Indoor Environment Navigation For Blind With Voice

Independent navigation through unfamiliar indoor spaces is beset with barriers for the visually impaired. Hence, this issue impairs their independence, self-respect and self-reliance. In this thesis I will introduce a new indoor navigation system for the blind and visually impaired that is affordable for both the user and the building owners. Outdoor vehicle navigation technical challenges have been solved using location information provided by Global Positioning Systems (GPS) and maps using Geographical Information Systems (GIS). However, GPS and GIS information is not available for indoor environments making indoor navigation, a challenging technical problem. Moreover, the indoor navigation system needs to be developed with the blind user in mind, i.e., special care needs to be given to vision free user interface. In this project, I design and implement an indoor navigation application for the blind and visually impaired that uses RFID technology and Computer Vision for localization and a navigation map generated automatically based on environmental landmarks by simulating a user's behavior. The focus of the indoor navigation system is no longer only on the indoor environment itself, but the way the blind users can experience it. This project will try this new idea in solving indoor navigation problems for blind and visually impaired users.

This book constitutes the refereed proceedings of the 16th International Conference on Entertainment Computing, ICEC 2017, held in Tsukuba City, Japan, in September 2017. The 16 full papers, 13 short papers, and 2 posters presented were carefully reviewed and selected from 46 submissions.

The two-volume set CCIS 713 and CCIS 714 contains the extended abstracts of the posters presented during the 19th International Conference on Human-Computer Interaction, HCI International 2017, held in Vancouver, BC, Canada, in July 2017. HCII 2017 received a total of 4340 submissions, of which 1228 papers were accepted for publication after a careful reviewing process. The 177 papers presented in these two volumes were organized in topical sections as follows: Part I: Design and evaluation methods, tools and practices; novel interaction techniques and devices; psychophisiological measuring and monitoring; perception, cognition and emotion in HCI; data analysis and data mining in social media and communication; ergonomics and models in work and training support. Part II: Interaction in virtual and augmented reality; learning, games and gamification; health, well-being and comfort; smart environments; mobile interaction; visual design and visualization; social issues and security in HCI.

The six-volume set comprising the LNCS volumes 11129-11134 constitutes the refereed proceedings of the workshops that took place in conjunction with the 15th European Conference on Computer Vision, ECCV 2018, held in Munich, Germany, in September 2018.43 workshops from 74 workshops proposals were selected for inclusion in the proceedings. The workshop topics present a good orchestration of new trends and traditional issues, built bridges into neighboring fields, and discuss fundamental technologies and novel applications.

Indoor Navigation for the Blind and Visually Impaired

Technological Trends in Improved Mobility of the Visually Impaired

Advances in Human and Machine Navigation Systems

Breakthroughs in Research and Practice

Blind Vision

The Impact of Digital Technologies on Public Health in Developed and Developing Countries

Proceedings of the Computational Intelligence in Information Systems Conference (CIIS 2020)

This book presents the most recent scientific and technological advances in the fields of engineering mathematics and computational science, to strengthen the links in the scientific community. It is a collection of high-quality, peer-reviewed research papers presented at the First International Conference on Mathematical Modeling and Computational Science (ICMMCS 2020), held in Pattaya, Thailand, during 14–15 August 2020. The topics covered in the book are mathematical logic and foundations, numerical analysis, neural networks, fuzzy set theory, coding theory, higher algebra, number theory, graph theory and combinatory, computation in complex networks, calculus, differential educations and integration, application of soft computing, knowledge engineering, machine learning, artificial intelligence, big data and data analytics, high-performance computing, network and device security, and Internet of things (IoT).

The four-volume set LNCS 8513-8516 constitutes the refereed proceedings of the 8th International Conference on Universal Access in Human-Computer Interaction, UAHCI 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 14 other thematically similar conferences. The total of 1476 papers and 220 posters presented at the HCII 2014 conferences was 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 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 251 contributions included in the UAHCI proceedings were carefully reviewed and selected for inclusion in this four-volume set. The 75 papers included in this volume are organized in the following topical sections: design for aging; health and rehabilitation

applications; accessible smart and assistive environments; assistive robots and mobility, navigation and safety.

This book constitutes the thoroughly refereed post-conference proceedings of the 8th International Conference on Wireless Internet, WICON 2014, held in Lisbon, Portugal, in November 2014. The 45 revised full papers were carefully reviewed and selected from numerous submissions. The papers cover topics such as 5G mobile communications, Internet of Things (IoT), super Wi-Fi and V2V/V21.

This book is part of a two-volume work that constitutes the refereed proceedings of the 11th IFIP TC13 International Conference on Human-Computer Interaction, INTERACT 2007, held in Rio de Janeiro, Brazil in September 2007. It covers social computing, UI prototyping, user centered design methods and techniques, intelligent user interfaces, accessibility, designing for multiples devices, affective computing, 3D interaction and 3D interfaces, as well evaluation methods.

