The Human Computer Interaction Handbook Fundamentals Evolving Technologies And Emerging Applications Second

Intuitive Interaction

This book explores recent research in intuitive interaction worldwide by a range of leading academics and practitioners in the field. It builds on past work as it ventures into new areas, such as how users perceive intuitiveness of an interface, how people experience intuitive interaction subjectively, and how we can use such understanding to design more engaging experiences. The book addresses how intuitive interaction is understood in different academic disciplines and how it has been researched in various parts of the world over the last 18 years. It covers how intuitive interaction can be applied in different contexts, like large scale urban installations, the developing world, in older populations, and in various industry applications. Features: Presents varied approaches to intuitive interaction research and application Illustrates how to understand and apply intuitive interaction to interfaces Provides a mix of academic and industry perspectives Explores a variety of contexts for application of intuitive interaction Encompasses design, IT, business, and psychological approaches

The Human-Computer Interaction Handbook

Exploring the evolution in how people use and work with technology, this second edition captures the most important scientific and technical know-how in the field. With contributions from over 130 researchers and professionals, over 5,500 references, 400 figures, and 100 tables, the book provides a wealth of data and a fresh perspective. New topics and authors ensure the revision contains new information and insights and the latest in research and practice. It features cutting-edge advances to the scientific knowledge base and visionary perspectives and developments that will fundamentally transform the way in which researchers and practitioners view the discipline.

The Human-Computer Interaction Handbook

The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies, and Emerging Applications is a comprehensive survey of this fast-paced field that is of interest to all HCI practitioners, educators, consultants, and researchers. This includes computer scientists; industrial, electrical, and computer engineers; cognitive scientists; exp

Distributed User Interfaces

This text examines a range of HCI topics while emphasising design methods. It is divided into three clear parts: foundations, design practice and advanced topics.

HCI and User-Experience Design

This book consists of a series of essays which addresses the essentials of the development processes in user-experience design (UX design) planning, research, analysis, evaluation, training and implementation, and deals with the essential components (metaphors, mental models, navigation, and appearance) of user-interfaces and user-experiences during the period of 2002-2007. These essays grew from the authors own column entitled ‘Fast Forward’ which appeared in Interaction Magazine – the flagship publication of the ACM Special Interest Group on Human-Computing Interaction (SIGCHI). Written in such a way as to ensure longevity, these essays have not been edited or updated, however a short Postscripts has been added to provide some comments on each topic from a current perspective. HCI and User-Experience Design provides a fascinating historical review of the professional and research world of UX and HCI during a period of significant growth and development and would be of interest to students, researchers, and designers who are interested in recent developments within the field.

HCI in Business, Government and Organizations. eCommerce and Consumer Behavior

As modern technologies continue to develop and evolve, the ability of users to adapt with new systems becomes a paramount concern. Research into new ways for humans to make use of advanced computers and other such technologies through artificial intelligence and computer simulation is necessary to fully realize the potential of tools in the 21st century. Advanced Methodologies and Technologies in Artificial Intelligence, Computer Simulation, and Human-Computer Interaction provides emerging research in advanced trends in robotics, AI, simulation, and human-computer interaction. Readers will learn about the positive applications of artificial intelligence and human-computer interaction in various disciples such as business and medicine. This book is a valuable resource for IT professionals, researchers, computer scientists, and researchers invested in assistive technologies, artificial intelligence, robotics, and computer simulation.

Practical Speech User Interface Design

Although speech is the most natural form of communication between humans, most people find using speech to communicate with machines anything but natural. Drawing from psychology, human-computer interaction, linguistics, and communication theory, Practical Speech User Interface Design provides a comprehensive yet concise survey of practical speech user interface (SUI) design. It offers practice-based and research-based guidance on how to design effective, efficient, and pleasant speech applications that people can really use. Focusing on the design of speech user interfaces for IVR applications, the book covers speech technologies including speech recognition and production, ten key concepts in human language and communication, and a survey of self-service technologies. The author, a leading human factors engineer with extensive experience in research, innovation and design of products with speech interfaces that are used worldwide, covers both high- and low-level decisions and includes Voice XML code examples. To help articulate the rationale behind various SUI design guidelines, he includes a number of detailed discussions of the applicable research. The techniques for designing usable SUIs are not obvious, and to be effective, must be informed by a combination of critically interpreted scientific research and leading design practices. The blend of scholarship and practical experience found in this book establishes research-based leading practices for the design of usable speech user interfaces for interactive voice response applications.

