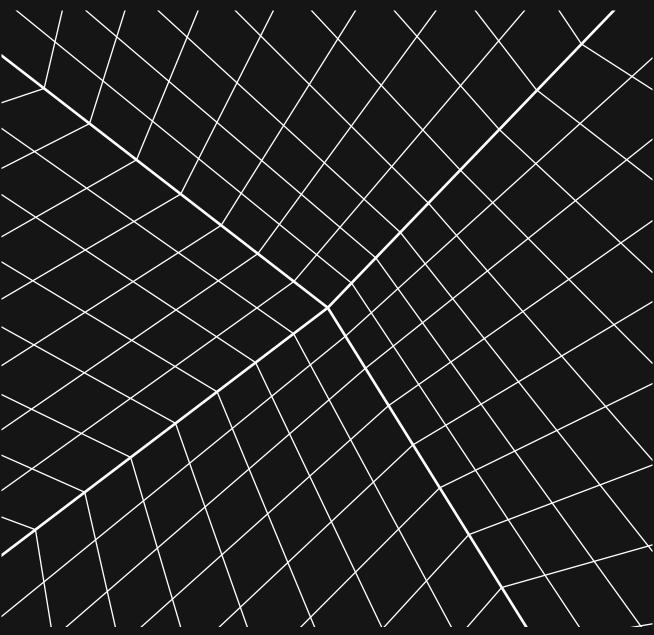


# EXTENDED ABSTRACTS



The 31st Annual CHI Conference on Human Factors in Computing Systems 27 APRIL - 2 MAY 2013 • PARIS • FRANCE



**EDITORS:** 





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### Bienvenue and Welcome to CHI 2013 in Paris, France!







CHI 2013 is located in the Palais des Congrès in central Paris, a few blocks from the Arc de Triomphe. Often described as the most beautiful city in the world, Paris is home to world-class museums, excellent food and breathtaking architecture, just steps away or a short ride on the metro.

CHI is the premier international conference on human-computer interaction, offering a central forum for sharing innovative interactive technologies that shape people's lives. CHI gathers a multidisciplinary community from around the world: our great strength is our ability to bring together students and experts, researchers and practitioners, scientists, designers and engineers, drawing from their diverse perspectives to create new visions of human-computer interaction.

This year's theme, changing perspectives, is symbolized by the Louvre's elegant pyramid. Its transparency reveals the technical, modern structure within, as it reflects the classic architecture surrounding it, changing color and texture in the shifting Paris light. Our eminent keynote speakers offer similarly contrasting perspectives, from design, engineering and the social sciences. We open with Paola Antonelli, Senior Curator and Architecture & Design Director for Research & Development at MOMA in New York and we close with Bruno Latour, author of Science in Action and head of Paris's Médialab at Sciences Po.

Vint Cerf, President of ACM and fondly referred to as the 'father of the internet', will give a joint keynote on May 2 with ACM's First European Computing Research Congress (ECRC), organized in collaboration with CHI 2013. On that day, participants may attend each other's sessions and discover new perspectives on computing and interaction.

CHI 2013 includes two days of focused workshops and four days of technical content, including CHI's prestigious technical program, with 16 parallel sessions of rigorously reviewed research Papers, engaging Panels, Case Studies and SIGs, an extensive Course program and invited talks from SIGCHI's award winners: George Robertson, Jacob Nielsen, and Sara Czaja. This year, RepliCHI joins the Honorable Mention and Best Paper awards, to recognize excellence in the research process. We also host student research, design, and game competitions, provocative alt.chi presentations and last-minute Birds-of-a-Feather sessions for discussing current topics.

Interactivity showcases the best of interactive technology, both advances in research and artistic explorations, and we highlight over 300 Works-In-Progress posters. Evening events include the CHI 2013 reception, Sponsors and University events, local performances, the job fair and the Video Showcase.

We received a record number of submissions (over 3500) and accepted over 1000 that will appear in the ACM Digital Library. To help you navigate through this immense program, we introduce Video Previews, 30" clips that describe each event in the main program. Before the conference, browse through them on the CHI 2013 website. At the conference, get an overview of the upcoming session on the large Interactive Schedule displays and add your favorites to your Mobile App. Or, browse the videos, papers and extended abstracts on the CHI 2013 flash drive.

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After the conference, create a video montage to share with colleagues at home or link to them from ACM's YouTube channel or the Digital Library.

We are deeply indebted to the vast number of volunteers, without whom CHI 2013 would not be possible, including over 2000 reviewers, over 200 senior members of the program committee, over 50 venue chairs on the CHI 2013 conference committee and, of course, the student volunteers. We thank you all!

We are excited by the opportunity to host CHI 2013 and wish you a productive and enjoyable stay in Paris!

Wendy E. Mackay

INRIA

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CHI 2013 General Conference Chair

Patrick Baudisch

Hasso Plattner Institute CHI 2013 Technical Program Co-Chair

Michel Beaudouin-Lafon

Université Paris-Sud

CHI 2013 Technical Program Co-Chair

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### From ACM SIGCHI's President and Vice President for Conferences

SIGCHI is proud to sponsor the premier annual conference in the field of human-computer interaction. We are extremely grateful to the CHI 2013 Conference Chair Wendy Mackay, to Technical Program Chairs Patrick Baudisch and Michel Beaudouin-Lafon, and to their wonderful crew, who succeeded to build an impressive program and experience.

CHI 2013 turns back to Europe, and, for the first time, resides in Paris with its vibrant French HCI community, 31 years after the first conference, on Human Factors in Computer Systems, in Gaithersburg, MD, on March 15-17, 1982. The second and third conferences were a year and a half apart, and from then on CHI, as the conference has been called since 1983, has been an annual event with the official name: "ACM Conference on Human Factors in Computing Systems".

That first conference drew over 900 attendees, and since then CHI has continued to grow and broaden its range of topics and contributing disciplines: the founding psychologists and software engineers began to meet new visions from ethnography, sociology, communication sciences and arts, among others. Relevant industries, as well as research institutes and academia, showed an increasing - and often long-lasting - interest and involvement (through volunteers and through sponsorship for conference expenses).

CHI is an ideal forum for people to meet formally as well as informally, to exchange knowledge and views, to share experiences, and to learn. The CHI conference brings together professionals from research and practice; people from industry, academia, and from government; long-term veterans of HCI, young professionals and students; all in an environment designed to encourage interaction. We invite you to actively participate in that interaction: introduce yourself to people, interact with presenters and speakers, renew old friendships and make

CHI is organized on behalf of ACM's Special Interest Group on Computer-Human Interaction (SIGCHI), an international community of professionals who share an interest in the many diverse facets of HCI. SIGCHI is committed both to advancing the field of HCI, to facilitate exchange of information within the SIGCHI community, and to support students to enter the domain.

The CHI conference is arguably the single most visible activity of SIGCHI, but we also sponsor and support a wide range of specialized conferences and workshops in areas ranging from interactive systems design to user interface technology to computer-supported cooperative work to "intelligent" user interfaces. Visit the SIGCHI website at http://www.sigchi.org to find our conference schedule, listing upcoming as well as past conferences.

SIGCHI and ACM produce some of the most respected publications in the field. All members receive interactions, a highly-acclaimed magazine covering the broad field of HCI and user interface design. ACM Transactions on Computer-Human Interactions (ToCHI), now in its 20st year, is our flagship journal - a quarterly publication with the top-quality archival research aimed at researchers and those translating research into practice.

SIGCHI is truly an international organization, with over 30 local chapters and 3 student chapters in 23 countries on 5 continents. We encourage all SIGCHI members to join their local chapter - or if there isn't one in your area, we would love to help you create one. And don't forget virtual communities! SIGCHI hosts dozens of electronic mailing lists on topics ranging from HCI and the Web, to HCI educations, to public policy and beyond. Those lists range from dozens of subscribers to thousands, and are an excellent way to keep up with the field and with friends

Finally, on behalf of ACM SGICHI, we again want to thank the conference committee and all of the hundreds of volunteers who make this conference possible. Their work makes this a rewarding experience for all of us.

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Gerrit C. van der Veer SIGCHI President

John "Scooter" Morris SIGCHI Vice-President for Conferences

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### **About SIGCHI**

CHI 2013 is sponsored by ACM's Special Interest Group on Computer-Human Interaction (ACM SIGCHI). ACM, the Association for Computing Machinery, is an educational and scientific society uniting the world's computing educators, researchers, and professionals to inspire dialogue, share resources, and address the field's challenges. ACM strengthens the profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking. ACM offers its more than 100,000 worldwide members cutting edge technical information through world class journals and magazines, dynamic special interest groups, and globally recognized conferences.

Visit www.acm.org for more information about the ACM.

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SIGCHI is the premier international society for professionals, academics, and students who are interested in human-computer interaction (HCI). We provide a forum for the discussion of all aspects of HCI through our conferences, including our flagship CHI conference, publications, web sites, email discussion groups, and other services. We advance education in HCI through courses, workshops, and outreach, and we promote informal access to a wide range of individuals and organizations involved in HCI. Members can be involved in HCI-related activities with others in their region through local SIGCHI chapters. Come to the SIGCHI Town Hall meeting on Wednesday, May 1, at 12:40 in Meeting Room 241, or visit www.sigchi.org to learn more about SIGCHI.

ACM, the Association for Computing Machinery http://www.acm.org/, is an educational and scientific society uniting the world's computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking. ACM offers its 100,000 members cutting-edge technical information through world class journals and magazines, dynamic special interest groups and globally recognized conferences.

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### Welcome to CHI 2013!

