# Affective Computing And The Impact Of Gender And Age

*"The Oxford Handbook of Affective Computing is a definitive reference in the burgeoning field of affective computing (AC), a multidisciplinary field encompassing computer science, engineering, psychology, education, neuroscience, and other disciplines. AC research explores how affective factors influence interactions between humans and technology, how affect sensing and affect generation techniques can inform our understanding of human affect, and on the design, implementation, and evaluation of systems involving affect at their core. The volume features 41 chapters and is divided into five sections: history and theory, detection, generation, methodologies, and applications. Section 1 begins with the making of AC and a historical review of the science of emotion. The following chapters discuss the theoretical underpinnings of AC from an interdisciplinary viewpoint. Section 2 examines affect detection or recognition, a commonly investigated area. Section 3 focuses on aspects of affect generation, including the synthesis of emotion and its expression via facial features, speech, postures, and gestures. Cultural issues are also discussed. Section 4 focuses on methodological issues in AC research, including data collection techniques, multimodal affect databases, formats for the representation of emotion, crowdsourcing techniques, machine learning approaches, affect elicitation techniques, useful AC tools, and ethical issues. Finally, Section 5 highlights applications of AC in such domains as formal and informal learning, games, robotics, virtual reality, autism research, health care, cyberpsychology, music, deception, reflective writing, and cyberpsychology. This compendium will prove suitable for use as a textbook and serve as a valuable resource for everyone with an interest in AC."--*

*This monograph integrates theoretical perspectives on affect and learning with recent research in affective computing with an emphasis on building new learning technologies. The "new perspectives" come from the intersection of several research themes: -Basic research on emotion, cognition, and motivation applied to learning environments -Pedagogical and motivational strategies that are sensitive to affective and cognitive processes -Multimodal Human Computer Interfaces, with a focus on affect recognition and synthesis -Recent advances in affect-sensitive Intelligent Tutoring Systems -Novel methodologies to investigate affect and learning -Neuroscience research on emotions and learning*

*This two-volume set of LNCS 12188 and 12189 constitutes the refereed proceedings of the 14th International Conference on Universal Access in Human-Computer Interaction, UAHCI 2020, held as part of the 22nd International Conference, HCI International 2020, which took place in Copenhagen, Denmark, in July 2020. The conference was held virtually due to the COVID-19 pandemic. The total of 1439 papers and 238 posters have been accepted for publication in the HCII 2020 proceedings from a total of 6326 submissions. UAHCI 2020 includes a total of 80 regular papers which are organized in topical sections named: Design for All Theory, Methods and Practice; User Interfaces and Interaction Techniques for Universal Access; Web Accessibility; Virtual and Augmented Reality for Universal Access; Robots in Universal Access; Technologies for Autism Spectrum Disorders; Technologies for Deaf Users; Universal Access to Learning and Education; Social Media, Digital Services,*

*Inclusion and Innovation; Intelligent Assistive Environments.*

*According to Rosalind Picard, if we want computers to be genuinely intelligent and to interact naturally with us, we must give computers the ability to recognize, understand, even to have and express emotions. The latest scientific findings indicate that emotions play an essential role in decision making, perception, learning, and more—that is, they influence the very mechanisms of rational thinking. Not only too much, but too little emotion can impair decision making. According to Rosalind Picard, if we want computers to be genuinely intelligent and to interact naturally with us, we must give computers the ability to recognize, understand, even to have and express emotions. Part 1 of this book provides the intellectual framework for affective computing. It includes background on human emotions, requirements for emotionally intelligent computers, applications of affective computing, and moral and social questions raised by the technology. Part 2 discusses the design and construction of affective computers. Although this material is more technical than that in Part 1, the author has kept it less technical than typical scientific publications in order to make it accessible to newcomers. Topics in Part 2 include signal-based representations of emotions, human affect recognition as a pattern recognition and learning problem, recent and ongoing efforts to build models of emotion for synthesizing emotions in computers, and the new application area of affective wearable computers.*

*Affective Computing and Sentiment Analysis*

*Emotions and Personality in Personalized Services*

*THE IMPACT OF THE DIGITAL WORLD ON MANAGEMENT AND MARKETING*

*14th International Conference, UAHCI 2020, Held as Part of the 22nd HCI International Conference, HCII 2020, Copenhagen, Denmark, July 19–24, 2020, Proceedings, Part II*

*Emotion, Metaphor and Terminology*

*14th International Conference, SCSM 2022, Held as Part of the 24th HCI International Conference, HCII 2022, Virtual Event, June 26 – July 1, 2022, Proceedings, Part I*

Affective computing is a fascinating new area of research emerging in computer science. It dwells on problems where "computing is related to, arises from or deliberately influences emotions" (Picard 1997). Following this new research direction and considering the human element as crucial in designing and implementing interactive intelligent interfaces, affective computing is now influencing the way we shape, design, construct, and evaluate human-computer interaction and computer-mediated communcation. This book originates from a workshop devoted to affective interactions. It presents revised full versions of several papers accepted in preliminary version for the workshop and various selectively solicited papers by key people as well as an introductory survey by the volume editor and interview with Rosaling Picard, a pioneer researcher in the field. The book competently assesses the state of the art in this fascinating new field.

The two-volume set LNCS 6974 and LNCS 6975 constitutes the refereed proceedings of the Fourth International Conference on Affective Computing and Intelligent Interaction, ACII 2011, held in Memphis,TN, USA, in October 2011. The 135 papers in this two volume set presented together with 3 invited talks were carefully reviewed and selected from 196 submissions. The papers are organized in topical sections on recognition and synthesis of human affect, affect-sensitive applications, methodological issues in affective computing, affective and social robotics,

affective and behavioral interfaces, relevant insights from psychology, affective databases, Evaluation and annotation tools.