Advanced Methodologies and Technologies in Artificial Intelligence, Computer Simulation, and Human-Computer Interaction

Human resources management is essential for any workplace environment and is deemed most effective when a strategic focus is in place to ensure that people can facilitate that achievement of organizational goals. But, effective human resource management also contains an element of risk management for an organization which, as a minimum, ensures legislative compliance. Human Resources Management: Concepts, Methodologies, Tools, and Applications compiles the most sought after case studies, architectures, frameworks, methodologies, and research related to human resources management. Including over 100 chapters from professional, this three-volume collection presents an in-depth analysis on the fundamental aspects, tools and technologies, methods and design, applications, managerial impact, social/behavioral perspectives, critical issues, and emerging trends in the field, touching on effective and ineffective management practices when it comes to human resources. This multi-volume work is vital and highly accessible across the hybrid domain of business and management, essential for any library collection.

Being Human

This report is for anyone interested in the ramifications of our digital future and in ways society must adjust to the technological changes to come. It is also for those of us who work in the field of Human-Computer Interaction and who are concerned that our research agenda stays relevant in the years to come. Produced from a forum entitled HCI 2020: Human Values in a Digital Age, held in Sanlucar la Mayor, Spain on March 15-16, 2007. Convened by Richard Harper and Abigail Sellen of Microsoft Research Cambridge, Tom Rodden of the United Kingdom's Nottingham University, and Yvonne Rogers of the Open University.

Human-Computer Interaction Fundamentals. Human Factors and Ergonomics

“Convergence” is defined as the intertwinement of species or technologies. “Tech- logical convergence,” on the other hand, refers to a trend where a single product such as a cell phone, used in the past solely for communication, evolves into a product that functions not only as a communication device but incorporates the distinct function- ities of a number of other technologies, thereby enabling users to take pictures, listen to music, access the Web, send and receive e-mail messages, find their way, and so on, equally successfully. Social networks such as Facebook, YouTube, MySpace and LinkedIn, where users congregate, discuss certain issues, entertain themselves, and share information in t- tual, audio and video formats, are among the most frequented web sites. Social networks having Web 2. 0 features offer personalized services, allowing users to - corporate their own content easily and describe, organize and share it with others, thereby enriching users’

experience. More often than not, a capable cell phone is all you need to get access to such social networks and carry out all those tasks. Such tools tend to change our private, social and professional lives and blur the boundaries among them. In other words, our private, social and professional lives are converging, too: someone using a cell phone could be communicating with his/her friend(s), accessing information services, taking an exam using a learning management system, or conducting business.

The Wiley Handbook of Human Computer Interaction Set

With an updated edition including new material in additional chapters, this one-of-a-kind handbook covers not only current standardization efforts, but also anthropometry and optimal working postures, ergonomic human computer interactions, legal protection, occupational health and safety, and military human factor principles. While delineating the crucial role that standards and guidelines play in facilitating the design of advantageous working conditions to enhance individual performance, the handbook suggests ways to expand opportunities for global economic and ergonomic development. This book features: Guidance on the design of work systems including tasks, equipment, and workspaces as well as the work environment in relation to human capacities and limitations Emphasis on important human factors and ergonomic standards that can be utilized to improve product and process to ensure efficiency and safety A focus on quality control to ensure that standards are met throughout the worldwide market

Interaction Design

The authors present an up-to-date exposition of the design of the current and next generation interactive technologies, such as the Web, mobiles and wearables.

The Handbook of Task Analysis for Human-Computer Interaction

A comprehensive review of the current state of research and use of task analysis for Human-Computer Interaction (HCI), this multi-authored and diligently edited handbook offers the best reference source available on this diverse subject whose foundations date to the turn of the last century. Each chapter begins with an abstract and is cross-referen

The Human-Computer Interaction Handbook

This second edition of The Human-Computer Interaction Handbook provides an updated, comprehensive overview of the most important research in the field, including insights that are directly applicable throughout the process of developing effective interactive information technologies. It features cutting-edge advances to the scientific

Research Methods in Human-Computer Interaction

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.

Extraordinary Human-Computer Interaction

This text is about achieving usability in product user interface design through a process called Usability Engineering. The techniques presented include not only UI requirements analysis, but also organizational and managerial strategies.