The CHI Papers and Notes program is continuing to grow along with many of our sister conferences. We are pleased that CHI is still the leading venue for research in human-computer interaction.

CHI 2013 continued the use of subcommittees to manage the review process. Authors selected the subcommittee they believed was best qualified to review their work: For clarity, we retained the same committee identifiers as last year. Due to the continuing growth in submissions, we split several subcommittees into more manageable sizes. We are pleased with the subcommittee process: By dividing the work, each paper received much more careful discussion than would otherwise have been possible.

This year we had 1963 total submissions, including 1347 papers and 617 notes, representing a 24% growth over last year. We accepted 392 submissions (20%): 316 papers and 76 notes.

The CHI review process demands a tremendous amount of work from all areas of the human-computer interaction community. As co-chairs of the process, we are amazed at the ability of the community to organize itself to accomplish this task. We would like to thank the 2680 individual reviewers for their careful consideration of these papers. We also deeply appreciate the huge amount of time donated to this process by the 211-member program committee, who paid their own way to attend the face-to-face program committee meeting, an event larger than the average ACM conference.

We are proud of the work of the CHI 2013 program committee and hope that you enjoy these papers and notes, which represent the best research in human-computer interaction.

**Stephen Brewster**, *Glasgow University* **Susanne Bødker**, *University of Aarhus* CHI 2013 Papers & Notes Chairs

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Roberto Calderon, Sidney Fels (*University of British Columbia*), Junia Anacleto, Jônatas Leite de Oliveira (*Federal University of São Carlos*)

### 523 Tangible Games for Stroke Rehabilitation with Digital Box and Blocks Test

Chen Zhao (Beijing Institute of Technology), Chih-Pin Hsiao, Nicholas M. Davis, Ellen Yi-Leun Do (Georgia Institute of Technology)

# 529 A Phone-Based Support System to Assist Alcohol Recovery

Kuo-Chen Wang, Ming-Tung Hong, Cindy Hsin-Liu Kao, Allen C. Lin, Chi-An Wang (National Taiwan University), Chuang-Wen You (Academia Sinica), Chun-Hung Pan, Ming-Chyi Huang, Chun-Mao Liang (Taipei City Psychiatric Center), Hao-Hua Chu (National Taiwan University)

# Interaction and Experience Design Works-in-Progress

### 535 Experiential Perspectives on Road Congestions

Marianna Obrist (Newcastle University),
Daniela Wurhofer, Alina Krischkowsky
(University of Salzburg),
Evangelos Karapanos (Universidade Madeira),
David Wilfinger, Nicole Perterer, Manfred Tscheligi
(University of Salzburg)

### 541 Ambiguity in Design: An Airport Split-Flap Display Storytelling Installation

Clinton Jorge, Valentina Nisi, Nuno Nunes (University of Madeira), Giovanni Innella (Northumbria University), Miguel Caldeira, Duarte Sousa (University of Madeira)

### 547 A Life of Their Own: Museum Visitor Personas Penetrating the Design Lifecycle of a Mobile Experience

Maria Roussou, Akrivi Katifori (*University of Athens*), Laia Pujol (*Acropolis Museum*), Maria Vayanou (*University of Athens*), Stefan Rennick-Egglestone (*The University of Nottingham*)

### 553 Strolling with Street Atmosphere Visualization: Development of a Tourist Support System

Yuichiro Kinoshita, Satoshi Tsukanaka, Kentaro Go (University of Yamanashi)

# 559 Lost in Time: The Meaning of Temporal Aspects in User Experience

Sari Kujala (Aalto University), Marlene Vogel (Technische Universität Berlin), Anna E. Pohlmeyer (Delft University of Technology), Marianna Obrist (Newcastle University)

# 565 A Trip into the Countryside: An Experience Design for Explorative Car Cruises

Martin Knobel (BMW Research and Technology), Marc Hassenzahl (Folkwang University of the Arts), Josef Schumann, Melanie Lamara (BMW Research and Technology), Kai Eckoldt (Folkwang University of the Arts), Andreas Butz (University of Munich)

### 571 WeCurate: Multiuser Museum Interactives for Shared Cultural Experiences

Katina Hazelden, Matthew Yee-King, Roberto Confalonieri (University of London),
Carles Sierra (Spanish National Research Council),
Fiammetta Ghedini (University of London),
Dave de Jonge, Nardine Osman (Spanish National Research Council), Mark d'Inverno (University of London)

# 577 Blended Shelf: Reality-Based Presentation and Exploration of Library Collections

Eike Kleiner, Roman Rädle, Harald Reiterer (*University of Konstanz*)

### 583 Wet Pixels: From Digital to Analogue Originals

Hyosun Kwon (Newcastle University), Jo Briggs (Northumbria University), Ben Freeth, Karim Ladha (Newcastle University), James Thomas, Mark Blythe (Northumbria University), Patrick Olivier (Newcastle University)

# 589 Look What I Found! Augmenting Phone Calls with Memories of the Past

Élton Gouveia, Francisco Azevedo, Luís Ferreira, Paulo Caldeira, Vítor Almeida, Rúben Gouveia (University of Madeira), Evangelos Karapanos (Madeira Interactive Technologies Institute)

### 595 Dreamy Eyes: Exploring Dynamic Expression in Human-System Interaction

Jelle Stienstra, Patrizia Marti, Michele Tittarelli (*University of Siena*)

## 601 KiTeMiROOM: A Fashion-Coordination System for Mobile Devices

Soh Masuko, Yasuyuki Hayashi (Rakuten, Inc.)

### 607 An Interaction Vocabulary. Describing the *How* of Interaction

Sarah Diefenbach, Eva Lenz, Marc Hassenzahl (Folkwang University of the Arts)

# 613 Experience, Engagement and Social Interaction at a Steam Locomotive Multimodal Interactive Museum Exhibit

Loraine Clarke (University of Strathclyde), Eva Hornecker (University of Strathclyde & Bauhaus Universität Weimar)

### **Learning Works-in-Progress**

# 619 Design, Reflect, Explore: Encouraging Children's Reflections with Mechanix

Tiffany Tseng (Massachusetts Institute of Technology), Coram Bryant (SLATE Learning)

### 625 A Set of Interactions to Rotate Solids in 3D Geometry Context

David Bertolo, Robin Vivian, Jérôme Dinet (*Université de Lorraine*)

# 631 Fearless Cards: Addressing Emotional Barriers to Computer Learning Among Extremely Marginalized Populations

Ricardo Gomez, Ivette Bayo, Philip J. Reed, Cong Wang, Marisol Silva (*University of Washington*)

### 637 Hero: Designing Learning Tools to Increase Parental Involvement in Elementary Education in China

Yuhang Zhao (Tsinghua University), Alexis Hope (University of Washington), Jin Huang (Tsinghua University), Yoel Sumitro, James A. Landay (University of Washington), Yuanchun Shi (Tsinghua University)

# 643 Teachable Mo[bil]ment: Capitalizing on Teachable Moments with Mobile Technology in Zoos

Priscilla F. Jimenez Pazmino, Brenda Lopez Silva, Brian Slattery, Leilah Lyons (University of Illinois at Chicago)

### 649 EasyAuthor-Supporting Low Computer Proficiency Teachers in the Design of Educational Content for Adult Illiterates

Sridhar Chimalakonda, Kesav V. Nori (International Institute of Information Technology -Hyderabad)

# 655 Pedagogical Conversational Agents for Supporting Collaborative Learning: Effects of Communication Channels

Yugo Hayashi (Tsukuba University)

# 661 Alert in the Cleanroom: Testing Alerting Modalities for a Task Guiding Interface

Ewald Strasser (University of Salzburg), Astrid Weiss (ICT&S Center University of Salzburg), Roland Buchner, Manfred Tscheligi (University of Salzburg)

#### 667 EEG-Based Assessment of Video and In-Game Learning

Rina R. Wehbe, Dennis L. Kappen (University of Ontario Institute of Technology), David Rojas (University of Toronto), Matthias Klauser, Bill Kapralos, Lennart E. Nacke (University of Ontario Institute of Technology)

### 673 Children's Computer Interaction in Schools: A Case Study for Promoting Healthy Computer Use

Marina Louise Ciccarelli, Courtenay-Jane Campbell Harris (Curtin University)

#### 679 Assessment Design for Emergent Game-Based Learning

Jodi Asbell-Clarke, Elizabeth Rowe, Elisabeth Sylvan (TERC)

# 685 Learnersourcing Subgoal Labeling to Support Learning from How-to Videos

Juho Kim, Robert C. Miller (Massachusetts Institute of Technology), Krzysztof Z. Gajos (Harvard University)

# 691 Circuit in Pieces: Understanding Electricity from Electrons to Light Bulbs

Elham Beheshti, Colin Fitzpatrick, Alexis Hope, Anne Marie Piper, Michael Horn (Northwestern University)

### 697 iSpy: RFID-Driven Language Learning Toy Integrating Living Environment

Suhwa Lee, Young Yim Doh (Korea Advanced Institute of Science and Technology)

# 703 Let's Learn! Enhancing User's Engagement Levels Through Passive Brain-Computer Interfaces

Marvin Andujar, Juan E. Gilbert (Clemson University)

### 709 Crowdsourced Ethics with Personalized Story Matching

Henry Lieberman, Karthik Dinakar, Birago Jones (Massachusetts Institute of Technology)

# 715 Movers and Shakers: Designing Meaningful Conflict in a Tablet-Based Serious Game

Konstantin Mitgutsch, Steven Schirra, Sara Verrilli (Massachusetts Institute of Technology)