HCI International 2017 – Posters' Extended Abstracts

Internet of Things and Smart Environments

Computer Vision - ECCV 2014 Workshops

Indoor Navigation System for the Visually Impaired with User-centric Graph Representation and Vision Detection Assistance

12th International Conference, ICCHP 2010, Vienna, Austria, July 14-16, 2010. Proceedings

Proceedings of First International Conference on Mathematical Modeling and Computational Science

Universal Access in Human-Computer Interaction: Aging and Assistive Environments

The four-volume set LNCS 8925, 8926, 8927 and 8928 comprises the thoroughly refereed post-workshop proceedings of the Workshops that took place in conjunction with the 13th European Conference on Computer Vision, ECCV 2014, held in Zurich, Switzerland, in September 2014. The 203 workshop papers were carefully reviewed and selected for inclusion in the proceedings. They where presented at workshops with the following themes: where computer vision meets art; computer vision in vehicle technology; spontaneous facial behavior analysis; consumer depth cameras for computer vision; "chalearn" looking at people: pose, recovery, action/interaction, gesture recognition; video event categorization, tagging and retrieval towards big data; computer vision with local binary pattern variants; visual object tracking challenge; computer vision + ontology applies cross-disciplinary technologies; visual perception of affordance and functional visual primitives for scene analysis; graphical models in computer vision; light fields for computer vision; computer vision for road scene understanding and autonomous driving; soft biometrics; transferring and adapting source knowledge in computer vision; surveillance and re-identification; color and photometry in computer vision; assistive computer vision and robotics; computer vision problems in plant phenotyping; and non-rigid shape analysis and deformable image alignment. Additionally, a panel discussion on video segmentation is included.

This book presents the proceedings of the International Conference on Computer Networks, Big Data and IoT (ICCBI-2018), held on December 19-20, 2018 in Madurai, India. In recent years, advances in information and communication technologies [ICT] have collectively aimed to streamline the evolution of internet applications. In this context, increasing the ubiquity of emerging internet applications with an enhanced capability to communicate in a distributed environment has become a major need for existing networking models and applications. To achieve this, Internet of Things [IoT] models have been developed to facilitate a smart interconnection and information exchange among modern objects - which plays an essential role in every aspect of our lives. Due to their pervasive nature, computer networks and IoT can easily connect and engage effectively with their network users. This vast network continuously generates data from heterogeneous devices, creating a need to utilize big data, which provides new and unprecedented opportunities to process these huge volumes of data. This International Conference on Computer Networks, Big Data, and Internet of Things [ICCBI] brings together state-of-the-art research work, which briefly describes advanced IoT applications in the era of big data. As such, it offers valuable insights for researchers and scientists involved in developing next-generation, big-data-driven IoT applications to address the real-world challenges in building a smartly connected environment.

This two-volume set (CCIS 1075 and CCIS 1076) constitutes the refereed proceedings of the Third International Conference on Advanced Informatics for Computing Research, ICAICR 2019, held in Shimla, India, in June 2019. The 78 revised full papers presented were carefully reviewed and selected from 382 submissions. The papers are organized in topical sections on computing methodologies; hardware; information systems; networks; software and its engineering.

This book is focused on the Internet of Things (IoT) services and smart environments that can be of assistance to the elderly and individuals living with dementia or some sensory

impairment. The book outlines the requirements of the systems that aim to furnish some digital sensory or cognitive assistance to the individuals and their caregivers. Internet of Things and Smart Environments: Assistive Technologies for Disability, Dementia, and Aging covers the important evolutions of the IoT, the sensors, actuators, wireless communication and pervasive computing systems, and other enabling technologies that power up this megatrend infrastructure. The use of the IoT-based systems in improving the conventional assistive technologies and provisions of ambient assisted living are also covered. The book takes an impartial, and yet holistic, view to providing research insights and inspirations for more development works in the areas related to assistive IoT. It will show the potentials of using normally available interactive devices, like smartphones or smart TVs, which can be supplemented with low-cost gadgets or apps to provide assistive capabilities. It aims to accentuate the need for taking a comprehensive and combinatory view of the comprising topics and approaches that are based on the visions and ideas from all stakeholders. The book will examine these points and considerations to conclude with recommendations for future development works and research directions. This book can be of value to a diverse array of audience. The researchers and developers in healthcare and medicine, aged care and disability services, as well as those working in the IoT-related fields, may find many parts of this book useful and stimulating. It can be of great value to postgraduate and research students working in these areas. It can also be adapted for use in upper-level classroom courses relevant to communication and smart technologies, IoT applications, and assistive technologies. Many parts of the book can be of interest to the elderly and individuals living with a disability, as well as their families and caregivers. From an industry perspective, it can be of interest to software, hardware, and particularly app developers working on the IoT applications, smart homes and environments, and assistive technologies for the elderly and people living with disability or dementia.