Human-Computer Interaction Fundamentals

Hailed on first publication as a compendium of foundational principles and cutting-edge research, The Human-Computer Interaction Handbook has become the gold standard reference in this field. Derived from select chapters of this groundbreaking and authoritative resource, Human-Computer Interaction Fundamentals emphasizes emerging topics such as sen

Rethinking Productivity in Software Engineering

Get the most out of this foundational reference and improve the productivity of your software teams. This open access book collects the wisdom of the 2017 \"Dagstuhl\" seminar on productivity in software engineering, a meeting of community leaders, who came together with the goal of rethinking traditional definitions and measures of productivity. The results of their work, Rethinking Productivity in Software Engineering, includes chapters covering definitions and core concepts related to productivity, guidelines for measuring productivity in specific contexts, best practices and pitfalls, and theories and open questions on productivity. You'll benefit from the many short chapters, each offering a focused discussion on one aspect of productivity in software engineering. Readers in many fields and industries will benefit from their collected work. Developers wanting to improve their personal productivity, will learn effective strategies for overcoming common issues that interfere with progress. Organizations thinking about building internal programs for measuring productivity of programmers and teams will learn best practices from industry and researchers in measuring productivity. And researchers can leverage the conceptual frameworks and rich body of literature in the book to effectively pursue new research directions. What You'll LearnReview the definitions and dimensions of software productivity See how time management is having the opposite of the intended effect Develop valuable dashboards Understand the impact of sensors on productivity Avoid software development waste Work with human-centered methods to measure productivity Look at the intersection of neuroscience and productivity Manage interruptions and context-switching Who Book Is For Industry developers and those responsible for seminar-style courses that include a segment on software developer productivity. Chapters are written for a generalist audience, without excessive use of technical terminology.

Handbook of Digital Human Modeling

The rapid introduction of sophisticated computers, services, telecommunications systems, and manufacturing systems has caused a major shift in the way people use and work with technology. It is not surprising that computer-aided modeling has emerged as a promising method for ensuring products meet the requirements of the consumer. The Handbook of Digital Human Modeling provides comprehensive coverage of the theory, tools, and methods to effectively achieve this objective. The 56 chapters in this book, written by 113 contributing authorities from Canada, China, France, Germany, the Netherlands, Poland, Sweden, Taiwan, UK, and the US, provide a wealth of international knowledge and guidelines. They cover applications in advanced manufacturing, aerospace, automotive, data visualization and simulation, defense and military systems, design for impaired mobility, healthcare and medicine, information systems, and product design. The text elucidates tools to help evaluate product and work design while reducing the need for physical prototyping. Additional software and demonstration materials on the CRC Press web site include a never-before-released 220-page step-by-step UGS-Siemens JackTM help manual developed at Purdue University. The current gap between capability to correctly predict outcomes and set expectation for new and existing products and processes affects human-system performance, market acceptance, product safety, and satisfaction at work. The handbook provides the fundamental concepts and tools for digital human modeling and simulation with a focus on its foundations in human factors and ergonomics. The tools identified and made available in this handbook help reduce the need for physical prototyping. They enable engineers to quantify acceptability and risk in design in terms of the human factors and ergonomics.

Human–Computer Interaction

Although life continues to become increasingly embedded with interactive computing services that make our lives easier, human-computer interaction (HCI) has not been given the attention it deserves in the education of software developers at the undergraduate level. Most entry-level HCI textbooks are structured around high-level concepts and are not directly tied to the software development process. Filling this need, Human-Computer Interaction: Fundamentals and Practice supplies an accessible introduction to the entire cycle of HCI design and implementation—explaining the core HCI concepts behind each step. Designed around the overall development cycle for an interactive software product, it starts off by covering the fundamentals behind HCI. The text then quickly goes into the application of this knowledge. It covers the forming of HCI requirements, modeling the interaction process, designing the interface, implementing the resulting design, and evaluating the implemented product. Although this textbook is suitable for undergraduate students of computer science and information technology, it is accessible enough to be understood by those with minimal programming knowledge. Supplying readers with a firm foundation in the main HCI principles, the book provides a working knowledge of HCI-oriented software development. The core content of this book is based on the introductory HCI course (advanced junior or senior-level undergraduate) that the author has been teaching at Korea University for the past eight years. The book includes access to PowerPoint lecture slides as well as source code for the example applications used throughout the text.

