	8:30	9:00–10:30	11:30–13:00	14:30–16:00	16:30–18:00
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= 15 minutes = 30 minutes = unscheduled time

COMMONS

Exhibits, Interactivity, & Info Booth
10:30–14:30

SPECIAL EVENTS

Spotlight on Work-in-Progress Posters (People's Choice)
10:30–11:30
Concourse

Anniversary Party
18:00–19:00
Concourse

■ CHI MADNESS | CIVIC AUDITORIUM

8:30–9:00

SESSION CHAIRS:
Patrick Baudisch, *Microsoft,* USA
Gonzalo Ramos, *University of Toronto,* Canada

CHI's 30 second Madness, which premiered in Montréal, returns to give everyone a lightning speed overview of the days program.

■ INTERACTIVE SESSION | CIVIC AUDITORIUM

RECOMMENDATIONS ON RECOMMENDATIONS

MODERATORS:
Rolf Molich, *DialogDesign,* Denmark
Kasper Hornbæk, *University of Copenhagen,* Denmark
Josephine Scott, *TechSmith Corporation,* USA

This interactive session discusses the quality of recommendations for improving a user interface resulting from a usability evaluation. Problems with the quality of recommendations include recommendations that are not actionable, ones that developers are likely to misunderstand, and ones that may not improve the overall usability of the application. The session will discuss characteristics for useful and usable recommendations, that is recommendations for solving usability problems that lead to changes that efficiently improve the usability of a product. To make the session as useful as possible we have deliberately left 2–3 seats open for people with demonstrated abilities in writing useful and usable recommendations. We intend to fill these seats through a pre-conference competition.

■ PAPERS | ROOM: A1

AUGMENTATION, AUTOMATION, & AGENTS

SESSION CHAIR: Alan Blackwell, *Cambridge University,* UK

PAPER | Demonstrating the Viability of Automatically Generated User Interfaces

Jeffrey Nichols, *IBM,* USA
Duen Horng Chau, Brad A. Myers, *Carnegie Mellon University,* USA

We present the first usability studies showing that automatically generated user interfaces can be superior to human-designed interfaces and enable additional benefits not practical to provide in human-designed interfaces.

EXPERIENCE REPORT | Exploring Augmented Live Video Streams for Remote Participation

Michael Wittkämper, Irma Lindt, Wolfgang Broll, Jan Ohlenburg, Jan Herling, *Fraunhofer FIT,* Germany
Sabiha Ghellal, *Sony NetServices GmbH,* Germany

Augmented video streams present information in the spatial context of a physical environment. In contrast to Augmented Reality, they do not require special equipment, they are scalable to support many users, and their usage is location-independent. In this paper we are exploring the potentials of augmented video streams for remote participation. We present our design considerations for the remote participation user interfaces, describe briefly the realization, and explain the design of three different application scenarios: spectating a pervasive game, observing the quality of a production process, and exploring interactive science exhibits. The paper also discusses our findings on how a good augmented video stream quality can be achieved and which information and control possibilities are required to achieve a viable remote participation interface.

PAPER | Can Customization Affect User Perception of and Performance with Embodied Conversational Agents?

Jun Xiao, John Stasko, Richard Catrambone, *Georgia Institute of Technology,* USA

Shows that allowing users to customize ECA interfaces leads to significant improvement in subjective impressions of the ECAs and objective task performance, thus enabling more effective and affective ECA applications.

■ PAPERS | ROOM: A2

DISTRIBUTED COORDINATION

SESSION CHAIR: John C. Tang, *IBM,* USA

PAPER | Seconds Matter: Improving Distributed Coordination by Tracking and Visualizing Display Trajectories

Mike Fraser, Michael R. McCarthy, Muneeb Shaukat, Phillip Smith, *University of Bristol,* UK

Describes a system that tracks pen movements around displays. Demonstrates that visualizing these movements improves groupware coordination by significantly reducing turn-taking response time.

PAPER | **FASTDash: A Visual Dashboard for Fostering Awareness in Software Teams**

Jacob T. Biehl, *University of Illinois, Urbana-Champaign & Microsoft,* USA
Mary Czerwinski, Greg Smith, George G. Robertson, *Microsoft,* USA

We present a new visualization designed to improve group activity awareness within software development teams. Field study results show improved awareness, reduced reliance on shared artifacts, and increased project-based communication.