Assistive Technologies for Disability, Dementia, and Aging

Third International Conference, ICAICR 2019, Shimla, India, June 15–16, 2019, Revised Selected Papers, Part I

19th International Conference, HCI International 2017, Vancouver, BC, Canada, July 9–14, 2017, Proceedings, Part II

Crowdsourcing Based Micro Navigation System for Visually Impaired

Advanced Informatics for Computing Research

18th International Conference, ICOST 2020, Hammamet, Tunisia, June 24–26, 2020, Proceedings

Haptics: Perception, Devices, Control, and Applications

This book provides an insight into recent technological trends and innovations in mobility solutions and platforms to improve mobility of visually impaired people. The authors' goal is to help to contribute to the social and societal inclusion of the visually impaired. The book ' s topics include, but are not limited to, obstacle detection systems, indoor and outdoor navigation, transportation sustainability systems, and hardware/devices to aid visually impaired people. The book has a strong focus on practical applications, tested in a real environment. Applications include city halls, municipalities, and companies that can keep up to date with recent trends in platforms, methodologies and technologies to promote urban mobility. Also discussed are broader realms including education, health, electronics, tourism, and transportation. Contributors include a variety of researchers and practitioners around the world. Features practical, tested applications of technological mobility solutions for visual impaired people; Presents topics such as obstacle detection systems, urban mobility, smart home services, and ambient assisted living; Includes a number of application examples in education, health, electronics, tourism, and transportation.

The 4-volume set LNAI 13013 - 13016 constitutes the proceedings of the 14th International Conference on Intelligent Robotics and Applications, ICIRA 2021, which took place in Yantai, China, during October 22-25, 2021. The 299 papers included in these proceedings were carefully reviewed and selected from 386 submissions. They were organized in topical sections as follows: Robotics dexterous manipulation; sensors, actuators, and controllers for soft and hybrid robots; cable-driven parallel robot; human-centered wearable robotics; hybrid system modeling and human-machine interface; robot manipulation skills learning; micro_nano materials, devices, and systems for biomedical applications; actuating, sensing, control, and instrumentation for ultra-precision engineering; human-robot collaboration; robotic machining; medical robot; machine intelligence for human motion analytics; human-robot interaction for service robots; novel mechanisms, robots and applications; space robot and on-orbit service; neural learning enhanced motion planning and control for human robot interaction; medical engineering.

Equal accessibility to public places and services is now required by law in many countries. For the vision-impaired, specialised technology often can provide a fuller enjoyment of the facilities of society, from large scale meetings and public entertainments to reading a book or making music. This volume explores the engineering and design principles and techniques used in assistive technology for blind and vision-impaired people. This book maintains the currency of knowledge for engineers and health workers who develop devices and services for people with sight loss, and is an excellent source of reference for students of assistive technology and rehabilitation.

This book constitutes the proceedings of the 15th International Conference on Smart Homes and Health Telematics, ICOST 2017, held in Paris, France, in August 2017. The 18 regular papers, 5 short papers together with 2 invited talks included in this volume were carefully reviewed and selected from numerous submissions. The conference features a dynamic program incorporating a range of design, development, deployment and evaluation of Smart Urban Environments, Assistive Technologies, Chronic Disease

Management, Coaching and Health Telematics systems.
9th International Conference, UAHCI 2015, Held as Part of HCI International 2015, Los Angeles, CA, USA, August 2-7, 2015, Proceedings, Part IV
Universal Access in Human-Computer Interaction. Intelligent and Ubiquitous Interaction Environments
Exploring the Use of Wearables to Enable Indoor Navigation for Blind Users
8th International Conference, UAHCI 2014, Held as Part of HCI International 2014, Heraklion, Crete, Greece, June 22-27, 2014, Proceedings, Part III
Computational Intelligence in Information Systems
15th International Conference, ICOST 2017, Paris, France, August 29-31, 2017, Proceedings
Zurich, Switzerland, September 6-7 and 12, 2014, Proceedings, Part III