A seminal collection of research methodology themes, this two-volume work provides a set of key scholarly developments related to robustness, allowing scholars to advance their knowledge of research methods used outside of their own immediate fields. With a focus on emerging methodologies within management, key areas of importance are dissected with chapters covering statistical modelling, new measurements, digital research, biometrics and neuroscience, the philosophy of research, computer modelling approaches and new mathematical theories, among others. A genuinely pioneering contribution to the advancement of research methods in business studies, Innovative Research Methodologies in Management presents an analytical and engaging discussion on each topic. By introducing new research agendas it aims to pave the way for increased application of innovative techniques, allowing the exploration of future research perspectives. Volume II explores a range of research methodologies including the Spatial Delphi and Spatial Shang, Virtual Reality, the Futures Polygon and Neuroscience research.

This monograph reports on advances in the measurement and study of autonomic nervous system (ANS) dynamics as a source of reliable and effective markers for mood state recognition and assessment of emotional responses. Its primary impact will be in affective computing and the application of emotion-recognition systems. Applicative studies of biosignals such as: electrocardiograms; electrodermal responses; respiration activity; gaze points; and pupil-size variation are covered in detail, and experimental results explain how to characterize the elicited affective levels and mood states pragmatically and accurately using the information thus extracted from the ANS. Nonlinear signal processing techniques play a crucial role in understanding the ANS physiology underlying superficially noticeable changes and provide important quantifiers of cardiovascular control dynamics. These have prognostic value in both healthy subjects and patients with mood disorders. Moreover, Autonomic Nervous System Dynamics for Mood and Emotional-State Recognition proposes a novel probabilistic approach based on the point-process theory in order to model and characterize the instantaneous ANS nonlinear dynamics providing a foundation from which machine “understanding” of emotional response can be enhanced. Using mathematics and signal processing, this work also contributes to pragmatic issues such as emotional and mood-state modeling, elicitation, and non-invasive ANS monitoring. Throughout the text a critical review on the current state-of-the-art is reported, leading to the description of dedicated experimental protocols, novel and reliable mood models, and novel wearable systems able to perform ANS monitoring in a naturalistic environment. Biomedical engineers will find this book of interest, especially those concerned with nonlinear analysis, as will researchers and industrial technicians developing wearable systems and sensors for ANS monitoring.

Social Computing and Social Media: Design, User Experience and Impact

High Impact Strategies, What You Need to Know: Definitions, Adoptions, Impact, Benefits, Maturity, Vendors

Emotion, Affect and Personality in Speech and Language Processing

Volume II: Futures, Biometrics and Neuroscience Research

A Sourcebook and Manual

Affective Computing and Interaction: Psychological, Cognitive and Neuroscientific Perspectives

***Brain-Computer Interface (BCI) systems allow communication based on a direct electronic interface which conveys messages and commands directly from the human brain to a computer. In the recent years, attention to this new area of research and the number of publications discussing different paradigms, methods, signal processing algorithms, and applications have been increased dramatically. The objective of this book is to discuss recent progress and future prospects of BCI systems. The topics discussed in this book are: important issues concerning end-users; approaches to interconnect a BCI system with one or more applications;***

*several advanced signal processing methods (i.e., adaptive network fuzzy inference systems, Bayesian sequential learning, fractal features and neural networks, autoregressive models of wavelet bases, hidden Markov models, equivalent current dipole source localization, and independent component analysis); review of hybrid and wireless techniques used in BCI systems; and applications of BCI systems in epilepsy treatment and emotion detections.*

*"Social cognition focuses on how people process, store, and apply information about other people and social situations. It focuses on the role that cognitive processes play in our social interactions. On the other hand, the term cognitive computing is generally used to refer to new hardware and/or software that mimics the functioning of the human brain and helps to improve human decision-making. In this sense, it is a type of computing with the goal of discovering more accurate models of how the human brain/mind senses, reasons, and responds to stimuli. Thus, Socio-Cognitive Computing should be understood as a set of theoretical interdisciplinary frameworks, methodologies, methods and hardware/software tools to model how the human brain mediates social interactions. In addition, Affective Computing is the study and development of systems and devices that can recognize, interpret, process, and simulate human affects, a fundamental aspect of socio-cognitive neuroscience. It is an interdisciplinary field spanning computer science, electrical engineering, psychology, and cognitive science. Moreover, Physiological Computing is a category of technology in which electrophysiological data recorded directly from human activity are used to interface with a computing device. This technology becomes even more relevant when computing can be integrated pervasively in everyday life environments. Thus, Socio-Cognitive and Affective Computing systems should be able to adapt their behavior according to the Physiological Computing paradigm. This Special Issue on Socio-Cognitive and Affective Computing aimed at integrating these various albeit complementary fields. Proposals from researchers who use signals from the brain and/or body to infer people's intentions and psychological state in smart computing systems were welcome. Designing this kind of system requires combining knowledge and methods of ubiquitous and pervasive computing, as well as physiological data measurement and processing, with those of socio-cognitive and affective computing. Papers with a special focus on multidisciplinary approaches and multimodality were especially welcome"--Page 1.*