PAPER | **A Study of Emergency Response Work: Patterns of Mobile Phone Interaction**

Jonas Landgren, Urban Nulden, *Viktoria Institute,* Sweden

Ethnographic accounts of the role of mobile phones in time-critical organizing. Inspiration for designers of systems and applications for time-critical settings.

■ PAPERS | ROOM: A3

USABILITY

SESSION CHAIR: Dennis Wixon, *Microsoft,* USA

PAPER | **ExperiScope: An Analysis Tool for Interaction Data**

Francois Guimbretiere, Morgan Dixon, *University of Maryland,* USA
Ken Hinckley, *Microsoft,* USA

Our tool simplifies the analysis of data collected during empirical evaluations. It helps experimenters rapidly identify the most common pattern or use and easily compare them.

NOTE | **Context & Usability Testing: User-Modeled Information Presentation in Easy and Difficult Driving Conditions**

Jiang Hu, *Stanford University,* USA
Andi Winterboer, *University of Edinburgh,* UK
Clifford I. Nass, *Stanford University,* USA
Johanna D. Moore, *University of Edinburgh,* UK
Rebecca Illowsky, *Stanford University,* USA

We demonstrate that user modeling plus search & refine is better than search & refine only for in-car information presentation in easy driving conditions, but worse in difficult conditions.

NOTE | **Tracking the Interaction of Users with AJAX Applications for Usability Testing**

Richard Atterer, *University of Munich,* Germany
Albrecht Schmidt, *Fraunhofer IAIS & University of Bonn,* Germany

Our tool offers detailed user interaction logging for AJAX web applications. As users do not have to install software, they are more likely to participate in remote usability tests.

EXPERIENCE REPORT | **Heuristic Evaluations at Bell Labs: Analyses of Evaluator Overlap and Group Session**

Cheryl Coyle, *Bell Laboratories,* USA
Rebecca Iden, *Clemson University,* USA
Xerxes Kotval, Paulo Santos, Heather Vaughn, *Bell Laboratories,* USA

In this paper we are exploring the potentials of augmented video streams for remote participation. We present our design considerations for the remote participation user interfaces, describe briefly the realization, and explain the design of three different application scenarios: spectating a pervasive game, observing the quality of a production process, and exploring interactive science exhibits.

■ PAPERS | ROOM: A4 & A5

KIDS & FAMILY

SESSION CHAIR: John Zimmerman, *Carnegie Mellon University,* USA

PAPER | **Grow and Know: Understanding Record-Keeping Needs for Tracking the Development of Young Children**

Julie A. Kientz, Rosa I. Arriaga, Marshini Chetty, Gillian R. Hayes, Jahmeilah Richardson, Shwetak N. Patel, Gregory D. Abowd, *Georgia Institute of Technology,* USA

Describes a qualitative study exploring record-keeping for young children to help detect developmental delay. Confirms assumptions about rationales and functions for design. Identifies unique themes, potential prototypes, and design guidelines.

PAPER | **Sharing Motion Information with Close Family and Friends**

Frank Bentley, Crysta Metcalf, *Motorola Labs,* USA

Describes how people in close relationships can infer rich contextual information from an ambiguous source with minimal privacy concerns. Benefits those creating mobile context-aware applications.

NOTE | **Comicboarding: Using Comics as Proxies for Participatory Design with Children**

Neema Moraveji, *Microsoft,* China
Jason Li, *Brown University,* USA
Jiarong Ding, *University of Michigan,* USA
Patrick O'Kelley, Suze Woolf, *Microsoft,* USA

Introduces a participatory design method for use with children that scaffolds the idea generation process by using comics. Describes the theory and utility of applying comics to design.

EXPERIENCE REPORTS | ROOM: A8

MANAGEMENT

SESSION CHAIR: Jeremy Ashley, *Oracle,* USA

The Internal Consultancy Model for Strategic UXD Relevance

James Nieters, Subbarao Ivaturi, *Cisco,* USA
Garett Dworman, *TecEd,* USA

Experts in the field of HCI have spoken at length about how to increase the strategic influence of User Experience Design (UXD) teams in industry. Some have offered courses in HCI management , while others have presented recommendations on how to prove a return on investment for usability-related activities. The Cisco UXD Group evolved through several funding and organizational models (central funding, client-funding, distributed teams), and now follows an internal consultancy model. This paper describes the experiences that led to this model and how it has helped increase the strategic influence of UXD within Cisco.