The 13th International Conference on Human–Computer Interaction, HCI Inter- tional 2009, was held in San Diego, California, USA, July 19–24, 2009, jointly with the Symposium on Human Interface (Japan) 2009, the 8th International Conference on Engineering Psychology and Cognitive Ergonomics, the 5th International Conference on Universal Access in Human–Computer Interaction, the Third International Conf- ence on Virtual and Mixed Reality, the Third International Conference on Internati- alization, Design and Global Development, the Third International Conference on Online Communities and Social Computing, the 5th International Conference on Augmented Cognition, the Second International Conference on Digital Human Mod- ing, and the First International Conference on Human Centered Design. A total of 4,348 individuals from academia, research institutes, industry and gove- mental agencies from 73 countries submitted contributions, and 1,397 papers that were judged to be of high scientific quality were included in the program. These papers - dress the latest research and development efforts and highlight the human aspects of the 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.
"This 10-volume compilation of authoritative, research-based articles contributed by thousands of researchers and experts from all over the world emphasized modern issues and the presentation of potential opportunities, prospective solutions, and future directions in the field of information science and technology"--Provided by publisher.
Detecting the presence of objects for spatial orientation and avoiding them for mobility is extremely difficult for People with Visual Disabilities. 285 million people worldwide are estimated to have a visual disability, of which 39 million are blind and another 246 million have low vision. Many day-to-day tasks that the rest of the population consider routine, are in fact excessively complex for these individuals to perform. It is difficult to have a perception of space and to be able to navigate both indoors and outdoors safely, confidently and effectively without visual information about the surroundings. The use of smartphones is popular among the people with visual disabilities for simple navigational assistance such as finding the current location, and reading out directions which typically leverage the availability of GPS in outdoor environments. But when it comes to indoor environments there is a deficit of such GPS-based accurate location services and this makes it more challenging to localize themselves with respect to the environment and navigate from one location to another. Existing solutions rely on the user to scan the environment (e.g., Ultracane, Smartcane) and build and maintain a mental model of the environment. Additionally, due to their heavy computational needs and power-hungry sensors (e.g., stereo camera, lidar and radar), existing solutions require significant amount of energy leading to short usable periods between chargings unless heavy battery packs are carried. I present two solutions. The first one is a lightweight single camera-based solution for Localization & Navigation (VisualLoc) and the second is an inexpensive, power-efficient depth-mapping solution (CaneScanner) for assisting Visually Impaired in Indoor Environments. Together these two tools help to achieve the following: 1) find one's relative position (distance & direction) with respect to the objects in the environment and subsequently keeping track of these self-to-object spatial relationship as they transform during locomotion; and, 2) sense objects within user's vicinity to efficiently, thereby helping them to navigate, safely and effectively from one's position to another desired position by avoiding the obstacles. VisualLoc provides positioning and tracking services by using a mobile smart camera such as in google glasses or smartphones which can be attached to the body of a visually impaired individual. Existing Radio Frequency (RF) or Visual Light Communication (VLC) based indoor tracking solutions can provide location and orientation only when there are dense deployments of Access Points (APs) or VLC bulbs (anchor points) in the user's field of view. VisualLoc has two components: (1) Vision-fix: It finds the absolute coordinates and orientation of the user's camera leveraging Visual Light Communication bulbs. (2) Vision-track: It tracks the coordinates and orientation of the user's camera when no anchor points is in line of sight. VisualLoc deployed in an indoor college building provides a median localization accuracy of 28 cm for Vision-fix and 49 cm for Vision-track. VisualLoc is the first implementation which is designed from the perspective of sparse deployment. CaneScanner is designed to find the depth-map of an indoor environment using a white cane, the most widely accepted tool by the visually impaired community, equipped with a single camera and inertial sensors. CaneScanner has three components: (i) an algorithm for providing tracking services, (ii) a robust depth mapping algorithm for creating accurate 3D depth-map, (iii) a power saving mode to optimize the camera usage and overall processing cost of CaneScanner. CaneScanner is the first work which addresses the low power, long range depth sensing needs of people with visual disabilities. The overarching goal of this thesis is to enable PVDs to be better equipped to navigate and interact with their immediate surroundings using technological breakthroughs in the design of lightweight, power-efficient and inexpensive solutions.
This book constitutes the refereed conference proceedings of the 8th International Conference on Multi-disciplinary Trends in Artificial Intelligence, MIWAI 2014, held in Bangalore, India, in December 2014. The 22 revised full papers were carefully reviewed and selected from 44 submissions. The papers feature a wide range of topics covering both theory, methods and tools as well as their diverse applications in numerous domains.
Wireless Internet
8th International Conference, WICON 2014, Lisbon, Portugal, November 13-14, 2014, Revised Selected Papers
5th International Conference, UAHCI 2009, Held as Part of HCI International 2009, San Diego, CA, USA, July 19-24, 2009. Proceedings, Part II

Encyclopedia of Information Science and Technology, Third Edition
Validation and Training Methodology Using Virtual Reality
Human-Computer Interaction - INTERACT 2007
11th IFIP TC 13 International Conference, Rio de Janeiro, Brazil, September 10-14, 2007, Proceedings, Part I

The ubiquity of modern technologies has allowed for increased connectivity between people and devices across the globe. This connected infrastructure of networks creates numerous opportunities for applications and uses. The Internet of Things: Breakthroughs in Research and Practice is an authoritative reference source for the latest academic material on the interconnectivity of networks and devices in the digital era and examines best practices for integrating this advanced connectivity across multiple fields. Featuring extensive coverage on innovative perspectives, such as secure computing, regulatory standards, and trust management, this book is ideally designed for engineers, researchers, professionals, graduate students, and practitioners seeking scholarly insights on the Internet of Things.