*This book presents the methods, tools and techniques that arecurrently being used to recognise (automatically) the affect,emotion, personality and everything else beyond linguistics('paralinguistics') expressed by or embedded in humanspeech and language. It is the first book to provide such a systematic survey ofparalinguistics in speech and language processing. The technologydescribed has evolved mainly from automatic speech and speakerrecognition and processing, but also takes into account recentdevelopments within speech signal processing, machine intelligenceand data mining. Moreover, the book offers a hands-on approach by integratingactual data sets, software, and open-source utilities which willmake the book invaluable as a teaching tool and similarly usefulfor those professionals already in the field. Key features: Provides an integrated presentation of basic research (inphonetics/linguistics and humanities) with state-of-the-artengineering approaches for speech signal processing and machineintelligence. Explains the history and state of the art of all of thesub-fields which contribute to the topic of computationalparalinguistics. C overs the signal processing and machine learning aspects ofthe actual computational modelling of emotion and personality andexplains the detection process from corpus collection to featureextraction and from model testing to system integration. Details aspects of real-world system integration includingdistribution, weakly supervised learning and*

*confidencemeasures. Outlines machine learning approaches including static, dynamicand context-sensitive algorithms for classification andregression. Includes a tutorial on freely available toolkits, such as theopen-source 'openEAR' toolkit for emotion and affectrecognition co-developed by one of the authors, and a listing ofstandard databases and feature sets used in the field to allow forimmediate experimentation enabling the reader to build an emotiondetection model on an existing corpus.*

*The Knowledge Solution. Stop Searching, Stand Out and Pay Off. The #1 ALL ENCOMPASSING Guide to Affective Computing. An Important Message for ANYONE who wants to learn about Affective Computing Quickly and Easily... ""Here's Your Chance To Skip The Struggle and Master Affective Computing, With the Least Amount of Effort, In 2 Days Or Less..."" Affective computing is the study and development of systems and devices that can recognize, interpret, process, and simulate human affects. It is an interdisciplinary field spanning computer sciences, psychology, and cognitive science. While the origins of the field may be traced as far back as to early philosophical enquiries into emotion, the more modern branch of computer science originated with Rosalind Picard's 1995 paper on affective computing. A motivation for the research is the ability to simulate empathy. The machine should interpret the emotional state of humans and adapt its behaviour to them, giving an appropriate response for those emotions. Get the edge, learn EVERYTHING you need to know about Affective Computing, and ace any discussion, proposal and implementation with the ultimate book - guaranteed to give you the education that you need, faster than you ever dreamed possible! The information in this book can show you how to be an expert in the field of Affective Computing. Are you looking to learn more about Affective Computing? You're about to discover the most spectacular gold mine of Affective Computing materials ever created, this book is a unique collection to help you become a master of Affective Computing. This book is your ultimate resource for Affective Computing. Here you will find the most up-to-date information, analysis, background and everything you need to know. In easy to read chapters, with extensive references and links to get you to know all there is to know about Affective Computing right away. A quick look inside: Affective computing, Portal: Artificial intelligence, Outline of artificial intelligence, List of artificial intelligence projects, List of programming languages for artificial intelligence, 20Q, ACROSS Project, Action selection, Admissible heuristic, Agent systems reference model, AgentSheets, AI box, AI-complete, Algorithmic probability, Allen (robot), And-or tree, Angel F, Anticipation (artificial intelligence), Any-angle path planning, Anytime algorithm, Applications of artificial intelligence, Artificial architecture, Artificial brain, Artificial consciousness, Artificial Imagination, Artificial intelligence, Semi Human Instinctive Artificial Intelligence, Artificial intelligence and law, Artificial intelligence marketing, Artificial Intelligence System, Artificial intelligence systems integration, Artificial intelligence, situated approach, Artificial psychology, ASR-complete, Attributional calculus, Autognostics, Automated Mathematician, Automated reasoning, Automatic waste container, Autonomic Computing, Autonomic Networking, Autonomous agent, Backward chaining, Bees algorithm, Belief-desire-intention model, Bio-inspired computing, Bipropagation, Blackboard system, Blackbox planning system, Border pairs method, CALO, Campus in Multidisciplinary Perception and Intelligence of Albacete 2006, User: Cengence/Cengence, Cerebellar Model Articulation Controller, Chatterbox Challenge, Chess as mental training, Cobweb (clustering), Cognitive Info-Communications (CogInfoCom), Cognitive philology, Cognitive robotics, Cognitive tutor, Collective intelligence, Commonsense reasoning, Competitions and prizes in artificial intelligence, Computational creativity...and Much, Much More! This book explains in-depth the real drivers and workings of Affective Computing. It reduces the risk of your technology, time and resources investment decisions by enabling you to compare*

***your understanding of Affective Computing with the objectivity of experienced professionals - Grab your copy now, while you still can.***

***Emotional AI***

***First International Conference, ACII 2005, Beijing, China, October 22-24, 2005, Proceedings***

***Affective Computing the Ultimate Step-By-Step Guide***

***Socio-cognitive and Affective Computing***

***Technologies, Data and Psychosocial Life***

***Recent Progress and Future Prospects***

2012 International Conference on Affective Computing and Intelligent Interaction (ICACII 2012) was the most comprehensive conference focused on the various aspects of advances in Affective Computing and Intelligent Interaction. The conference provided a rare opportunity to bring together worldwide academic researchers and practitioners for exchanging the latest developments and applications in this field such as Intelligent Computing, Affective Computing, Machine Learning, Business Intelligence and HCI. This volume is a collection of 119 papers selected from 410 submissions from universities and industries all over the world, based on their quality and relevancy to the conference. All of the papers have been peer-reviewed by selected experts.