The Wiley Handbook of Human Computer Interaction Set

Once, human-computer interaction was limited to a privileged few. Today, our contact with computing technology is pervasive, ubiquitous, and global. Work and study is computer mediated,

domestic and commercial systems are computerized, healthcare is being reinvented, navigation is interactive, and entertainment is computer generated. As technology has grown more powerful, so the field of human-computer interaction has responded with more sophisticated theories and methodologies. Bringing these developments together, The Wiley Handbook of Human-Computer Interaction explores the many and diverse aspects of human-computer interaction while maintaining an overall perspective regarding the value of human experience over technology.

Multimedia and Hypertext

Reflecting the changes in the hypertext/multimedia market, this book includes illustrated examples of a variety of new hypermedia systems, particularly those related to the Internet, plus many examples of the use of Mosaic and the HTML.

The Usability Engineering Lifecycle

Research Methods in Human-Computer Interaction is a comprehensive guide to performing research and is essential reading for both quantitative and qualitative methods. Since the first edition was published in 2009, the book has been adopted for use at leading universities around the world, including Harvard University, Carnegie-Mellon University, the University of Washington, the University of Toronto, HiOA (Norway), KTH (Sweden), Tel Aviv University (Israel), and many others. Chapters cover a broad range of topics relevant to the collection and analysis of HCI data, going beyond experimental design and surveys, to cover ethnography, diaries, physiological measurements, case studies, crowdsourcing, and other essential elements in the well-informed HCI researcher's toolkit. Continual technological evolution has led to an explosion of new techniques and a need for this updated 2nd edition, to reflect the most recent research in the field and newer trends in research methodology. This Research Methods in HCI revision contains updates throughout, including more detail on statistical tests, coding qualitative data, and data collection via mobile devices and sensors. Other new material covers performing research with children, older adults, and people with cognitive impairments. Comprehensive and updated guide to the latest research methodologies and approaches, and now available in EPUB3 format (choose any of the ePub or Mobi formats after purchase of the eBook). Expanded discussions of online datasets, crowdsourcing, statistical tests, coding qualitative data, laws and regulations relating to the use of human participants, and data collection via mobile devices and sensors New material on performing research with children, older adults, and people with cognitive impairments, two new case studies from Google and Yahoo!, and techniques for expanding the influence of your research to reach non-researcher audiences, including software developers and policymakers

Encyclopedia of Information Science and Technology

Human Body: A Wearable Product Designer's Guide, unlike other anatomy books, is divided into sections pertinent to wearable product designers. Two introductory chapters include many definitions, an introduction to anatomical terminology, and brief discussions of the body's systems, setting the stage for the remaining chapters. The book is extensively referenced and has a large glossary with both anatomical and design terms making it maximally useful for interdisciplinary collaborative work. The book includes 200 original illustrations and many product examples to demonstrate relationships between wearable product components and anatomy. Exercises introduce useful anatomical, physiological, and biomechanical concepts and include design challenges. Features Includes body region chapters on head and neck, upper torso and arms, lower torso and legs, the mid-torso, hands, feet, and a chapter on the body as a whole Contains short sections on growth and development, pregnancy, and aging as well as sections on posture, gait, and designing total body garments Describes important regional muscles and their actions as well as joint range of motion (ROM) definitions and data with applications to designing motion into wearable products Presents appendices correlating to each body region’s anatomy with instructions for landmarking and measuring the body, a valuable resource for a lifetime of designing

Human Interaction, Emerging Technologies and Future Applications III

Once, human-computer interaction was limited to a privileged few. Today, our contact with computing technology is pervasive, ubiquitous, and global. Work and study is computer mediated, domestic and commercial systems are computerized, healthcare is being reinvented, navigation is interactive, and entertainment is computer generated. As technology has grown more powerful, so the field of human-computer interaction has responded with more sophisticated theories and methodologies. Bringing these developments together, The Wiley Handbook of Human-Computer Interaction explores the many and diverse aspects of human-computer interaction while maintaining an overall perspective regarding the value of human experience over technology.

Human Resources Management: Concepts, Methodologies, Tools, and Applications

The recent advances in display technologies and mobile devices is having an important effect on the way users interact with all kinds of devices (computers, mobile devices, laptops, tablets, and so on). These are opening up new possibilities for interaction, including the distribution of the UI (User Interface) amongst different devices, and implies that the UI can be split and composed, moved, copied or cloned among devices running the same or different operating systems. These new ways of manipulating the UI are considered under the emerging topic of Distributed User Interfaces (DUIs). DUIs are concerned with the repartition of one of many elements from one or many user interfaces in order to support one or many users to carry out one or many tasks on one or many domains in one or many contexts of use – each context of use consisting of users, platforms, and environments. The 20 chapters in the book cover between them the state-of-the-art, the foundations, and original applications of DUIs. Case studies are also included, and the book culminates with a review of interesting and novel applications that implement DUIs in different scenarios.