### Multimedia Works-in-Progress

### 721 ActivityDesk: Multi-Device Configuration Work Using an Interactive Desk

Steven Houben, Jakob E. Bardram (IT University of Copenhagen)

# 727 Feeling the Unseen: Physical Interaction with Depth-embedded Images

Seung-Chan Kim, Byung-Kil Han, Dong-Soo Kwon (Korea Advanced Institute of Science and Technology)

### **Music and Audio Works-in-Progress**

### 733 Towards a More Flexible and Creative Music Mixing Interface

Steven Gelineck (Aalborg University CPH), Morten Büchert (Rhythmic Music Conservatory), Jesper Andersen (The Royal Danish Academy of Music)

### 739 Reactive Music: When User Behavior Affects Sounds in Real-Time

Christine Bauer (Vienna University of Economics and Business), Florian Waldner (University of Vienna)

# 745 The Sound of Light: Induced Synesthesia for Augmenting the Photography Experience Jose San Pedro, Karen Church (*Telefonica Research*)

### 751 StickEar: Augmenting Objects and Places Wherever Whenever

Kian Peen Yeo, Suranga Nanayakkara (Singapore University of Technology and Design)

### 757 KIKIWAKE: Sound Source Separation System for Children-Computer Interaction

Tomoki Taguchi, Masafumi Goseki (Tokyo University of Science),
Ryohei Egusa (Kobe University),
Miki Namatame (Tsukuba University of Technology),
Masanori Sugimoto (Hokkaido University),
Fusako Kusunoki (Tama art University),
Etsuji Yamaguchi, Shigenori Inagaki, Yoshiaki Takeda (Kobe University),
Hiroshi Mizoguchi (Tokyo University of Science)

# 763 Harmonic Paper: Interactive Music Interface for Drawing

Laewoo Kang, Tianyuan Gu, Geri Gay (Cornell University)

# 769 Toward a Method and Toolkit for the Design of Auditory Displays, Based on Soundtrack Composition

Doon MacDonald, Tony Stockman (Queen Mary, University of London)

### 775 Exploring Adverse Effects of Adaptive Voice Menu

Siddhartha Asthana, Pushpendra Singh, Amarjeet Singh (Indraprastha Institute of Information Technology)

### 781 Survey of Audio Programming Tools

Alexander Travis Adams, Celine Latulipe (University of North Carolina at Charlotte)

### **Privacy Works-in-Progress**

# 787 MIBA: Multitouch Image-Based Authentication on Smartphones

Daniel Ritter, Florian Schaub, Marcel Walch, Michael Weber (*Ulm University*)

# 793 Improving Privacy Settings for Facebook by Using Interpersonal Distance as Criterion

Michaela Kauer, Benjamin Franz, Thomas Pfeiffer, Martin Heine, Delphine Christin (Technische Universität Darmstadt)

### 799 What Does Your Profile Really Say About You?: Privacy Warning Systems and Self-Disclosure in Online Social Network Spaces

Lia Emanuel, Chris Bevan (*University of Bath*), Duncan Hodges (*University of Oxford*)

# 805 Location Privacy Revisited: Factors of Privacy Decisions

Benjamin Henne, Marian Harbach, Matthew Smith (Leibniz Universität Hannover)

# 811 Unlocking the Privacy Paradox: Do Cognitive Heuristics Hold the Key?

S. Shyam Sundar (*The Pennsylvania State University & Sungkyunkwan University*),

Hyunjin Kang, Mu Wu, Eun Go, Bo Zhang (The Pennsylvania State University)

### 817 Android and iOS Users' Differences Concerning Security and Privacy

Zinaida Benenson (University of Erlangen-Nuremberg), Freya Gassmann (Saarland University), Lena Reinfelder (University of Erlangen-Nuremberg)

## 823 In the Balance in Saudi Arabia: Security, Privacy and Trust

Ivan Flechais, Marina Jirotka, Deena Alghamdi (University of Oxford)

### **Social Computing Works-in-Progress**

# 829 How Personality Influences Users' Needs for Recommendation Diversity?

Li Chen, Wen Wu (Hong Kong Baptist University), Liang He (East China Normal University)

# 835 Generating Annotations for How-to Videos Using Crowdsourcing

Phu Nguyen, Juho Kim, Robert C. Miller (Massachusetts Institute of Technology)

## 841 Onegai: A Demand-Driven Photo Sharing Tool with Location Reference

Lin Wan, Jan Hess, Benedikt Ley, Volker Wulf, Vitali Sjablow (*University of Siegen*)

# 847 Family Communication in Rural and Slum Regions of Kenya

Erick Oduor, Carman Neustaedter, Serena Hillman, Carolyn Pang (Simon Fraser University)

#### 853 Someone to Watch Over Me:

### Presence of an Assistant Agent on SNS Inhibits Negative Blaming Statements in Tweeting

Miyuki Onuma, Atsushi Kimura, Hiroki Sasaki, Naoki Mukawa *(Tokyo Denki University)* 

### 859 Are Computers Still Social Actors?

Helmut Lang, Melina Klepsch, Florian Nothdurft, Tina Seufert, Wolfgang Minker (*Ulm University*)

#### 865 On How Event Size and Interactivity Affect Social Networks

Bin Xu (Cornell University), Alvin Chin (Nokia), Dan Cosley (Cornell University)

### 871 Facilitating Natural Flow of Information Among "Taste-Based" Groups

Yefeng Liu, Todorka Alexandrova, Satoshi Hirade, Tatsuo Nakajima (Waseda University)

# 877 Persuasive Dialogue for Older Adults: Promoting and Encouraging Social Interaction

John Paul Vargheese, Somayajulu Sripada, Judith Masthoff, Nir Oren (*University of Aberdeen*), Patricia Schofield (*University of Greenwich*), Vicki L. Hanson (*University of Dundee*)

### 883 Crowdfunding: A Resource Exchange Perspective

Michael D. Greenberg, Julie Hui, Elizabeth Gerber (Northwestern University)

# 889 Understanding Crowdfunding Work: Implications for Support Tools

Julie Hui, Michael Greenberg, Elizabeth Gerber (Northwestern University)

# 895 Mixsourcing: A Remix Framework as a Form of Crowdsourcing

Sarah Hallacher (New York University), Jenny Rodenhouse, Andrés Monroy-Hernández (Microsoft Research)

### 901 Script-Based Story Matching for Cyberbullying Prevention

Jamie Macbeth, Hanna Adeyema, Henry Lieberman, Christopher Fry (Massachusetts Institute of Technology)

# 907 Power of Friends: When Friends Guess About Their Friends' Guess

Deepti Aggarwal (IIIT Hyderabad), Rohit Aahok Khot (Royal Melbourne Institute of Technology), Venkatesh Choppella (IIIT Hyderabad)

### 913 Clarifications and Question Specificity in Synchronous Social Q&A

Makoto P. Kato (Kyoto University), Ryen W. White, Jaime Teevan, Susan T. Dumais (Microsoft Research)

### 919 The Path is the Reward: Considering Social Networks to Contribute to the Pleasure of Urban Strolling

Martin Traunmueller, Ava Fatah gen Schieck (University College London),
Johannes Schöning (Hasselt University),
Duncan P. Brumby (University College London)

### 925 Designing to Improve Interpersonal Impression Accuracy in Online Peer Production

Jennifer Marlow, Laura Dabbish (Carnegie Mellon University)

### 931 Crowdsourcing as a Method for Indexing Digital

Seyong Ha, Dongwhan Kim, Joonhwan Lee (Seoul National University)

### **Augmented Reality Works-in-Progress**

### 937 Exploring the Benefits of Fingernail Displays

Raphael Wimmer, Florian Echtler (*University of Regensburg*)

### 943 AR Pen and Hand Gestures: A New Tool for Pen Drawings

Hark-Joon Kim (Samsung Electronics), Hayoung Kim, Seungho Chae, Jonghoon Seo, Tack-Don Han (Yonsei University)

# 949 BouldAR – Using Augmented Reality to Support Collaborative Boulder Training

Florian Daiber (DFKI Saarbrücken), Felix Kosmalla (Saarland University), Antonio Krüger (DFKI Saarbrücken)

### 955 User-Defined Gestures for Augmented Reality

Thammathip Piumsomboon, Adrian Clark, Mark Billinghurst, Andy Cockburn (*University of Canterbury*)

### 961 Smarter Objects: Using AR Technology to Program Physical Objects and Their Interactions

Valentin Heun (Massachusetts Institute of Technology), Shunichi Kasahara (Sony Cooperation), Pattie Maes (Massachusetts Institute of Technology)

### 967 Exploring Augmented Reality for User-Generated Hyperlocal News Content

Heli K. Väätäjä, Mari J. Ahvenainen, Markus S. Jaakola, Thomas D. Olsson (*Tampere University of Technology*)

### 973 AteGau: Projector-Based Online Fashion Coordination System

Yasuyuki Hayashi, Soh Masuko (Rakuten, Inc.)