This book is a printed edition of the Special Issue "Socio-Cognitive and Affective Computing" that was published in Applied Sciences

Affective computing is a nascent field situated at the intersection of artificial intelligence with social and behavioral science. It studies how human emotions are perceived and expressed, which then informs the design of intelligent agents and systems that can either mimic this behavior to improve their intelligence or incorporate such knowledge to effectively understand and communicate with their human collaborators. Affective computing research has recently seen significant advances and is making a critical transformation from exploratory studies to real-world applications in the emerging research area known as applied affective computing. This book offers readers an overview of the state-of-the-art and emerging themes in affective computing, including a comprehensive review of the existing approaches to affective computing systems and social signal processing. It provides in-depth case studies of applied affective computing in various domains, such as social robotics and mental well-being. It also addresses ethical concerns related to affective computing and how to prevent misuse of the technology in research and applications. Further, this book identifies future directions for the field and summarizes a set of guidelines for developing next-generation affective computing systems that are effective,

safe, and human-centered. For researchers and practitioners new to affective computing, this book will serve as an introduction to the field to help them in identifying new research topics or developing novel applications. For more experienced researchers and practitioners, the discussions in this book provide guidance for adopting a human-centered design and development approach to advance affective computing.

Advances in modern sciences occur thanks to within-fields discoveries as well as confrontation of concepts and methods from separated, sometimes distant, domains of knowledge. For instance, the fields of psychology and psychopathology benefited from accumulated contributions from cognitive neurosciences, which, in turn, received insights from molecular chemistry, cellular biology, physics (neuroimaging), statistics and computer sciences (data processing), etc. From the results of these researches, one can argue that among the numerous cognitive phenomena supposedly involved in the emergence the human intelligence and organized behavior, some of them are specific to the social nature of our phylogenetic order. Scientific reductionism allowed to divide the social cognitive system into several components, i.e. emotion processing and regulation, mental state inference (theory of mind), agency, etc. New paradigms were progressively designed to investigate these processes within highly-controlled laboratory settings. Moreover, the related constructs were successful at better understanding psychopathological conditions such as autism and schizophrenia, with partial relationships with illness outcomes. Here, we would like to outline the parallel development of concepts in social neurosciences and in other domains such as computer science, affective computing, virtual reality development, and even hardware technologies. While several researchers in neurosciences pointed out the necessity to consider naturalistic social cognition (Zaki and Ochsner, Ann N Y Acad Sci 1167, 16-30, 2009), the second person perspective (Schilbach et al., Behav Brain Sci 36(4), 393-414, 2013) and reciprocity (de Bruin et al., Front Hum Neurosci 6, 151, 2012), both computer and software developments allowed more and more realistic real-time models of our environment and of virtual humans capable of some interaction with users. As noted at the very beginning of this editorial, a new convergence between scientific disciplines might occur from which it is tricky to predict the outcomes in terms of new concepts, methods and uses. Although this convergence is motivated by the intuition that it fits well ongoing societal changes (increasing social demands on computer technologies, augmenting funding), it comes with several difficulties for which the current Frontiers in' topic strives to bring some positive answers,

and to provide both theoretical arguments and experimental examples. The first issue is about concepts and vocabulary as the contributions described in the following are authored by neuroscientists, computer scientists, psychopathologists, etc. A special attention was given during the reviewing process to stay as close as possible to the publication standards in psychological and health sciences, and to avoid purely technical descriptions. The second problem concerns methods: more complex computerized interaction models results in unpredictable and poorly controlled experiments. In other words, the assets of naturalistic paradigms may be alleviated by the difficulty to match results between subjects, populations, conditions. Of course, this practical question is extremely important for investigating pathologies that are associated with profoundly divergent behavioral patterns. Some of the contributions of this topic provide description of strategies that allowed to solve these difficulties, at least partially. The last issue is about heterogeneity of the objectives of the researches presented here. While selection criteria focused on the use of innovative technologies to assess or improve social cognition, the fields of application of this approach were quite unexpected. In an attempt to organize the contributions, three directions of research can be identified: 1) how innovation in methods might improve understanding and assessment of social cognition disorders or pathology? 2) within the framework of cognitive behavioral psychotherapies (CBT), how should we consider the use of virtual reality or augmented reality? 3) which are the benefits of these techniques for investigating severe mental disorders (schizophrenia or autism) and performing cognitive training? The first challenging question is insightfully raised in the contribution of Timmermans and Schilbach (2014) giving orientations for investigating alterations of social interaction in psychiatric disorders by the use of dual interactive eye tracking with virtual anthropomorphic avatars. Joyal, Jacob and collaborators (2014) bring concurrent and construct validities of a newly developed set of virtual faces expressing six fundamental emotions. The relevance of virtual reality was exemplified with two contributions focusing on anxiety related phenomena. Jackson et al. (2015) describe a new environment allowing to investigate empathy for dynamic FACS-coded facial expressions including pain. Based on a systematic investigation of the impact of social stimuli modalities (visual, auditory), Ruch and collaborators are able to characterize the specificity of the interpretation of laughter in people with gelotophobia (2014). On the issue of social anxiety, Aymerich-Franch et al. (2014) presented two studies in which public speaking anxiety has been correlated with avatars' similarity of participants' self-