This book constitutes the Proceeding of the Computational Intelligence in Information Systems conference (CIIS 2020), held in Brunei, January 25–27, 2021. The CIIS conference provides a platform for researchers to exchange the latest ideas and to present new research advances in general areas related to computational intelligence and its applications. The 23 revised papers presented in this book have been carefully selected from 55 submissions.

One of the challenges that people with visual impairments (VI) have to have to confront daily, is navigating independently through foreign or unfamiliar spaces.Navigating through unfamiliar spaces without assistance is very time consuming and leads to lower mobility. Especially in the case of indoor environments where the use of GPS is impossible, this task becomes even harder. However, advancements in mobile and wearable computing pave the path to new cheap assistive technologies that can make the lives of people with VI easier.Wearable devices have great potential for assistive applications for users who are blind as they typically feature a camera and support hands and eye free interaction. Smart watches and heads up displays (HUDs), in combination with smartphones, can provide a basis for development of advanced algorithms, capable of providing inexpensive solutions for navigation in indoor spaces. New interfaces are also introduced making the interaction between users who are blind and mo-bile devices more intuitive. This work presents a set of new systems and technologies created to help users with VI navigate indoor environments. The first system presented is an indoor navigation system for people with VI that operates by using sensors found in mo-bile devices and virtual maps of the environment. The second system presented helps users navigate large open spaces with minimum veering. Next a study is conducted to determine the accuracy of pedometry based on different body placements of the accelerometer sensors. Finally, a gesture detection system is introduced that helps communication between the user and mobile devices by using sensors in wearable devices.

An advanced look at smart technology to promote the independence of the elderly and disabled Ongoing research and advancements in technology are essential for the continuing independence of elderly and disabled persons. The Engineering Handbook of Smart Technology for Aging, Disability, and Independence provides a thorough analysis of these technologies and the needs of the elderly and disabled, including a breakdown of demographics, government spending, growth rate, and much more. Each chapter is written by an expert in his or her respective field, and gives readers unparalleled insight into the research and developments in a multitude of important areas, including: User-need analyses, classifications, and policies Assistive devices and systems for people with motor disabilities Assistive devices and systems for people with visual and hearing impairments Human-machine interaction and virtual reality Assistive robotics Technology for user mobility and object manipulation Smart homes as assistant environments A discussion of emerging standards and guidelines to build accessible devices, tools, and environments This book is an indispensable resource for researchers and professionals in computer science, rehabilitation science, and clinical engineering. It also serves as a valuable textbook for graduate students in the aforementioned fields.

Universal Access in Human-Computer Interaction. Access to the Human Environment and Culture
Recent Advances in Indoor Localization Systems and Technologies
Intelligent Robotics and Applications
Smart Technologies: Breakthroughs in Research and Practice
2018 3rd International Conference for Convergence in Technology (I2CT)
The Gateway Hotel, XION Complex, Wakad Road, Pune, India. Apr 06-08, 2018
15th International Conference, ICCHP 2016, Linz, Austria, July 13-15, 2016, Proceedings, Part II
Indoor Navigation System for the Visually Impaired with User-centric Graph Representation and Vision Detection Assistance

Outdoor wayfinding and navigation systems and services have become indispensable in people's mobility in unfamiliar environments. Advances in key technologies (e.g., positioning and mobile devices), has spurred interest in research and development of indoor wayfinding and navigation systems and services in recent years. Indoor Wayfinding and Navigation provides both breadth and depth of knowledge in designing and building indoor wayfinding and navigation systems and services. It covers the types of sensors both feasible and practical for localization of users inside buildings. The book discusses current approaches, techniques, and technologies for