Human Computer Interaction

Penetrates the human computer interaction (HCI) field with breadth and depth of comprehensive research.

Handbook of Human-Computer Interaction

This Handbook is concerned with principles of human factors engineering for design of the human-computer interface. It has both academic and practical purposes; it summarizes the research and provides recommendations for how the information can be used by designers of computer systems. The articles are written primarily for the professional from another discipline who is seeking an understanding of human-computer interaction, and secondarily as a reference book for the professional in the area, and should particularly serve the following: computer scientists, human factors engineers, designers and design engineers, cognitive scientists and experimental psychologists, systems engineers, managers and executives working with systems development. The work consists of 52 chapters by 73 authors and is organized into seven sections. In the first section, the cognitive and information-processing aspects of HCI are summarized. The following group of papers deals with design principles for software and hardware. The third section is devoted to differences in performance between different users, and computer-aided training and principles for design of effective manuals. The next part presents important applications: text editors and systems for information retrieval, as well as issues in computer-aided engineering, drawing and design, and robotics. The fifth section introduces methods for designing the user interface. The following section examines those issues in the AI field that are currently of greatest interest to designers and human factors specialists, including such problems as natural language interface and methods for knowledge acquisition. The last section includes social aspects in computer usage, the impact on work organizations and work at home.

Human-Computer Interaction

Hailed on first publication as a compendium of foundational principles and cutting-edge research, The Human-Computer Interaction Handbook has become the gold standard reference in this field. Derived from select chapters of this groundbreaking resource, Human-Computer Interaction: The Development Practice addresses requirements specification, design and development, and testing and evaluation activities. It also covers task analysis, contextual design, personas, scenario-based design, participatory design, and a variety of evaluation techniques including usability testing, inspection-based and model-based evaluation, and survey design. The book includes contributions from eminent researchers and professionals from around the world who, under the guidance of editors Andrew Sear and Julie Jacko, explore visionary perspectives and developments that fundamentally transform the discipline and its practice.

Encyclopedia of Database Systems

This book reports on research and developments in human-technology interaction. A special emphasis is given to human-computer interaction, and its implementation for a wide range of purposes such as healthcare, aerospace, telecommunication, and education, among others. The human aspects are analyzed in detail. Timely studies on human-centered design, wearable technologies, social and affective computing, augmented, virtual and mixed reality simulation, human rehabilitation and biomechanics represent the core of the book. Emerging technology applications in business, security, and infrastructure are also critically examined, thus offering a timely, scientifically-grounded, but also professionally-oriented snapshot of the current state of the field. The book is based on contributions presented at the 3rd International Conference on Human Interaction and Emerging Technologies: Future Applications, IHIET 2020, held on August 27-29, 2020. It offers a timely survey and a practice-oriented reference guide to researchers and professionals dealing with design and/or management of the new generation of service systems.

Digital Human Modeling

This book constitutes the refereed proceedings of the First International Workshop on Human-Computer Interaction, Tourism and Cultural Heritage, HCITOCH 2010, held in Brescello, Italy, in September 2010. The 17 revised papers presented were carefully reviewed and selected from numerous submissions. Providing strategies for a creative future with computer science, quality design and communicability, the papers discuss the latest advances in the areas of augmented realities, computer art, computer graphics, e-commerce, eco-design, emerging technologies, dynamic and static media (2D & 3D), HCI, interactive systems, mixed reality, networking, simulation languages, tourism, usability, video games, virtual classroom and virtual museum.