representations. The second issue focuses on how advances in virtual reality may benefit to cognitive and behavioral therapies in psychiatry. These interventions share a common framework that articulates thoughts, feelings or emotions and behaviors and proposes gradual modification of each of these levels thanks to thought and schema analysis, stress reduction procedures, etc. They were observed to be somehow useful for the treatment of depression, stress disorders, phobias, and are gaining some authority in personality disorders and addictions. The main asset of new technologies is the possibility to control the characteristics of symptom-eliciting stimuli/situations, and more precisely the degree to which immersion is enforced. For example, Baus and Bouchard (2014) provide a review on the extension of virtual reality exposure-based therapy toward recently described augmented reality exposure-based therapy in individuals with phobias. Concerning substance dependence disorders, Hone-Blanchet et collaborators (2014) present another review on how virtual reality can be an asset for both therapy and craving assessment stressing out the possibilities to simulate social interactions associated with drug seeking behaviors and even peers' pressure to consume. The last issue this Frontiers' topic deals with encompasses the questions raised by social cognitive training or remediation in severe and chronic mental disorders (autistic disorders, schizophrenia). Here, therapies are based on drill and practice or strategy shaping procedures, and, most of the time, share an errorless learning of repeated cognitive challenges. Computerized methods were early proposed for that they do, effortlessly and with limited costs, repetitive stimulations. While, repetition was incompatible with realism in the social cognitive domain, recent advances provide both immersion and full control over stimuli. Georgescu and al. (2014) exhaustively reviews the use of virtual characters to assess and train non-verbal communication in high-functioning autism (HFA). Grynszpan and Nadel (2015) present an original eye-tracking method to reveal the link between gaze patterns and pragmatic abilities again in HFA. About schizophrenia, Oker and collaborators (2015) discuss and report some insights on how an affective and reactive virtual agents might be useful to assess and remediate several defects of social cognitive disorders. About assessment within virtual avatars on schizophrenia, Park et al., (2014) focused on effect of perceived intimacy on social decision making with schizophrenia patients. Regarding schizophrenia remediation, Peyroux and Franck (2014) presented a new method named RC2S which is a cognitive remediation program to improve social cognition in schizophrenia and related disorders. To conclude briefly, while it is largely acknowledged that social interaction can be

studied as a topic of its own, all the contributions demonstrate the added value of expressive virtual agents and affective computing techniques for the experimentation. It also appears that the use of virtual reality is at the very beginning of a new scientific endeavor in cognitive sciences and medicine.

Artificial Intelligence in Education

Socio-Cognitive and Affective Computing

Fourth International Conference, ACII 2011, Memphis, TN, USA, October 9-12, 2011, Proceedings

Brain-Computer Interface Systems

Science, Ethics, and Policy

Scientists Answer the Most Provocative Questions

'Affective computing' is a branch of computing concerned with the theory and construction of machines which can detect, respond to, and simulate human emotional states. This book presents an interdisciplinary exploration of this rapidly expanding field, aimed at those in psychology, computational neuroscience, computer science, and AI.

What happens when media technologies are able to interpret our feelings, emotions, moods, and intentions? In this cutting edge new book, Andrew McStay explores that very question and argues that these abilities result in a form of technological empathy. Offering a balanced and incisive overview of the issues raised by 'Emotional AI', this book: Provides a clear account of the social benefits and drawbacks of new media trends and technologies such as emoji, wearables and chatbots Demonstrates through empirical research how 'empathic media' have been developed and introduced both by start-ups and global tech corporations such as Facebook Helps readers understand the potential implications on everyday life and social relations through examples such as video-gaming, facial coding, virtual reality and cities Calls for a more critical approach to the rollout of emotional AI in public and private spheres Combining established theory with original analysis, this book will change the way students view, use and interact with new technologies. It should be required reading for students and researchers in media, communications, the social sciences and beyond.

"This book focuses on the integration of emotions into artificial environments such as computers and robotics"--Provided by publisher.

This two-volume set LNCS 13315 and 13316 constitutes the refereed proceedings of the 14th International Conference on Social Computing and Social Media, SCSM 2022, held as part of the 24rd International Conference, HCI International 2022, which took place in June-July 2022. Due to COVID-19 pandemic the conference was held virtually. The total of 1276 papers and 275 posters included in the 40 HCII 2022 proceedings volumes was carefully reviewed and selected from 5583 submissions. The papers of SCSM 2022, Part I, are organized in topical sections named: design and user experience in social media and social live streaming; text analysis and AI in social media; social media impact on society and business.

Emotions and Affect in Human Factors and Human-Computer Interaction
Artificial Intelligence Today
From Theory to Applications
The Oxford Handbook of Affective Computing
Emotion in the Digital Age
New Perspectives on Affect and Learning Technologies

Affective Computing is a growing multidisciplinary field encompassing computer science, engineering, psychology, education, neuroscience, and many other disciplines. It explores how affective factors influence interactions between humans and technology, how affect sensing and affect generation techniques can inform our understanding of human affect, and on the design, implementation, and evaluation of systems that intricately involve affect at their core. The Oxford Handbook of Affective Computing will help both new and experienced researchers identify trends, concepts, methodologies, and applications in this burgeouning field. The volume features 41 chapters divided into five main sections: history and theory, detection, generation, methodologies, and applications. Section One begins with a look at the makings of AC and a historical review of the science of emotion. Chapters discuss the theoretical underpinnings of AC from an interdisciplinary perspective involving the affective, cognitive, social, media, and brain sciences. Section Two focuses on affect detection or affect recognition, which is one of the most commonly investigated areas in AC. Section Three examines aspects of affect generation including the synthesis of emotion and its expression via facial features, speech, postures and gestures. Cultural issues in affect generation are also discussed. Section Four features chapters on methodological issues in AC research, including data collection techniques, multimodal affect databases, emotion representation formats, crowdsourcing techniques, machine learning approaches, affect elicitation techniques, useful AC tools, and ethical issues in AC. Finally, Section Five highlights existing and future applications of AC in domains such as formal and informal learning, games, robotics, virtual reality, autism research, healthcare, cyberpsychology, music, deception, reflective writing, and cyberpsychology. With chapters authored by world leaders in each area, The Oxford Handbook of Affective Computing is suitable for use as a textbook in undergraduate or graduate courses in AC, and will serve as a valuable resource for students, researchers, and practitioners across the globe.