# 979 The Potentials of In-Situ-Projection for Augmented Workplaces in Production. A Study with Impaired Persons

Oliver Korn, Albrecht Schmidt (University of Stuttgart), Thomas Hörz (University of Applied Sciences Esslingen)

# 985 Scaled Reality: Interfaces for Augmenting Information on Small-Scale Tangible Objects

Austin S. Lee, Kshitij Marwah (Massachusetts Institute of Technology)

# 991 Influence on User's Communication in BHS Videoconferencing: Superimposition of a Remote Person's Figure on the Local Background

Mamoun Nawahdah, Tomoo Inoue (University of Tsukuba)

# 997 OneSpace: Shared Depth-Corrected Video Interaction

David Ledo, Bon Adriel Aseniero, Saul Greenberg, Sebastian Boring (*University of Copenhagen*), Anthony Tang (*University of Calgary*)

### **Emotions Works-in-Progress**

### 1011 Bear-With-Me: An Embodied Prototype to Explore Tangible Two-Way Exchanges of Emotional Language

Allan Fong, Zahra Ashktorab, Jon Froehlich (*University of Maryland*)

# 1017 Exhibiting Emotion: Using Digital Technologies to Discover Emotional Connections

Genevieve Alelis (University of Kent)

### 1023 Expressing a Robot's Confidence with Motion-Based Artificial Subtle Expressions

Seiji Yamada (National Institute of Informatics), Kazunori Terada (Gifu University), Kazuki Kobayashi (Shinshu University), Takanori Komatsu (Meiji University), Kotaro Funakoshi, Mikio Nakano (Honda Research Institute Japan Co., Ltd.)

# 1029 Visualizing Ambivalence: Showing What Mixed Feelings Look Like

Galen Panger, Bryan Rea, Steven Weber (University of California, Berkeley)

# 1035 A Playback System That Synchronizes the Musical Phrases with Listener's Respiration Phases

Takashi G. Sato, Yutaka Kamamoto, Noboru Harada, Takehiro Moriya

(NTT Communication Science Laboratories)

# 1041 AffectCam: Arousal- Augmented SenseCam for Richer Recall of Episodic Memories

Corina Sas, Tomasz Fratczak, Matthew Rees, Hans Gellersen (Lancaster University), Vaiva Kalnikaité (Dovetailed), Alina Coman (Transylvania University Brasov), Kristina Höök (Royal Institute of Technology)

### 1047 CAAT – A Discrete Approach to Emotion Assessment

Bruno Cardoso, Teresa Romão, Nuno Correia (Universidade Nova de Lisboa)

### 1053 Acted Emotional Expressions of Game-Playing Children: Investigating the Influence of Emotion Intensity on Recognition Rates

Suleman Shahid, Bram Erven, Emiel Krahmer (Tilburg University)

### 1059 Improving Digital Reading Experiences with Mood-Based Content Selection

Wim Verhavert, Jeroen Vanattenhoven, Dirk De Grooff (KU Leuven)

### Games/play Works-in-Progress

# 1065 Game Principles: Change, Choice, & Creativity: Making Better Games

Heather Desurvire (User Behavioristics Research, Inc.), Dennis Wixon (University of Southern California)

# 1071 Designing Children's Digital Games on Nutrition with Playability Heuristics

Kornchulee Khanana, Effie Lai-Chong Law (University of Leicester)

# 1077 Building a Dictionary of Game-Descriptive Words to Study Playability

Miaoqi Zhu, Xiaowen Fang, Susy S. Chan (DePaul University), Jacek Brzezinski (McHenry County College)

# 1083 GEMS: A Location-Based Game for Supporting Family Storytelling

Jason Procyk, Carman Neustaedter (Simon Fraser University)

### 1089 Attention, Time Perception and Immersion in Games

A. Imran Nordin, Jaron Ali, Aishat Animashaun, Josh Asch, Josh Adams, Paul Cairns (*University of York*)

# 1095 Decomposing Immersion: Effects of Game Demand and Display Type on Auditory Evoked Potentials

Stephen H. Fairclough, Christopher G. Burns (Liverpool John Moores University)

# 1101 Do Games Attract or Sustain Engagement in Citizen Science?

#### A Study of Volunteer Motivations

Ioanna Iacovides, Charlene Jennett, Cassandra Cornish-Trestrail, Anna L. Cox (University College London)

# 1107 Assessing User Preference of Video Game Controller Button Settings

William Ellick, Pejman Mirza-Babaei, Sharon Wood (University of Sussex),

Duncan Smith (MindLab International Ltd.), Lennart E. Nacke

(University of Ontario Institute of Technology)

# 1113 The Cake Can Be a Lie: Placebos as Persuasive Videogame Elements

Luís Duarte, Luis Carriço (University of Lisbon)

# 1119 Exploring Social Interaction in Co-Located Multiplayer Games

Dennis L. Kappen, John Gregory, Daniel Stepchenko, Rina R. Wehbe, Lennart E. Nacke (University of Ontario Institute of Technology)

# 1125 Understanding Handicapping for Balancing Exertion Games

David Altimira (University of Canterbury & RMIT University), Mark Billinghurst (University of Canterbury), Florian Mueller (RMIT University)

# 1131 Gameplay Experience Evaluation Centered on Participation: The Fátima Game Design Case

Luís Lucas Pereira, Licinio Roque (University of Coimbra)

# 1137 Disassembling Gamification: the Effects of Points and Meaning on User Motivation and Performance

Elisa D. Mekler, Florian Brühlmann, Klaus Opwis (University of Basel),

Alexandre N. Tuch (University of Copenhagen)

# 1143 Body-Controlled Trampoline Training Games Based on Computer Vision

Leo Holsti, Tuukka Takala, Aki Martikainen, Raine Kajastila, Perttu Hämäläinen (Aalto University)

# 1149 Fidget Widgets: Secondary Playful Interactions in Support of Primary Serious Tasks

Michael Karlesky, Katherine Isbister (Polytechnic Institute of New York University)

# 1155 Social Playware with an Enhanced Reach for Facilitating Group Interaction

Asaki Miura, Takashi Isezaki, Kenji Suzuki (University of Tsukuba)

### **Gesture Works-in-Progress**

### 1161 Comparing Avatar Game Representation Preferences Across Three Age Groups

Mark Rice, Ranieri Koh (Institute for Infocomm Research), Quintessence Lui, Qixiang He (Temasek Polytechnic), Marcus Wan, Vanessa Yeo, Jamie Ng (Institute for Infocomm Research), Wah Pheow Tan (Temasek Polytechnic)

# 1167 Open Sesame: Re-Envisioning the Design of a Gesture-Based Access Control System

Michael Karlesky, Edward Melcer, Katherine Isbister (Polytechnic Institute of New York University)

#### 1173 Documenting Natural Interactions

Bashar Altakrouri, Jan Gröeschner, Andreas Schrader (University of Luebeck)

# 1179 Writing and Sketching in the Air, Recognizing and Controlling on the Fly

Sharad Vikram, Lei Li, Stuart Russell (University of California, Berkeley)

### 1185 Body-Tracking Camera Control for Demonstration Videos

Derrick Cheng, Pei-Yu Chi, Taeil Kwak, Björn Hartmann, Paul Wright (*University of California, Berkeley*)

# 1191 Gesture-Supported Document Creation on Pen and Touch Tabletops

Fabrice Matulic, Moira C. Norrie (ETH Zurich), Ihab Al Kabary, Heiko Schuldt (University of Basel)

# 1197 MotionDraw: A Tool for Enhancing Art and Performance Using Kinect

Danilo Gasques Rodrigues

(Universidade Federal de São Carlos),

Emily Grenader (University of California, San Diego), Fernando da Silva Nos (Pontificia Universidade Católica do

Rio Grande do Sul),

Marcel de Sena Dall'Agnol (Universidade de São Paulo), Troels E. Hansen (IT University of Copenhagen), Nadir Weibel (University of California, San Diego)

# 1203 The Interactive Join: Recognizing Gestures for Database Queries

Arnab Nandi, Michael Mandel (The Ohio State University)

### 1209 How We Gesture Towards Machines: An Exploratory Study of User Perceptions of Gestural Interaction

Sukeshini A.Grandhi (Eastern Connecticut State University), Chat Wacharamanotham, Gina Joue, Jan Borchers, Irene Mittelberg (RWTH Aachen University)

### **Inputs Works-in-Progress**

# 1215 Designing Natural Speech Interactions for the Living Room

Lisa Stifelman (Microsoft Research), Adam Elman, Anne Sullivan (Microsoft)

### 1221 Touch or Remote: Comparing Touch- and Remotetype Interfaces for Short Distance Wireless Device Connection

Jong-bum Woo, Hyeon-jeong Suk (Korea Advanced Institute of Science and Technology), Hyun jhin Lee (Hongik University), Youn-kyung Lim (Korea Advanced Institute of Science and Technology)

### 1227 Error-Proof, High-Performance, and Context-Aware Gestures for Interactive Text Edition

Luis A. Leiva, Vicent Alabau, Enrique Vidal (Universitat Politècnica de València)

# 1233 Interactive Space: A Prototyping Framework for Touch and Gesture on and Above the Desktop

Yang Liu, Nadir Weibel, James D. Hollan (University of California, San Diego)

# 1239 Overcoming Limitations of the Trackpad for 3D Docking Operations

David Glesser (Ensimag), François Bérard (Grenoble-INP), Jeremy R. Cooperstock (McGill University)

# 1245 Enhancing Visuospatial Attention Performance with Brain-Computer Interfaces

Romain Trachel (Aix-Marseille Université & INRIA Sophia Antipolis - Mediterranée),

Thomas Brochier (Aix-Marseille Université), Maureen Clerc (INRIA Sophia Antipolis - Mediterranée)

# 1251 Sinkpad: A Malleable Mouse Pad Consisted of an Elastic Material

Takuro Kuribara, Buntarou Shizuki, Jiro Tanaka (*University of Tsukuba*)

# 1257 The Potential of Fusing Computer Vision and Depth Sensing for Accurate Distance Estimation

Jakub Dostal, Per Ola Kristensson, Aaron Quigley (University of St Andrews)