addressing issues in indoor wayfinding and navigation systems and services. It includes coverage of the cognitive, positioning, mapping, and application perspectives, an unusual but useful combination of information. This mix of different perspectives helps you better understand the issues and challenges of building indoor wayfinding and navigation systems and services, how they are different from those used outdoors, and how they can be used efficiently and effectively in challenging applications. Written by well-known specialists in the field, the book addresses all aspects of indoor wayfinding and navigation. It includes the latest research developments on the topic, succinctly covers the fundamentals, and details the issues and challenges in building new systems and services. With this information, you can design indoor wayfinding and navigation systems and services for a variety of uses and users.
Thanks to rapid technological developments in terms of Computational Intelligence, smart tools have been playing active roles in daily life. It is clear that the 21st century has brought about many advantages in using high-level computation and communication solutions to deal with real-world problems; however, more technologies bring more changes to society. In this sense, the concept of smart cities has been a widely discussed topic in terms of society and Artificial Intelligence-oriented research efforts. The rise of smart cities is a transformation of both community and technology use habits, and there are many different research orientations to shape a better future. The objective of this book is to focus on Explainable Artificial Intelligence (XAI) in smart city development. As recently designed, advanced smart systems require intense use of complex computational solutions (i.e., Deep Learning, Big Data, IoT architectures), the mechanisms of these systems become 'black-box' to users. As this means that there is no clear clue about what is going on within these systems, anxieties regarding ensuring trustworthy tools also rise. In recent years, attempts have been made to solve this issue with the additional use of XAI methods to improve transparency levels. This book provides a timely, global reference source about cutting-edge research efforts to ensure the XAI factor in smart city-oriented developments. The book includes both positive and negative outcomes, as well as future insights and the societal and technical aspects of XAI-based smart city research efforts. This book contains nineteen contributions beginning with a presentation of the background of XAI techniques and sustainable smart-city applications. It then continues with chapters discussing XAI for Smart Healthcare, Smart Education, Smart Transportation, Smart Environment, Smart Urbanization and Governance, and Cyber Security for Smart Cities.
The four LNCS volume set 9175-9178 constitutes the refereed proceedings of the 9th International Conference on Learning and Collaboration Technologies, UAHCI 2015, held as part of the 17th International Conference on Human-Computer Interaction, HCII 2015, in Los Angeles, CA, USA in August 2015, jointly with 15 other thematically similar conferences. The total of 1462 papers and 246 posters presented at the HCII 2015 conferences were carefully reviewed and selected from 4843 submissions. These papers of the four volume set address the following major topics: LNCS 9175, Universal Access in Human-Computer Interaction: Access to today's technologies (Part I), addressing the following major topics: LNCS 9175: Design and evaluation methods and tools for universal access, universal access to the web, universal access to mobile interaction, universal access to information, communication and media. LNCS 9176: Gesture-based interaction, touch-based and haptic Interaction, visual and multisensory experience, sign language technologies and smart and assistive environments LNCS 9177: Universal Access to Education, universal access to health applications and services, games for learning and therapy, and cognitive disabilities and cognitive support and LNCS 9178: Universal access to culture, orientation, navigation and driving, accessible security and voting, universal access to the built environment and ergonomics and universal access.
16th IFIP TC 14 International Conference, Tsukuba City, Japan, September 18-21, 2017, Proceedings
Assistive Technology for Visually Impaired and Blind People
Advances in Visual Computing
10th International Conference, EuroHaptics 2016, London, UK, July 4-7, 2016, Proceedings, Part I
A Single Camera Based Localization and Navigation Assistance for the Visually Impaired in Indoor Enviroments
The Engineering Handbook of Smart Technology for Aging, Disability, and Independence

Ongoing advancements in modern technology have led to significant developments with smart technologies. With the numerous applications available, it becomes imperative to conduct research and make further progress in this field. Smart Technologies: Breakthroughs in Research and Practice provides comprehensive and interdisciplinary research on the most emerging areas of information science and technology. Including innovative studies on image and speech recognition, human-computer interface, and wireless technologies, this multi-volume book is an ideal source for researchers, academicians, practitioners, and students interested in advanced technological applications and developments.
The three-volume set LNCS 9913, LNCS 9914, and LNCS 9915 comprises the refereed proceedings of the Workshops that took place in conjunction with the 14th European Conference on Computer Vision, ECCV 2016, held in Amsterdam, The Netherlands, in October 2016. The three-volume set LNCS 9913, LNCS 9914, and LNCS 9915 comprises the refereed proceedings of the Workshops that took place in conjunction with the 14th

European Conference on Computer Vision, ECCV 2016, held in Amsterdam, The Netherlands, in October 2016. 27 workshops from 44 workshops proposals were selected for inclusion in the proceedings. These address the following themes: Datasets and Performance Analysis in Early Vision; Visual Analysis of Sketches; Biological and Artificial Vision; Brave New Ideas for Motion Representations; Joint ImageNet and MS COCO Visual Recognition Challenge; Geometry Meets Deep Learning; Action and Anticipation for Visual Learning; Computer Vision for Road Scene Understanding and Autonomous Driving; Challenge on Automatic Personality Analysis; BioImage Computing; Benchmarking Multi-Target Tracking: MOTChallenge; Assistive Computer Vision and Robotics; Transferring and Adapting Source Knowledge in Computer Vision; Recovering 6D Object Pose; Robust Reading; 3D Face Alignment in the Wild and Challenge; Egocentric Perception, Interaction and Computing; Local Features: State of the Art, Open Problems and Performance Evaluation; Crowd Understanding; Video Segmentation; The Visual Object Tracking Challenge Workshop; Web-scale Vision and Social Media; Computer Vision for Audio-visual Media; Computer VISion for ART Analysis; Virtual/Augmented Reality for Visual Artificial Intelligence; Joint Workshop on Storytelling with Images and Videos and Large Scale Movie Description and Understanding Challenge.