Over the past few decades, we have witnessed the growth of movements using digital means to connect with broader interest groups and express their points of view. These movements emerge out of distinct contexts and yield different outcomes, but tend to share one thing in common: online and offline solidarity shaped around the public display of emotion. Social media facilitate feelings of engagement,

in ways that frequently make people feel re-energized about politics. In doing so, media do not make or break revolutions but they do lend emerging, storytelling publics their own means for feeling their way into events, frequently by making those involved a part of the developing story. Technologies network us but it is our stories that connect us to each other, making us feel close to some and distancing us from others. Affective Publics explores how storytelling practices facilitate engagement among movements tuning into a current issue or event by employing three case studies: Arab Spring movements, various iterations of Occupy, and everyday casual political expressions as traced through the archives of trending topics on Twitter. It traces how affective publics materialize and disband around connective conduits of sentiment every day and find their voice through the soft structures of feeling sustained by societies. Using original quantitative and qualitative data, Affective Publics demonstrates, in this groundbreaking analysis, that it is through these soft structures that affective publics connect, disrupt, and feel their way into everyday politics.

Affective information processing assigns computers the human-like capabilities of observation, interpretation and generation of affect features. It is an important topic for harmonious human-computer interaction, by increasing the quality of human-computer communication and improving the intelligence of the computer. Discussing state of art of the research in affective information processing, this book summarises key technologies researched, such as facial expression recognition, face animation, emotional speech synthesis, intelligent agent, and virtual reality. The detailed discussion covers a wide range of topics including hot topics which look to challenge and improve current research work. Written to provide an opportunity for scientists, engineers and graduate students to learn problems, solutions and technologies in the topic area, this book will provide insight and prove a valuable reference tool.

This open access book examines recent advances in how artificial intelligence (AI) and robotics have elicited widespread debate over their benefits and drawbacks for humanity. The emergent technologies have for instance implications within medicine and health care, employment, transport, manufacturing, agriculture, and armed conflict. While there has been considerable attention devoted to robotics/AI applications in each of these domains, a fuller picture of their connections and the possible consequences for our shared humanity seems needed. This volume covers multidisciplinary research, examines current research frontiers in AI/robotics and likely impacts on societal well-being, human – robot relationships, as well as the opportunities and risks for sustainable development and peace. The attendant ethical and religious dimensions of these technologies are addressed and implications for regulatory policies on the use and future development of AI/robotics technologies are elaborated.

Models, Evaluation and Applications

The Rise of Empathic Media

Recent Trends and Developments

Universal Access in Human-Computer Interaction. Applications and Practice
The Neuropsychology of Emotion
Sentiment, Technology, and Politics

Since interactions may occur between animals, humans, or computational agents, an interdisciplinary approach which investigates foundations of affective communication in a variety of platforms is indispensable. In the field of affective computing, a collection of research, merging decades of research on emotions in psychology, cognition and neuroscience will inspire creative future research projects and contribute to the prosperity of this emerging field. Affective Computing and Interaction: Psychological, Cognitive and Neuroscientific Perspectives examines the current state and the future prospects of affect in computing within the context of interactions. Uniting several aspects of affective interactions and topics in affective computing, this reference reviews basic foundations of emotions, furthers an understanding of the contribution of affect to our lives and concludes by revealing current trends and promising technologies for reducing the emotional gap between humans and machines, all within the context of interactions.

Emotions and Affect in Human Factors and Human – Computer Interaction is a complete guide for conducting affect-related research and design projects in H/F and HCI domains. Introducing necessary concepts, methods, approaches, and applications, the book highlights how critical emotions and affect are to everyday life and interaction with cognitive artifacts. The text covers the basis of neural mechanisms of affective phenomena, as well as representative approaches to Affective Computing, Kansei Engineering, Hedonomics, and Emotional Design. The methodologies section includes affect induction techniques, measurement techniques, detection and recognition techniques, and regulation models and strategies. The application chapters discuss various H/F and HCI domains: product design, human – robot interaction, behavioral health and game design, and transportation. Engineers and designers can learn and apply psychological theories and mechanisms to account for their affect-related research and can develop their own domain-specific theory. The approach outlined in this handbook works to close the existing gap between the traditional affect research and the emerging field of affective design and affective computing. Provides a theoretical background of affective sciences Demonstrates diverse affect induction methods in actual research settings Describes sensing technologies, such as brain – computer interfaces, facial expression detection, and more Covers emotion modeling and its application to regulation processes Includes case studies and applied examples in a variety of H/F and HCI application areas Addresses emerging interdisciplinary areas including Positive Technology, Subliminal Perception, Physiological Computing, and Aesthetic Computing

Artificial Intelligence is one of the most fascinating and unusual areas of academic study to have emerged this century. For some, AI is a true scientific discipline, that has made important and fundamental contributions to the use

of computation for our understanding of nature and phenomena of the human mind; for others, AI is the black art of computer science. Artificial Intelligence Today provides a showcase for the field of AI as it stands today. The editors invited contributions both from traditional subfields of AI, such as theorem proving, as well as from subfields that have emerged more recently, such as agents, AI and the Internet, or synthetic actors. The papers themselves are a mixture of more specialized research papers and authorative survey papers. The secondary purpose of this book is to celebrate Springer-Verlag's Lecture Notes in Artificial Intelligence series.