## 1263 Comparing Modalities and Feedback for Peripheral Interaction

Doris Hausen, Christine Wagner (University of Munich), Sebastian Boring (University of Copenhagen), Andreas Butz (University of Munich)

### 1269 Influence of Subliminal Cueing on Visual Search Tasks

Bastian Pfleging, Niels Henze, Albrecht Schmidt, Dominique Rau, Bastian Reitschuster (University of Stuttgart)

# 1275 Fun with Bananas: Novel Inputs on Enjoyment and Task Performance

Emily Sun, Sarah Han (Cornell University)

# 1281 Thumb Widgets: Apply Thumb-Tracking to Enhance Capabilities of Multi-Touch on Mobile Devices

Xinda Zeng, Feng Tian, Yingying Jiang (Chinese Academy of Sciences),
Xiaolong (Luke) Zhang (The Pennsylvania State University),
Guozhong Dai, Hongan Wang (Chinese Academy
of Sciences)

### 1287 Memory Stones: An Intuitive Copy-and-Paste Method Between Multi-Touch Computers

Kaori Ikematsu, Itiro Siio (Ochanomizu University)

# 1293 InEar BioFeedController: A Headset for Hands-Free and Eyes-Free Interaction with Mobile Devices Denys J.C. Matthies (University of Munich)

# 1299 A Zooming Interface for Accurate Text Input on Mobile Devices

Naoto Koarai, Takashi Komuro (Saitama University)

# 1305 TouchShield: A Virtual Control for Stable Grip of a Smartphone Using the Thumb

Jonggi Hong, Geehyuk Lee (Korea Advanced Institute of Science and Technology)

# 1311 ElaScreen: Exploring Multi-Dimensional Data Using Elastic Screen

Kyungwon Yun, JunBong Song, Keehong Youn, Sungmin Cho, Hyunwoo Bang (Seoul National University)

## 1317 Towards Utilising One-Handed Multi-Digit Pressure Input

Graham Wilson, Stephen Brewster (University of Glasgow), Martin Halvey (Glasgow Caledonian University)

#### 1323 EarPut: Augmenting Behind-the-Ear Devices for Ear-Based Interaction

Roman Lissermann, Jochen Huber, Aristotelis Hadjakos, Max Mühlhäuser (Technische Universität Darmstadt)

# 1329 Using Delboeuf's Illusion to Improve Point and Click Performance for Older Adults

Nic Hollinworth, Faustina Hwang, David T. Field (*University of Reading*)

### 1335 Input Method Using Divergence Eye Movement

Shinya Kudo, Hiroyuki Okabe, Taku Hachisu, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto (The University of Electro-Communications)

# 1341 Exploring the Interaction Design Space for Interactive Glasses

Andrés Lucero (Nokia Research Center), Kent Lyons (Nokia), Akos Vetek, Toni Järvenpää (Nokia Research Center), Sean White (Nokia), Marja Salmimaa (Nokia Research Center)

# 1347 Beyond the Familiar? Exploring Extreme Input in Brainstorms

Arne Jansen, Nicky Sulmon, Maarten Van Mechelen, Bieke Zaman, Jeroen Vanattenhoven, Dirk De Grooff (KU Leuven)

### 1353 Assessing Recovery from Cognitive Load Through Pen Input

Ling Luo, Ronnie Taib (National ICT Australia)

### PDA & Mobile Works-in-Progress

# 1359 The Relationship Between Encumbrance and Walking Speed on Mobile Interactions

Alexander Ng, Stephen Brewster (University of Glasgow)

# 1365 CameraMatch: Automatic Recognition of Subjects Using Smartphones-Toward Entertaining Photo Sessions

Kohei Matsumura, Yasuyuki Sumi (Future University Hakodate)

# 1371 Utilizing Contextual Information for Mobile Communication

Johannes Knittel, Alireza Sahami Shirazi, Niels Henze, Albrecht Schmidt (*University of Stuttgart*)

### 1377 Reading with a Digital Roll

Clément Pillias, Shuo Hsiu Hsu, Pierre Cubaud (CNAM)

# 1383 I'd Sit at Home and Do "Work Emails": How Tablets Affect the Work-Life Balance of Office Workers

Katarzyna Stawarz, Anna L. Cox, Jon Bird, Rachel Benedyk (University College London)

# 1389 Design and Evaluation of Mobile Phonebook Application with Stereoscopic 3D User Interface

Jonna Häkkilä, Maaret Posti, Olli Koskenranta, Leena Ventä-Olkkonen (*University of Oulu*)

### 1395 Investigating and Supporting Undirected Navigation for Runners

David K. McGookin, Stephen A. Brewster (*University of Glasgow*)

### 1401 Insights into Co-Located Shared Mobile Search

Sofia Reis (Universidade Nova de Lisboa), Karen Church (Telefonica Research)

#### 1407 Geo-Locked Photo Sharing on Mobile Devices

Dhaval Vyas (ABB Corporate Research), Edwin Keijl, Rieks op den Akker, Anton Nijholt (University of Twente), Gerrit C. van der Veer (Open University Netherlands)

### 1413 Mobile Experiences for Tourism: Brick City Tours

Brian O'Keefe, Brianna Slutsky, Nick Iuliucci (Rochester Institute of Technology),
Alex Nalbandian, Anushri Thanedar, Stephen Mokey (Rochester Institute of Technology),
Oliver Mival (Edinburgh Napier University)

#### 1419 Skateboards as a Mobile Technology

Sabrina Hauser, Audrey Desjardins, Ron Wakkary (Simon Fraser University)

### 1425 Chili: Viewpoint Control and On-Video Drawing for Mobile Video Calls

Hyungeun Jo (Chili Interactive), Sungjae Hwang (Korea Advanced Institute of Science and Technology)

# 1431 WalkMinder: Encouraging an Active Lifestyle Using Mobile Phone Interruptions

Sen H. Hirano (*University of California, Irvine*), Robert G. Farrell, Catalina M. Danis, Wendy A. Kellogg (*IBM T.J. Watson Research Center*)

### **Sustainability Works-in-Progress**

### 1437 Promoting Sustainable Print Behavior

Jutta Willamowski, Yves Hoppenot, Antonietta Grasso (Xerox Research Center Europe)

### 1443 Achieving Sustainable Society Through Micro-Level Crowdfunding

Mizuki Sakamoto, Tatsuo Nakajima, Yefeng Liu, Todorka Alexandrova (Waseda University)

# 1449 Normification: Using Crowdsourced Technology to Affect Third-Party Change

Elaine Massung, Chris Preist (University of Bristol)

# 1455 Improving User Comfort and Office Energy Efficiency with POEM (Personal Office Energy Monitor)

Milan Milenkovic, Ulf Hanebutte, Yonghong Huang, David Prendergast (*Intel Labs*), Han Pham (*DesignSwinger Ltd.*)

# 1461 Designing Motivational Features for Sustainable Urban Mobility

Silvia Gabrielli, Rosa Maimone (CREATE-NET), Paula Forbes, Judith Masthoff, Simon Wells (University of Aberdeen), Laura Haverinen (University of Helsinki), Laura Primerano (Fondazione Legambiente Innovazione), Giancarlo Bo, Marco Pompa (Imaginary Srl)

# 1467 Take It Personally: Personal Accountability and Energy Consumption in Domestic Households

Yukang Guo, Matt Jones (Swansea University), Benjamin Cowan, Russell Beale (University of Birmingham)

### 1473 Designing a System for Land Change Science Meta-Study

Alyson L. Young, Wayne G. Lutters, Nicholas R. Magliocca, Erle C. Ellis (*University of Maryland, Baltimore County*)

# 1479 Cool and the Gang: Design Insights for Engaging Student Energy Interventions

Derek Foster, Conor Linehan (University of Lincoln), Maureen Schoonheyt (Hague University of Applied Sciences), Shaun Lawson (University of Lincoln)

### 1485 The Stroppy Kettle: An Intervention to Break Energy Consumption Habits

Benjamin R. Cowan, Chris P. Bowers, Russell Beale, Charlie Pinder (*University of Birmingham*)

# 1491 Teenagers Talking about Technologies: Designing Technology to Reduce Teen Energy Use

Beth T. Bell, Nicola Toth (Northumbria University), Janet C. Read, Matthew Horton, Dan Fitton (University of Central Lancashire), Linda Little (Northumbria University), Russell Beale (University of Birmingham), Yukang Guo (Swansea University)

# 1497 Greenify: Fostering Sustainable Communities via Gamification

Joey J. Lee, Eduard Matamoros, Rafael Kern, Jenna Marks, Christian de Luna, William Jordan-Cooley (Columbia University)

### 1503 Choice Architecture for Environmentally Sustainable Urban Mobility

Efthimios Bothos (National Technical University of Athens), Dimitris Apostolou (University of Piraeus), Gregoris Mentzas (National Technical University of Athens)

### **Tabletops and Displays Works-in-Progress**

### 1509 Tangeo: Geometric Drawing with Tangibles on an Interactive Table-Top

Shunjie (Jacky) Zhen, Rachel Blagojevic, Beryl Plimmer (The University of Auckland)

### 1515 Messy Tabletops: Clearing Up the Occlusion Problem

Euan Freeman, Stephen Brewster (University of Glasgow)

# 1521 IAMHear: A Tabletop Interface with Smart Mobile Devices Using Acoustic Location

Seunghun Kim, Bongjun Kim, Woon Seung Yeo (Korea Advanced Institute of Science and Technology)

## 1527 Conceptual Framework for Surface Manager on Interactive Tabletops

Nur Alhuda Hamdan, Simon Voelker, Jan Borchers (RWTH Aachen University)