Advances in Human and Machine Navigation Systems provides a platform for practicing researchers, academics, PhD students, and other scientists to design, analyze, evaluate, process, and implement diversiform issues of navigation systems, including life-improving advances in human navigation systems and advances improving machine navigation systems. The five chapters of the book demonstrate the capabilities of navigation systems to solve scientific and engineering problems with varying degrees of complexity.

An investigation of the effects of blindness and other types of visual deficit on cognitive abilities. Can a blind person see? The very idea seems paradoxical. And yet, if we conceive of "seeing" as the ability to generate internal mental representations that may contain visual details, the idea of blind vision becomes a concept subject to investigation. In this book, Zaira Cattaneo and Tomaso Vecchi examine the effects of blindness and other types of visual deficit on the development and functioning of the human cognitive system. Drawing on behavioral and neurophysiological data, Cattaneo and Vecchi analyze research on mental imagery, spatial cognition, and compensatory mechanisms at the sensorial, cognitive, and cortical levels in individuals with complete or profound visual impairment. They find that our brain does not need our eyes to "see." Cattaneo and Vecchi address critical questions of broad importance: the relationship of visual perception to imagery and working memory and the extent to which mental imagery depends on normal vision; the functional and neural relationships between vision and the other senses; the specific aspects of the visual experience that are crucial to cognitive development or specific cognitive mechanisms; and the extraordinary plasticity of the brain—as illustrated by the way that, in the blind, the visual cortex may be reorganized to support other perceptual or cognitive funtions. In the absence of vision, the other senses work as functional substitutes and are often improved. With Blind Vision, Cattaneo and Vecchi take on the "tyranny of the visual," pointing to the importance of the other senses in cognition.

ICMMCS 2020

The Neuroscience of Visual Impairment

Computers Helping People with Special Needs, Part II

Munich, Germany, September 8-14, 2018, Proceedings, Part VI

14th International Conference, ICIRA 2021, Yantai, China, October 22–25, 2021, Proceedings, Part III

Indoor Wayfinding and Navigation

Explainable Artificial Intelligence for Smart Cities

The two volume set LNCS 9758 and 9759, constitutes the refereed proceedings of the 15th International Conference on Computers Helping People with Special Needs, ICCHP 2015, held in Linz, Austria, in July 2016. The 115 revised full papers and 48 short papers presented were carefully reviewed and selected from 239 submissions. The papers included in the second volume are organized in the following topics: environmental sensing technologies for visual impairments; tactile graphics and models for blind people and recognition of shapes by touch; tactile maps and map data for orientation and mobility; mobility support for blind and partially sighted people; the use of mobile devices by individuals with special needs as an assistive tool; mobility support for people with motor and cognitive disabilities; towards e-inclusion for people with intellectual disabilities; At and inclusion of people with autism or dyslexia; AT and inclusion of deaf and hard of hearing people; accessible computer input; AT and rehabilitation for people with motor and mobility disabilities; HCI, AT and ICT for blind and partially sighted people.

Despite the enormous technical progress seen in the past few years, the maturity of indoor localization technologies has not yet reached the level of GNSS solutions. The 23 selected papers in this book present the recent advances and new developments in indoor localization systems and technologies, propose novel or improved methods with increased performance, provide insight into various aspects of quality control, and also introduce some unorthodox positioning methods.

The two-volume set LNCS 9774 and 9775 constitutes the refereed proceedings of the 10th International Conference EuroHaptics 2016, held in London, UK, in July 2016. The 100 papers (36 oral presentations and 64 poster presentations) presented were carefully reviewed and selected from 162 submissions. These proceedings reflect the multidisciplinary nature of EuroHaptics and cover topics such as perception of hardness

and softness; haptic devices; haptics and motor control; tactile cues; control of haptic interfaces; thermal perception; robotics and sensing; applications.