Brain–Computer Interfaces Handbook

Brain–Computer Interfaces Handbook: Technological and Theoretical Advances provides a tutorial and an overview of the rich and multi-faceted world of Brain–Computer Interfaces (BCIs). The authors supply readers with a contemporary presentation of fundamentals, theories, and diverse applications of BCI, creating a valuable resource for anyone involved with the improvement of people’s lives by replacing, restoring, improving, supplementing or enhancing natural output from the central nervous system. It is a useful guide for readers interested in understanding how neural bases for cognitive and sensory functions, such as seeing, hearing, and remembering, relate to real-world technologies. More precisely, this handbook details clinical, therapeutic and human-computer interfaces applications of BCI and various aspects of human cognition and behavior such as perception, affect, and action. It overviews the different methods and techniques used in acquiring and pre-processing brain signals, extracting features, and classifying users’ mental states and intentions. Various theories, models, and empirical findings regarding the ways in which the human brain interfaces with external systems and environments using BCI are also explored. The handbook concludes by engaging ethical considerations, open questions, and challenges that continue to face brain–computer interface research. Features an in-depth look at the different methods and techniques used in acquiring and pre-processing brain signals, extracting features, and classifying the user's intention Covers various theories, models, and empirical findings regarding ways in which the human brain can interface with the systems or external environments Presents applications of BCI technology to understand various aspects of human cognition and behavior such as perception, affect, action, and more Includes clinical trials and individual case studies of the experimental therapeutic applications of BCI Provides human factors and human-computer interface concerns in the design, development, and evaluation of BCIs Overall, this handbook provides a synopsis of key technological and theoretical advances that are directly applicable to brain–computer interfacing technologies and can be readily understood and applied by individuals with no formal training in BCI research and development.

Human Computer Interaction Handbook

Winner of a 2013 CHOICE Outstanding Academic Title Award The third edition of a groundbreaking reference, The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies, and Emerging Applications raises the bar for handbooks in this field. It is the largest, most complete compilation of HCI theories, principles, advances, case st

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

Human Body

This two-volume set LNCS 11588 and 11589 constitutes the refereed proceedings of the 6th International Conference on Business, Government, and Organizations, HCIBGO 2019, held in July 2019 as part of HCI International 2019 in Orlando, FL, USA. HCII 2019 received a total of 5029 submissions, of which 1275 papers and 209 posters were accepted for publication after a careful reviewing process. The 63 papers presented in these two volumes are organized in topical sections named: Electronic, Mobile and Ubiquitous Commerce, eBanking and Digital Money, Consumer Behaviour, Business Information Systems, Dashboards and Visualization, Social Media and Big Data Analytics in B

Human Computer Interaction, Tourism and Cultural Heritage

This is the first volume of a four-volume handbook dealing with the field of human-computer interactions, edited by Sears (information systems, U. of Maryland Baltimore County) and Jacko (director, Institute for Health Informatics, U. of Minnesota). It contains 16 chapters discussing fundamental issues including, for humans, perceptual-motor interaction, human information processing,

mental models, emotion, cognitive architecture, task loading and stress, motivation and persuasion, and human error identification and, for computers, input technologies and techniques, sensor- and recognition-base input, visual displays, haptic interfaces, nonspeech auditory output, network-based interaction, wearable computers, and design of computer workstations. Annotation ©2009 Book News, Inc., Portland, OR (booknews.com).

Technological Convergence and Social Networks in Information Management

\"This set of books represents a detailed compendium of authoritative, research-based entries that define the contemporary state of knowledge on technology\"--Provided by publisher.

Handbook of Standards and Guidelines in Human Factors and Ergonomics, Second Edition

Describes the current status of developments in this field

Brain-Computer Interfaces

For generations, humans have fantasized about the ability to create devices that can see into a person’s mind and thoughts, or to communicate and interact with machines through thought alone. Such ideas have long captured the imagination of humankind in the form of ancient myths and modern science fiction stories. Recent advances in cognitive neuroscience and brain imaging technologies have started to turn these myths into a reality, and are providing us with the ability to interface directly with the human brain. This ability is made possible through the use of sensors that monitor physical processes within the brain which correspond with certain forms of thought. Brain-Computer Interfaces: Applying our Minds to Human-Computer Interaction broadly surveys research in the Brain-Computer Interface domain. More specifically, each chapter articulates some of the challenges and opportunities for using brain sensing in Human-Computer Interaction work, as well as applying Human-Computer Interaction solutions to brain sensing work. For researchers with little or no expertise in neuroscience or brain sensing, the book provides background information to equip them to not only appreciate the state-of-the-art, but also ideally to engage in novel research. For expert Brain-Computer Interface researchers, the book introduces ideas that can help in the quest to interpret intentional brain control and develop the ultimate input device. It challenges researchers to further explore passive brain sensing to evaluate interfaces and feed into adaptive computing systems. Most importantly, the book will connect multiple communities allowing research to leverage their work and expertise and blaze into the future.

Human-computer Interaction