# 1533 Permulin: Collaboration on Interactive Surfaces with Personal In- and Output

Roman Lissermann, Jochen Huber (Technische Universität Darmstadt),

Jürgen Steimle (Massachusetts Institute of Technology), Max Mühlhäuser (Technische Universität Darmstadt)

# 1539 Overcoming Interaction Blindness Through Curiosity Objects

Steven Houben (IT University of Copenhagen), Christian Weichel (Lancaster University)

### 1545 Sensing and Reacting to Users' Interest: An Adaptive Public Display

Gianluca Schiavo (*University of Trento & FBK*), Eleonora Mencarini, Kevin B. A. Vovard, Massimo Zancanaro (*FBK*)

### **Tactile Works-in-Progress**

# 1551 Sensing Fork: Eating Behavior Detection Utensil and Mobile Persuasive Game

Azusa Kadomura (Ochanomizu University), Kelvin Cheng-Yuan Li, Andy Yen-Chang Chen (National Taiwan University), Koji Tsukada (Japan Science and Technology Agency), Itiro Siio (Ochanomizu University), Hao-Hua Chu (National Taiwan University)

### 1557 Peripheral Information Displays Using Vibro-Tactile Stimuli

Martin Pielot, Rodrigo de Oliveira (Telefonica Research)

# 1563 Feel the Action: Dynamic Tactile Cues in the Interaction with Deformable UIs

Johan Kildal, Marion Boberg (Nokia Research Center)

### 1569 Tactile Notifications for Ambulatory Users

Huimin Qian, Ravi Kuber (University of Maryland, Baltimore County), Andrew Sears (Rochester Institute of Technology)

### 1575 Towards Tactile Expressions of Emotion Through Mediated Touch

Gijs Huisman (University of Twente), Aduén Darriba Frederiks (Amsterdam University of Applied Sciences)

### 1581 Accelerative Effect of Tactile Feedback on Turn-Taking Control in Remote Verbal-Communication

Huiyuan Cao, Olivier Gapenne, Dominique Aubert (University of Technology of Compiegne)

# 1587 Perception of Thermal Stimuli for Continuous Interaction

Martin Halvey (Glasgow Caledonian University), Graham Wilson, Stephen A. Brewster (University of Glasgow), Stephen A. Hughes (SAMH Engineering)

# 1593 Mouse Mode of *OnScreenDualScribe:* Three Types of Keyboard-Driven Mouse Replacement

Torsten Felzer, Stephan Rinderknecht (Technische Universität Darmstadt)

### 1599 Haptic Cues: Texture as a Guide for Non-Visual Tangible Interaction

Katrin Wolf (TU Berlin), Peter Bennett (University of Bristol)

### 1605 A Temperature-Based Touch-Sensor for Non-Emissive Textile Displays

Roshan Lalintha Peiris, Ryohei Nakatsu (National University of Singapore)

# 1611 Wave Alchemy: Perception and Reminiscence of Expressive Moments Through Waves

Dan Sawada, Anirudh Sharma, Sujoy Kumar Chowdhury, Christine Hsieh (Massachusetts Institute of Technology), Andrea Miller (Harvard University)

### 1617 TangibleRings: Nestable Circular Tangibles

Achim Ebert, Christopher Weber, Daniel Cernea (*University of Kaiserslautern*), Sebastian Petsch (*University of Kaiserslautern*)

# 1623 A One-Handed Multi-Touch Mating Method for 3D Rotations

Doug Scheurich, Wolfgang Stuerzlinger (York University)

#### 1629 Touch Through: Experiencing Remote Touch Across Different Modalities

Gabrielle Le Bihan, Charles Lenay, Matthieu Tixier, Jérôme Mara (University of Technology of Compiègne)

### **Ubiquitous Computing Works-in-Progress**

# 1635 When the Tissue Box Says "Bless You!": Using Speech to Build Socially Interactive Objects

Haiyan Jia, Mu Wu, Eunhwa Jung, Alice Shapiro, S. Shyam Sundar (*The Pennsylvania State University & Sungkyunkwan University*)

# 1641 Ubiquitous Shortcuts: Mnemonics by Just Taking Photos

Mikko J. Rissanen, Owen Noel Newton Fernando, Horathalge Iroshan, Samantha Vu, Natalie Pang, Schubert Foo (Nanyang Technological University)

### 1647 Connect and Connectivity: Revealing a World of Interactions

Gido Hakvoort, Russell Beale, Eugene Ch'ng (University of Birmingham)

### 1653 Relating to Speech Evoked Car Personalities James Healey, Delilo Speetal, (Intel Labe)

Jennifer Healey, Dalila Szostak (Intel Labs)

# 1659 Exploring Programmable Light Spaces Using Actively Deformable Mirrors

Munehiko Sato (The University of Tokyo), Mehdy Chaillou (The University of Tokyo & Graduate School of Engineering, France), Tomohiro Tanikawa, Michitaka Hirose (The University of Tokyo)

# 1665 Designing the Car iWindow: Exploring Interaction Through Vehicle Side Windows

Jiannan Li, Ehud Sharlin, Saul Greenberg (University of Calgary), Michael Rounding (Smart Technologies)

# 1671 Energy Management System for Electric Vehicle Based on User Behavior Induction

Shigaku Iwabuchi, Soh Masuko, Junichi Hoshino (University of Tsukuba)

### 1677 The Open Platform for Personal Lifelogging: The eLifeLog Architecture

Pil Ho Kim, Fausto Giunchiglia (University of Trento)

# 1683 Towards an Adaptive Cultural Heritage Experience Using Physiological Computing

Alex J. Karran, Stephen H. Fairclough, Kiel Gilleade (Liverpool John Moores University)

### **UI Design Works-in-Progress**

# 1689 Does Clustered Presentation Lead Readers to Diverse Selections?

Sidharth Chhabra, Paul Resnick (University of Michigan)

### 1695 Ubi-Jector: An Information-Sharing Screen in a Casual Meeting Environment Using Mobile Devices

Hajin Lim, Seohee Choi, Joonhwan Lee (Seoul National University)

# 1701 Peripheral Agent: Implementation of Peripheral Cognition Technology

Seiji Yamada (National Institute of Informatics & Tokyo Institute of Technology),
Naoki Mori (Tokyo Institute of Technology),
Kazuki Kobayashi (Shinshu University)

### 1707 Estimating User Interruptibility by Measuring Table-Top Pressure

Takahisa Tani (The Graduate University for Advanced Studies), Seiji Yamada (National Institute of Informatics)

# 1713 Design and Evaluation of Adaptive Interfaces for IVR Systems

Siddhartha Asthana, Pushpendra Singh, Amarjeet Singh (Indraprastha Institute of Information Technology)

# 1719 Bezel-Flipper: Design of a Light-Weight Flipping Interface for E-Books

Sangtae Kim, Jaejeung Kim, Soobin Lee (Korea Advanced Institute of Science and Technology)

### 1725 User Authentication in a Multi-Touch Surface: A Chord Password System

Ioannis Leftheriotis (Ionian University)

### 1731 Artifacts for Programmable Devices: The Good, the Bad and the Ugly

Jonathan Back, Anna L. Cox (University College London)

### 1737 Bases of Human-Computer Trust and Explanations

Florian Nothdurft, Helmut Lang, Melina Klepsch, Wolfgang Minker (*Ulm University*)

# 1743 Patterns of Experience in Thermal Conceptual Metaphors

Henry W. J. Lin, David James Barter, Ron Wakkary (Simon Fraser University)

### **Visualization Works-in-Progress**

#### 1749 Interacting with Microseismic Visualizations

Ahmed E. Mostafa, Saul Greenberg, Emilio Vital Brazil, Ehud Sharlin, Mario C. Sousa (*University of Calgary*)

### 1755 Accentuating Visualization Parameters to Guide Exploration

Marian Dörk (Newcastle University), Heidi Lam, Omar Benjelloun (Google, Inc.)

# 1761 Toward a Visual Interface for Brain Connectivity Analysis

Hua Guo (Brown University), Arthur Yidi (Rhode Island School of Design), Steven R. Gomez (Brown University), Mark J. Schnitzer (Stanford University), David Badre, David H. Laidlaw (Brown University)

### 1767 Fisheye Word Cloud for Temporal Sentiment Exploration

Ji Wang (Virginia Tech), Kyle D. Dent (Palo Alto Research Center), Chris L. North (Virginia Polytechnic Institute and State University)

# 1773 Fast Interactive Visualization for Multivariate Data Exploration

Changhyun Lee, Wei Zhuo, Jaegul Choo, Duen Horng (Polo) Chau, Haesun Park (Georgia Institute of Technology)

### 1779 TouchViz: (Multi)Touching Multivariate Data

Jeffrey M. Rzeszotarski, Aniket Kittur (Carnegie Mellon University)

# 1785 Visualizing Lifelog Data for Different Interaction Platforms

Yang Yang (Dublin City University), Hyowon Lee (Singapore University of Technology and Design), Cathal Gurrin (Dublin City University)

# 1791 VISO: A Shared, Formal Knowledge Base as a Foundation for Semi-Automatic InfoVis Systems

Jan Polowinski, Martin Voigt (TU Dresden)

### Web and Ecommerce Works-in-Progress

### 1797 LiveThumbs: A Visual Aid for Web Page Revisitation

Luis A. Leiva (*Universität Politècnica de València*), V. Javier Traver, Vicente Castelló (*Jaume-I University*)

### 1803 Ads Suit Up! Effects of Website and Advertiser Credibility on Consumer Responses to Banner Ads

Markus Hug (University of Basel),

Nina T. Suter (University of Applied Science Northwestern Switzerland),

Elisa D. Mekler, Klaus Opwis (University of Basel)

# 1809 Facilitating Developer-User Interactions with Mobile App Review Digests

Jeungmin Oh, Daehoon Kim, Uichin Lee, Jae-Gil Lee, Junehwa Song (Korea Advanced Institute of Science and Technology)

### 1815 Crowdfunding Support Tools: Predicting Success & Failure

Michael D. Greenberg, Bryan Pardo, Karthic Hariharan, Elizabeth Gerber (Northwestern University)

# 1821 Towards Estimating Web Search Result Relevance from Touch Interactions on Mobile Devices

Qi Guo (Microsoft), Haojian Jin, Dmitry Lagun, Shuai Yuan, Eugene Agichtein (Emory University)

# 1827 Understanding the Specificity of Web Search Queries

Carolyn Theresa Hafernik, Bernard J. Jansen (The Pennsylvania State University)

## 1833 Does Ad Blindness on the Web Vary by Age and Gender?

Tom Tullis, Marisa Siegel (Fidelity Investments)

# 1839 HITOKE: A Study of Queue Visualization of Internet Purchase Information

Soh Masuko, Hiroshi Abe (Rakuten, Inc.)