Welcome to the Proceedings of ICCHP 2010! We were proud to welcome participants from more than 40 countries from all over the world to this year's ICCHP. Since the late 1980s, it has been ICCHP's mission to support and reflect development in the field of "Assistive Technologies," eAccessibility and eInclusion. With a focus on scientific quality, ICCHP has become an important reference in our field. The 2010 conference and this collection of papers once again fulfilled this mission. The International Programme Committee, comprising 106 experts from all over the world, selected 147 full and 44 short papers out of 328 abstracts submitted to ICCHP. This acceptance ratio of about half of the submissions demonstrates our strict pursuit of scientific quality both of the programme and in particular of the proceedings in your hands. An impressive number of experts agreed to organize "Special Thematic Sessions" (STS) for ICCHP 2010. These STS help to bring the meeting into sharper focus in several key areas. In turn, this deeper level of focus helps to collate a state of the art and mainstream technical, social, cultural and political developments.

Computer Vision - ECCV 2016 Workshops

Computers Helping People with Special Needs

Entertainment Computing - ICEC 2017

Amsterdam, The Netherlands, October 8-10 and 15-16, 2016, Proceedings, Part II

The Internet of Things: Breakthroughs in Research and Practice

Proceeding of the International Conference on Computer Networks, Big Data and IoT (ICCBI - 2018)

Enhanced Quality of Life and Smart Living

This open access book constitutes the refereed proceedings of the 18th International Conference on String Processing and Information Retrieval, ICOST 2020, held in Hammamet, Tunisia, in June 2020. The 17 full papers and 23 short papers presented in this volume were carefully reviewed and selected from 49 submissions. They cover topics such as: IoT and AI solutions for e-health; biomedical and health informatics; behavior and activity monitoring; behavior and activity monitoring; and wellbeing technology. *This conference was held virtually due to the COVID-19 pandemic.*

The two volume set LNCS 10072 and LNCS 10073 constitutes the refereed proceedings of the 12th International Symposium on Visual Computing, ISVC 2016, held in Las Vegas, NV, USA in December 2016. The 102 revised full papers and 34 poster papers presented in this book were carefully reviewed and selected from 220 submissions. The papers are organized in topical sections: Part I (LNCS 10072) comprises computational bioimaging; computer graphics; motion and tracking; segmentation; pattern recognition; visualization; 3D mapping; modeling and surface reconstruction; advancing autonomy for aerial robotics; medical imaging; virtual reality; computer vision as a service; visual perception and robotic systems; and biometrics. Part II (LNCS 9475): applications; visual surveillance; computer graphics; and virtual reality.

In this thesis we propose a navigation instruction validation tool and an user training tool for PERCEPT system. The validation tool evaluates the navigation instructions using a virtual reality environment by ensuring that each path in the virtual environment can be traversed by following the navigation instructions. This validation tool will serve as a first automatic validation of navigation instructions prior to testing them with blind and visually impaired users. The user-training tool enables the blind user to explore and get familiar with the real environment by using the virtual environment generated in the Unity3d based game. The user interacts with the game using PERCEPT Smartphone client just like the user would interact in the real environment. Motion in the game is emulated using the keyboard. Motion directions follow the navigation instructions obtained through the Smartphone. This user-training tool will improve the users experience in the real environment by enabling them to explore and learn the environment a-priori to their arrival in the physical space.

Mobility and safety are primary concerns for blind and visually impaired (BVI) users when navigating in unfamiliar environments. Typically, a sighted person can locate a place of interest if they are provided guidance while approaching within a few meters of the location. However, this resolution of guidance is often insufficient for blind travelers. In this thesis, we propose a crowdsourcing based micro navigation system for BVI users in both indoor and outdoor environments. To achieve this goal, our system includes three parts: crowdsourcing reports generated by volunteers using the volunteer application, landmarks validation performed by the system administrator using the admin application, and the BVI user navigation obtained through the BVI user application. In addition, we provide accessible audio navigation for indoor and outdoor environments required to deliver real time step by step landmark information to BVI users. Crowdsourcing is enabled by the contribution of many volunteers which use the proposed volunteer application to report specific landmarks in the environment including their location, description and surrounding landmarks. These reports which are uploaded to the server database, are validated by the admin application which updates the server database and deploy BLE tags for indoor environment. The BVI user application localizes users by GPS outdoors and BLE proximity technology indoors. Using the real-time location of users and the landmark node graph we built from updated server database, this application provides the shortest route to the destination and real time "micro-navigation" information describing how to get to the next landmark's location with corresponding distance and orientation. This information is used ix to make users well aware of where they are, and guide users to their chosen destination within a cane's distance. This application will improve the confidence and safety of BVI users by enabling them to explore and get navigation in both indoor and outdoor environments.

Computer Vision – ECCV 2018 Workshops

12th International Symposium, ISVC 2016, Las Vegas, NV, USA, December 12-14, 2016, Proceedings, Part II

Multi-disciplinary Trends in Artificial Intelligence

8th International Workshop, MIWAI 2014, Bangalore, India, December 8-10, 2014, Proceedings