The overarching topic of this book revolves around the design and development of technologies and interfaces that provide enhanced physical, sensorial and cognitive capabilities: “Assistive Augmentation”. The Assistive Augmentation community convened at an interdisciplinary workshop at the 2014 International Conference on Human Factors in Computing Systems (CHI) in Toronto, Canada. The community is comprised of researchers and practitioners who work at the junction of human–computer interaction, assistive technology and human augmentation. This edited volume, which represents the first tangible outcome of the workshop, presents stimulating discussions on the challenges of Assistive Augmentation as examined through case studies. These studies focus on two main areas: (1) Augmented Sensors and Feedback Modalities, and (2) Design for Assistive Augmentation.

Assistive Technologies for People with Diverse Abilities

The 3-volume set LNCS 9169, 9170, 9171 constitutes the refereed proceedings of the 17th International Conference on Human-Computer Interaction, HCII 2015, held in Los Angeles, CA, USA, in August 2015. The total of 1462 papers and 246 posters presented at the HCII 2015 conferences was carefully reviewed and selected from 4843 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers in LNCS 9171 are organized in topical sections on interaction and quality for the web and social media; HCI in business, industry and innovation; societal and cultural impact of technology; user studies.

Advances in Usability, User Experience, Wearable and Assistive Technology

Nowadays, cerebral palsy (CP) rehabilitation, along with medical and surgical interventions in children with CP, leads to better motor and postural control and can ensure ambulation and functional independence. In achieving these improvements, many modern practices may be used, such as comprehensive multidisciplinary assessment, clinical decision making, multilevel surgery, botulinum toxin applications, robotic ambulation applications, treadmill, and other walking aids to increase the quality and endurance of walking. Trainings are based on neurodevelopmental therapy, muscle training and strength applications, adaptive equipment and orthotics, communication, technological solves, and many others beyond the scope of this book. In the years of clinical and academic experiences, children with cerebral palsy have shown us that the world needs a book to give clinical knowledge to health professionals regarding these important issue. This book is an attempt to fulfill and to give “current steps” about CP. The book is intended for use by physicians, therapists, and allied health professionals who treat/rehabilitate children with CP. We focus on the recent concepts in the treatment of body and structure problems and describe the associated disability, providing suggestions for further reading. All authors presented the most frequently used and accepted treatment methods with scientifically proven efficacy and included references at the end of each chapter.

Assistive Technology on the Threshold of the New Millennium

Encyclopedia of Human Computer Interaction

Esta enciclopedia presenta numerosas experiencias y discernimientos de profesionales de todo el mundo sobre discusiones y perspectivas de la la interacción hombre-computadoras