## 1845 The Gender-Brand Effect of Key Phrases on User Clicks in Sponsored Search

Partha Mukherjee, Bernard J. Jansen (The Pennsylvania State University)

# 1851 Effortless Tool-Based Evaluation of Web Form Filling Tasks Using Keystroke Level Model and Fitts Law

Nikolaos Karousos, Christos Katsanos (Hellenic Open University), Nikolaos Tselios (University of Patras), Michalis Xenos (Hellenic Open University)

### 1857 Picassopass: A Password Scheme Using a Dynamically Layered Combination of Graphical Elements

Wouter van Eekelen, John van den Elst, Vassilis-Javed Khan (NHTV Breda University of Applied Sciences)

### 1863 openHTML: Designing a Transitional Web Editor for Novices

Thomas H. Park, Ankur Saxena, Swathi Jagannath, Susan Wiedenbeck, Andrea Forte (*Drexel University*)

# 1869 Does Interactive Search Results Overview Help? An Eye Tracking Study

Jacek Gwizdka (The University of Texas at Austin), Michael Cole (Rutgers University)

# 1875 Online Ad Banners: The Effects of Goal Orientation and Content Congruence on Memory

Silvia Heinz, Markus Hug, Carina Nugaeva, Klaus Opwis (University of Basel)

# 1881 On-Site Information Seeking Behaviors in Earthquake and Tsunami

Daisuke Asai, Yoshie Sagata, Yoko Asano (NTT Corporation)

# 1887 CredibleWeb: A Platform for Web Credibility Evaluation

Zhicong Huang, Alexandra Olteanu, Karl Aberer (École Polytechnique Fédérale de Lausanne)

### 1893 Empirical Evaluation of 20 Web Form Optimization Guidelines

Mirjam Seckler (University of Basel), Silvia Heinz (University of Basel), Javier A. Bargas-Avila (Google, Inc.), Klaus Opwis (University of Basel), Alexandre N. Tuch (University of Copenhagen)

### **Doctoral Consortiums**

### 1909 Math Manipulation for Students with Impaired Vision

Nancy Alajarmeh (New Mexico State University)

# 1913 Nurturing Children's Creative Practice Through Micro-Enactments

Sharon Lynn Chu (Virginia Polytechnic Institute and State University)

# 1917 Multi-Player Online Video Games for Cognitive Rehabilitation

Jason E. Colman (University of Portsmouth)

# 1921 SYSSON: A Systematic Procedure to Develop Sonifications

Visda Goudarzi (Institute for Electronic Music and Acoustics)

# 1925 Influencing the User Experience Through Unexpected Events

Alice Marlene Gross (Technische Universität Berlin)

# 1929 Supporting Behavioral Differences and Changes in Personal Task Management

Mona Haraty (University of British Columbia)

# 1933 Materializing Trust as an Understandable Digital Concept

Christina A. Hochleitner (University of Salzburg)

### 1937 Digital Arts for End-Users:

Learning from Traditional Craft Practice Rubaiat Habib Kazi (National University of Singapore)

### 1941 Automation of VUIto GUI Mapping

Amber Wagner (University of Alabama)

### 1945 Development of a Taxonomy to Improve Human-Robot-Interaction Through Multimodal Robot Feedback

Nicole Mirnig (University of Salzburg)

# 1949 Blackgammon: A Grounded Participatory Design of a Preconception Health Promotion 'Alternate Reality Game' for Adolescent Indigenous Australian Women

Melody Muscat (James Cook University)

# 1953 Using Robot-Mediated Communication to Improve Remote Collaborative Outcomes

Irene Rae (University of Wisconsin, Madison)

### 1957 Design and Evaluation of Proxemics-Aware Environments to Support Navigation in Large Information Spaces

Roman Rädle (University of Konstanz)

# 1961 Exploiting Spatial Memory to Design Efficient Command Interfaces

Joey Scarr (University of Canterbury)

# 1965 Inferential Methods in Interaction, Usability and User Experience

Hana Vrzakova (University of Eastern Finland)

### alt.chi: Reflection and Evaluation

Session Chair: Amanda Williams (Wyld Collective Ltd, Canada)

# 1969 Changing Perspectives on Evaluation in HCI: Past, Present, and Future

Craig M. MacDonald (Pratt Institute), Michael E. Atwood (Drexel University)

### 1979 Personal Informatics and Reflection:

A Critical Examination of the Nature of Reflection

Afarin Pirzadeh, Li He, Erik Stolterman (Indiana University, Bloomington)

# 1989 Pattern Language and HCI: Expectations and Experiences

Yue Pan, Erik Stolterman (Indiana University, Bloomington)

### 1999 Comparative Appraisal of Expressive Artifacts

Melanie Feinberg (The University of Texas at Austin)

### 2009 Sound Design as Human Matter Interaction

Sha Xin Wei (Concordia University), Adrian Freed (CNMAT UC Berkeley), Navid Navab (Concordia University)

### 2019 Crafting Against Robotic Fakelore: On the Critical Practice of ArtBot Artists

Mattias Jacobsson (Mobile Life @ Swedish Institute of Computer Science),

Ylva Fernaeus (KTH - Royal Institute of Technology), Henriette Cramer (Yahoo! Labs),

Sara Ljungblad (University of Göteborg)

### alt.chi: Experiences

Session Chair: Carl DiSalvo (Georgia Institute of Technology, USA)

### 2029 Flying Head: A Head Motion Synchronization **Mechanism for Unmanned Aerial Vehicle Control** Keita Higuchi, Jun Rekimoto (The University of Tokyo)

2039 An Implicit Test of UX: Individuals Differ in What

### They Associate with Computers

Martin Schmettow, Matthijs L. Noordzij, Matthias Mundt (University of Twente)

### 2049 Performative Experience Design

Jocelyn Spence, David M. Frohlich, Stuart Andrews (University of Surrey)

### 2059 Experiences Before Things: A Primer for the (Yet) Unconvinced

Marc Hassenzahl (Folkwang University of the Arts)

#### 2069 Mobile Interaction Does Not Exist

Joe Marshall, Paul Tennent (The University of Nottingham)

### 2079 The Elephant in the Conference Room: Let's Talk About Experience Terminology

Analia Ibargoyen, Dalila Szostak (Intel Corporation), Miroslav Bojic (Grootzeil 191)

### alt.chi: Design Lessons

Session Chair: Daniela Rosner (Stanford University, USA)

### 2089 "Sergey Brin Is Batman": Google's Project Glass and the Instigation of Computer Adoption in **Popular Culture**

Isabel Pedersen, Douglas Trueman (University of Ontario Institute of Technology)

### 2099 Talkative Objects in Need of Interpretation. Re-Thinking Digital Badges in Education

Răzvan Rughinis (University Politehnica of Bucharest)

### 2109 Beyond Recognition: Using Gesture Variation for Continuous Interaction

Baptiste Caramiaux (University of London), Frédéric Bevilacqua (IRCAM), Atau Tanaka (University of London)

### 2119 Design Activism in the HCl Classroom

Sabrina Hauser, Audrey Desjardins, Ron Wakkary (Simon Fraser University)

### 2129 Fillables: Everyday Vessels as Tangible Controllers with Adjustable Haptics

Christian Corsten, Chat Wacharamanotham, Jan Borchers (RWTH Aachen University)

### 2139 A Load of Cobbler's Children:

**Beyond the Model Designing Processor** 

Gilbert Cockton (Northumbria University)

### alt.chi: Ethics

Session Chair: Lilly Irani (University of California, Irvine, USA)

### 2149 On Legitimacy: Designer as Minor Scientist

Aysar Ghassan, Mark Blythe (Northumbria University)

### 2159 Ethical Issues and Guidelines When Conducting **HCI Studies with Animals**

Heli K. Väätäjä, Emilia K. Pesonen (Tampere University of Technology)

### 2169 "Un-Googling" Publications:

The Ethics and Problems of Anonymization

Irina Shklovski (IT University of Copenhagen), Janet Vertesi (Princeton University)

### 2179 StallTalk: Graffiti, Toilets, and Anonymous **Location Based Micro Blogging**

Jonathan Friedman, Michael S. Horn (Northwestern University)

### 2189 Critical InfoVis: Exploring the Politics of Visualization

Marian Dörk (Newcastle University), Patrick Feng (University of Calgary), Christopher Collins (University of Ontario Institute of Technology), Sheelagh Carpendale (University of Calgary)

### 2199 CHI and the Future Robot Enslavement of **Humankind; A Retrospective**

Ben Kirman, Conor Linehan, Shaun Lawson (University of Lincoln), Dan O'Hara (Birmingham City University)

### alt.chi: Nature and Nurture

Session Chair: Eric Paulos (University of California, Berkeley, USA)

### 2209 A Biological Imperative for Interaction Design

Amanda Parkes (Columbia University), Connor Dickie (Queen's University, Kingston)

### 2219 Devotional Gardening Tools

Tom Jenkins (Georgia Institute of Technology)

### 2227 Animal-Computer Interaction (ACI): Changing Perspective on HCI, Participation and Sustainability Clara Mancini (The Open University)

2237 Morphing Agency: Deconstruction of an Agent with Transformative Agential Triggers

Hirotaka Osawa, Michita Imai (Keio University)

### 2247 AniThings: Animism and Heterogeneous Multiplicity

Philip van Allen (Art Center College of Design), Joshua McVeigh-Schultz (University of Southern California).