Have the types of risks that may impact Affective Computing been identified and analyzed? Who sets the Affective Computing standards? What about Affective Computing Analysis of results? What potential environmental factors impact the Affective Computing effort? Where do ideas that reach policy makers and planners as proposals for Affective Computing strengthening and reform actually originate? This exclusive Affective Computing self-assessment will make you the accepted Affective Computing domain assessor by revealing just what you need to know to be fluent and ready for any Affective Computing challenge. How do I reduce the effort in the Affective Computing work to be done to get problems solved? How can I ensure that plans of action include every Affective Computing task and that every Affective Computing outcome is in place? How will I save time investigating strategic and tactical options and ensuring Affective Computing costs are low? How can I deliver tailored Affective Computing advice instantly with structured going-forward plans? There's no better guide through these mind-expanding questions than acclaimed best-selling author Gerard Blokdyk. Blokdyk ensures all Affective Computing essentials are covered, from every angle: the Affective Computing self-assessment shows succinctly and clearly that what needs to be clarified to organize the required activities and processes so that Affective Computing outcomes are achieved. Contains extensive criteria grounded in past and current successful projects and activities by experienced Affective Computing practitioners. Their mastery, combined with the easy elegance of the self-assessment, provides its superior value to you in knowing how to ensure the outcome of any efforts in Affective Computing are maximized with professional results. Your purchase includes access details to the Affective Computing self-assessment dashboard download which gives you your dynamically prioritized projects-ready tool and shows you exactly what to do next. Your exclusive instant access details can be found in your book.

Advances in Virtual Agents and Affective Computing for the Understanding and Remediation of Social Cognitive Disorders

Towards a New Generation of Computer Interfaces

Applied Affective Computing

Affective Computing

15th International Conference, AIED 2011, Auckland, New Zealand, June 28 - July 2, 2011, Proceedings

Psychological, Cognitive and Neuroscientific Perspectives

This comprehensive review of the neuropsychology of emotion and the underlying neural mechanisms, is divided into four sections: background and general techniques, theoretical perspectives, emotional disorders, and clinical implications.

Personalization is ubiquitous from search engines to online-shopping websites helping us find content more efficiently and this book focuses on the key developments that are shaping our daily online experiences. With advances in the detection of end users' emotions, personality, sentiment and social signals, researchers and practitioners now have the tools to build a new generation of personalized systems that will really understand the user's state and deliver the right content. With leading experts from a vast array of domains from user modeling, mobile sensing and information retrieval to artificial intelligence, human-computer interaction (HCI) social computing and psychology, a broad spectrum of topics are covered. From discussing psychological theoretical models and exploring state-of-the-art methods for acquiring emotions and personality in an unobtrusive way, as well as describing how these concepts can be used to improve various aspects of the personalization process and chapters that discuss evaluation and privacy issues. Emotions and Personality in Personalized Systems will help aid researchers and practitioners develop and evaluate user-centric personalization systems that take into account the factors that have a tremendous impact on our decision-making – emotions and personality.

This book constitutes the refereed proceedings of the Second International Conference on Affective Computing and Intelligent Interaction, ACII 2007. It covers affective facial expression and recognition, affective body expression and recognition, affective speech processing, affective text and dialogue processing, recognizing affect using physiological measures, computational models of emotion and theoretical foundations, and affective sound and music processing.

Questions about the physical world, the mind, and technology in conversations that reveal a rich seam of interacting ideas. Science today is more a process of collaboration than moments of individual "eurekas." This book recreates that kind of synergy by offering a series of interconnected dialogues with leading scientists who are asked to reflect on key questions and concepts about the physical world, technology, and the mind. These thinkers offer both specific observations and broader comments about the intellectual traditions that inform these questions; doing so, they reveal a rich seam of interacting ideas. The persistent paradox of our era is that in a world of unprecedented access to information, many of the most important questions remain unsolved.

These conversations (conducted by a veteran science writer, Adolfo Plasencia) reflect this, with scientists addressing such issues as intelligence, consciousness, global warming, energy, technology, matter, the possibility of another earth, changing the past, and even the philosophical curveball, “is the universe a hologram?” The dialogues discuss such fascinating aspects of the physical world as the function of the quantum bit, the primordial cosmology of the universe, and the wisdom of hewn stones. They offer optimistic but reasoned views of technology, considering convergence culture, algorithms, “Beauty ? Truth,” the hacker ethic, AI, and other topics. And they offer perspectives from a range of disciplines on intelligence, discussing subjects that include the neurophysiology of the brain, affective computing, collaborative innovation, and the wisdom of crowds. Conversations with Hal Abelson, Ricardo Baeza-Yates, John Perry Barlow, Javier Benedicto, José Bernabéu, Michail Bletsas, Jose M. Carmena, David Casacuberta, Yung Ho Chang, Ignacio Cirac, Gianluigi Colalucci, Avelino Corma, Bernardo Cuenca Grau, Javier Echeverria, José Hernández-Orallo, Hiroshi Ishii, Pablo Jarillo-Herrero, Henry Jenkins, Anne Margulies, Mario J. Molina, Tim O'Reilly, John Ochsendorf, Paul Osterman, Alvaro Pascual-Leone, Rosalind W. Picard, Howard Rheingold, Alejandro W. Rodriguez, Israel Ruiz, Sara Seager, Richard Stallman, Antonio Torralba, Bebo White, José María Yturralde

Second International Conference, ACII 2007, Lisbon, Portugal, September 12-14, 2007, Proceedings