Brooklyn Brown, Hye Mi Kim, Daniel Lara (Art Center College of Design)

### 2257 Smart Pose: Mobile Posture-Aware System for Lowering Physical Health Risk of Smartphone Users

Hosub Lee (Samsung Advanced Institute of Technology & Samsung Electronics Co., Ltd.), Young Sang Choi, Sunjae Lee, Eunsoo Shim (Samsung Electronics Co., Ltd.)

### alt.chi: Spirit and Mind

Session Chair: Susan Wyche (Michigan State University, USA)

### 2267 Embodying Neuroplastic Change

Danielle Wilde (RMIT University)

### 2277 PIXEE: Pictures, Interaction and Emotional **Expression**

Margaret E. Morris, Carl S. Marshall (Intel Corporation), Mira Calix (Independent),

Murad Al Haj (Universitat Autònoma de Barcelona), James S. MacDougall (University of Victoria),

Douglas M. Carmean (Intel Corporation)

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# 2287 Beyond the Basic Emotions: What Should Affective Computing Compute?

Sidney D'Mello (University of Notre Dame), Rafael A. Calvo (The University of Sydney)

#### 2295 Neurodiversity & HCI

Nicholas Sheep Dalton (The Open University)

#### 2305 Mediated Meditation: Cultivating Mindfulness with Sonic Cradle

Jay Vidyarthi, Bernhard E. Riecke (Simon Fraser University)

# 2315 Spirituality: There's an App for That! (But Not a Lot of Research)

Elizabeth Buie, Mark Blythe (Northumbria University)

# Case Studies: Innovating User-Centered Design

Session Chair: John Boyd (Google Inc., USA)

# 2325 Project Pokerface: Building a User-Centered Culture at Scale

Asif Baki, Patrick Bowen, Brianna Brekke (Google, Inc.), Elizabeth Ferrall-Nunge (Twitter, Inc.), Gueorgi Kossinets, Jens Riegelsberger, Nina Weber (Google, Inc), Marissa Mayer (Yahoo!, Inc)

# 2327 Data-Driven Design Process in Adoption of Marking Menus for Large Scale Software

Ji-Young Oh, Ananth Uggirala (Autodesk, Inc.)

# 2331 Creating Small Products at a Big Company: Adobe's "Pipeline" Innovation Process

Rob J. Adams, Bradee Evans (Adobe Systems), Joel Brandt (Adobe Research)

# 2333 UX Design with International Teams: Challenges and Best Practices

Charles Yiu (Microsoft Corporation)

### **Case Studies: Communities of Practice**

Session Chair: Dirk-Jan Hoets (Flipside, The The Netherlands)

# 2337 Don't Talk to Strangers! Peer Tutoring versus Active Intervention Methodologies in Interviewing Children

Svetlana Ognjanovic (LEGO Company Ltd. ), Jason Ralls (LEGO System A/S)

### 2341 Leverage User Experience Through Social Networking to Improve Health Adherence

Raymund J. Lin (IBM), Xinxin Zhu (IBM T.J. Watson Research Center)

### 2345 The Needs of Early School Children and Their Parents with Respect to the Design of Mobile Service Offers

Agnieszka Szóstek (Warsaw School of Social Psychology), Joanna Kwiatkowska (Czestochowa University of Technology),

Olga Górnicka (Warsaw School of Social Psychology)

#### 2347 Enhancing Company Communication: The Case of a Social Media Platform

Alina Krischkowsky, Astrid Weiss, Sebastian Osswald, Manfred Tscheligi (*University of Salzburg*)

### Session 90: Case Studies: Changing How We Work

Session Chair: Kathy Baxter (Google, Inc., USA)

# 2349 Best Practices for Enterprise Social Software Adoption

Meng Yang (IBM Collaborative Sollutions), Michael Warner (IBM CIO), David R. Millen (IBM Research)

# 2351 Minimizing Change Aversion for the Google Drive Launch

Aaron Sedley, Hendrik Müller (Google, Inc.)

# 2355 Do You Enjoy Getting Gifts? Keeping Personas Alive Through Marketing Materials

Christina Hochleitner, Cornelia Graf (CURE - Center for Usability Research & Engineering), Manfred Tscheligi (University of Salzburg)

### 2359 The Fingerstroke-Level Model Strikes Back: A Modified Keystroke-Level Model in Developing a Gaming Ulfor 4G Networks

Kiburm Song, Jihoon Kim, Yoon-Han Cho, Ahreum Lee (Hanyang University),
Jung-Woon Choi, Yong Joo Lee (LG Uplus Corp.),
Hokyoung Ryu (Hanyang University)

### **Case Studies: Novel Settings**

Session Chair: Elizabeth Dykstra-Erickson (Nuance Communications, Inc., USA)

# 2363 Counter Entropy: Visualizing Power Consumption in an Energy+ House

Florian Heller, Konstantinos Tsoleridis, Jan Borchers (RWTH Aachen University)

# 2367 Biometric Interaction – A Case Study of Visual Feedback and Privacy Issues in New Face Recognition Solutions

Per Kvarnbrink, Karin Fahlquist, Thomas Mejtoft (*Umeå University*)

# 2371 A Software Development Methodology for Sustainable ICTD Solutions

Joerg Doerflinger (SAP Next Business & Technology), Andy Dearden (Sheffield Hallam University), Tom Gross (University of Bamberg)

# 2375 What Should I Read Next? Awareness of Relevant Publications Through a Community of Practice

Gonzalo Parra, Joris Klerkx, Erik Duval (University of Leuven)

#### Case Studies: In the Wild

Session Chair: Jonathan Arnowitz (Google Inc., USA)

# 2377 Automotive HMI Test Package: An Exploitable Approach to Study In-Car HMIs

David Wilfinger, Alexander Meschtscherjakov, Nicole Perterer, Martin Murer, Arno Laminger, Manfred Tscheligi (*University of Salzburg*)

### 2381 The Democratization of Mission Control: Empowering Users

Jay Trimble (NASA Ames Research Center), Tom Dayton (UC Santa Cruz at NASA), Alan Crocker (NASA Johnson Space Center)

### 2383 We'll Take It from Here: Letting the Users Take Charge of the Evaluation and Why That Turned Out Well

Cosmin Munteanu, Hélène Fournier, Jean-François Lapointe, Bruno Emond, Irina Kondratova (National Research Council Canada)

# 2385 Multi-Modal Location-Aware System for Paratrooper Team Coordination

Danielle Cummings, Manoj Prasad, George Lucchese, Christopher Aikens, Tracy A. Hammond (Texas A&M University)

### **Panels**

### 2389 Calling All Game Changers: BYOD (Bring Your Own Disruption)

Iram Mirza (Citrix),

Marcy Barton (ie21 - Designing 21st Century Learning), Evelyn Huang (Stanford University), Jannie Lai (Citrix), Chris Maliwat (Facebook, Inc.)

# 2395 Will Massive Online Open Courses (MOOCs) Change Education?

Daniel M. Russell (Google, Inc.), Scott Klemmer (Stanford University), Armando Fox (University of California, Berkeley), Celine Latulipe (University of North Carolina), Mitchell Duneier (Princeton University), Elizabeth Losh (University of California, San Diego)

# 2399 Leveraging the Progress of Women in the HCI Field to Address the Diversity Chasm

Susan M. Dray (Dray & Associates, Inc.),
Anicia N. Peters (Iowa State University
& Polytechnic of Namibia),
Anke M. Brock (IRIT University of Toulouse & CNRS),
Andrea Peer (Iowa State University),
Shikoh Gitau (Google Inc.),

Pamela L. Jennings (School of the Art Institute of Chicago), Janaki Kumar (SAP Labs),

Dianne Murray (HCI & UX Consultant)

### 2407 CHI at the Barricades - An Activist Agenda?

Daniela K. Busse (Samsung R&D Research Center), Alan Borning (University of Washington), Samuel Mann (Otago Polytechnic), Tad Hirsch (University of Washington), Lisa P. Nathan (University of British Columbia), Andrea Grimes Parker (Northeastern University), Ben Shneiderman (University of Maryland), Bryan Nunez (WITNESS.Org.)

### 2413 UX Management: Current and Future Trends

Janice Anne Rohn (Leads360), Kathy Baxter (Google, Inc.), Catherine Courage (Citrix), Janaki Kumar (SAP Labs), Carola Fellenz Thompson (zSpace), Steve Rogers (Google, Inc.)

### 2419 Is My Doctor Listening to Me? Impact of Health IT Systems on Patient-Provider Interaction

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