Computational Paralinguistics

Affective Computing and Intelligent Interaction

Robotics, AI, and Humanity

Affective Information Processing

Fourth International Conference, ACII 2011, Memphis,TN, USA, October 9-12, 2011; Proceedings, Part II

Affect and emotion play an important role in our everyday lives: They are present whatever we do, wherever we are, and wherever we go, without us being aware of them for much of the time. When it comes to interaction, be it with humans, technology, or humans via technology, we suddenly become more aware of emotion, either by seeing the other ’ s emotional expression, or by not getting an emotional response while anticipating one. Given this, it seems only sensible to explore affect and emotion in human-computer interaction, to investigate the underlying principles, to study the role they play, to develop methods to quantify them, and to finally build applications that make use of them. This is the research field for which, over ten years ago, Rosalind Picard coined the phrase "affective computing". The present book provides an account of the latest work on a variety of aspects related to affect and emotion in human-technology interaction. It covers theoretical issues, user experience and design aspects as well as sensing issues, and reports on a number of affective applications that have been developed in recent years.

This book constitutes the refereed proceedings of the First International Conference on Affective Computing and Intelligent Interaction,

ACII 2005, held in Beijing, China in October 2005 as an associated event of ICCV 2005, the International Conference on Computer Vision. The 45 revised full papers and 81 revised poster papers presented were carefully reviewed and selected from 198 submissions. They cover a wide range of topics, such as facial expression recognition, face animation, emotional speech synthesis, intelligent agent, and virtual reality. The papers are organized in topical sections on affective face and gesture processing, affective speech processing, evaluation of affective expressivity, affective database, annotation and tools, psychology and cognition of affect, and affective interaction and systems and applications.

This volume maps the watershed areas between two 'holy grails' of computer science: the identification and interpretation of affect – including sentiment and mood. The expression of sentiment and mood involves the use of metaphors, especially in emotive situations. Affect computing is rooted in hermeneutics, philosophy, political science and sociology, and is now a key area of research in computer science. The 24/7 news sites and blogs facilitate the expression and shaping of opinion locally and globally. Sentiment analysis, based on text and data mining, is being used in the looking at news and blogs for purposes as diverse as: brand management, film reviews, financial market analysis and prediction, homeland security. There are systems that learn how sentiments are articulated. This work draws on, and informs, research in fields as varied as artificial intelligence, especially reasoning and machine learning, corpus-based information extraction, linguistics, and psychology.

This book constitutes the refereed proceedings of the 15th International Conference on Artificial Intelligence in Education, AIED 2011, held in Auckland, New Zealand in June/July 2011. The 49 revised full papers presented together with three invited talks and extended abstracts of poster presentations, young researchers contributions and interactive systems reports and workshop reports were carefully reviewed and selected from a total of 193 submissions. The papers report on technical advances in and cross-fertilization of approaches and ideas from the many topical areas that make up this highly interdisciplinary field of research and development including artificial intelligence, agent technology, computer science, cognitive and learning sciences, education, educational technology, game design, psychology, philosophy, sociology, anthropology and linguistics.

Handbook of Research on Synthetic Emotions and Sociable Robotics: New Applications in Affective Computing and Artificial Intelligence

New Applications in Affective Computing and Artificial Intelligence

Significant Advances in Data Acquisition, Signal Processing and Classification

Affective Publics

A Blueprint for Affective Computing

Is the Universe a Hologram?

***Emotion in a Digital Age examines how emotion is understood, researched and experienced in relation to practices of digitisation and datafication said to constitute a digital age. The overarching concern of the book is with how emotion operates in, through, and with digital technologies. The digital landscape is vast, and as such, the authors focus on four key areas of digital practice: artificial intelligence, social media, mental health, and surveillance. Interrogating each area shows how emotion is commodified, symbolised, shared and***

***experienced, and as such operates in multiple dimensions. This includes tracing the emotional impact of early mass media (e.g. cinema) through to efforts to programme AI agents with skills in emotional communication (e.g. mental health chatbots). This timely study offers theoretical, empirical and practical insight regarding the ways that digitisation is changing knowledge and experience of emotion and affective life. Crucially, this involves both the multiple versions of digital technologies designed to engage with emotion (e.g. emotional-AI) through to the broader emotional impact of living in digitally saturated environments. The authors argue that this constitutes a psycho-social way of being in which digital technologies and emotion operate as key dimensions of the ways we simultaneously relate to ourselves as individual subjects, and to others as part of collectives. As such, Emotion in a Digital Age will prove important reading for students and researchers in emotion studies, psychology, science and technology studies, sociology, and related fields.***

***The book aims to give an insight into the multifacetedness of changes the Internet – referred to here as the digital world – triggers in both theory and practice of marketing and management. The book has been divided into 5 subject areas, i.e. management, strategy, communications, brand, and consumer, all of which act as the main themes of subsequent chapters.***

***This book provides an overview of state of the art research in Affective Computing. It presents new ideas, original results and practical experiences in this increasingly important research field. The book consists of 23 chapters categorized into four sections. Since one of the most important means of human communication is facial expression, the first section of this book (Chapters 1 to 7) presents a research on synthesis and recognition of facial expressions. Given that we not only use the face but also body movements to express ourselves, in the second section (Chapters 8 to 11) we present a research on perception and generation of emotional expressions by using full-body motions. The third section of the book (Chapters 12 to 16) presents computational models on emotion, as well as findings from neuroscience research. In the last section of the book (Chapters 17 to 22) we present applications related to affective computing.***

***Affect and Emotion in Human-Computer Interaction***

***Innovative Research Methodologies in Management***
***Autonomic Nervous System Dynamics for Mood and Emotional-State Recognition***
***Affective Interactions***