Fast-Tracking Product Innovation

Daniela Busse, *SAP,* USA

This paper describes the coming-of-age of an analytical application that was built using agile development processes, tightly interlinked with an iterative user experience methodology, but at times at odds with the legacy of more rigid development methods such as prescriptive pattern-based design and strictly separated core disciplines. We pioneered a variety of ways to deal with these challenges, most of which focused on empowering the User Experience discipline in decision-making processes, development impact, and in leading the product definition overall. This ensured that innovative forces were least constrained while fast-tracking this product, while still achieving effectiveness, efficiency, and satisfaction of the application's user experience, as evidenced in a series of usability evaluations.

User-Centered Design Gymkhana

Muriel Garreta-Domingo, Magí Almirall-Hill, Enric Mor, *Open University of Catalonia,* Spain

The user-centered design (UCD) Gymkhana is a tool for human-computer interaction practitioners to demonstrate through a game the key UCD methods and how they interrelate in the design process. The target audiences are other organizational departments unfamiliar with UCD but whose work is related to the definition, creation, and update of a product or service.

PAPERS | ROOM: B1-B4

ALTERNATIVE INTERACTION

SESSION CHAIR: Michel Beaudouin-Lafon, *Université Paris-Sud,* France

PAPER | Pressure Marks

Gonzalo Ramos, Ravin Balakrishnan, *University of Toronto,* Canada

Presents design and evaluation of pressure marks – pen strokes where pressure variation enables simultaneous selection and action specification. Designs can enable more fluid and faster pen-based interaction.

PAPER | Augmenting the Mouse with Pressure Sensitive Input

Jared Cechanowicz, *University of Saskatchewan,* Canada
Pourang Irani, *University of Manitoba,* Canada
Sriram Subramanian, *University of Saskatchewan,* Canada

Systematically investigate the design space of uni-pressure and dual-pressure augmented mouse and recommends effective sensor locations, pressure selection mechanisms and pressure control strategies.

PAPER | earPod: Eyes-Free Menu Selection Using Touch Input and Reactive Audio Feedback

Shengdong Zhao, Pierre Dragicevic, Mark Chignell, Ravin Balakrishnan, *University of Toronto,* Canada
Patrick Baudisch, *Microsoft,* USA

Presents design and evaluation of SonicGlide, an eyes-free menu technique using touch input and auditory feedback. Results indicate that SonicGlide is a promising technique comparable in performance to visual menus.

SPECIAL INTEREST GROUP | ROOM: C2

CURRENT ISSUES IN ASSESSING AND IMPROVING INFORMATION USABILITY

MODERATORS:
Stephanie Rosenbaum, *Tec-Ed, Inc.,* USA
Judith Ramey, *University of Washington,* USA

This SIG is an annual forum on human factors of information design, in which we discuss issues selected by the group from the facilitators' list of topics, augmented by attendees' suggestions.

SPECIAL INTEREST GROUP | ROOM: C4

EVALUATING EXPERIENCE-FOCUSED HCI

MODERATORS:
Joseph 'Jofish' Kaye, Kirsten Boehner, *Cornell University,* USA
Jarmo Laaksolahti, Anna Ståhl, *Swedish Institute of Computer Science,* Sweden

In this SIG, participants who are interested in designing, building or currently evaluating experience-focused projects will discuss ways to do so. This SIG is intended to appeal to a broad cross section of the CHI community, ranging from practitioners and developers to computer and social scientists.

AWARD TALK | CIVIC AUDITORIUM

SOCIAL IMPACT AWARD TALK: GREGORY D. ABOWD

SESSION CHAIR: Julie A. Jacko, *Georgia Institute of Technology,* USA

Using Computing Technologies to Face the Challenges of Autism

Gregory D. Abowd, *Georgia Institute of Technology,* USA

In the Fall of 1999, my wife and I learned that our son, Aidan, age 2, had been diagnosed with autism. In the summer of 2003, our second son, Blaise, was also diagnosed with autism, at the age of 3. The CDC estimates that the incidence of autism in the U.S. is 1 in 166, so my wife and I are not alone in having to come to grips with the everyday struggles of this perplexing neurological developmental disability. Since I prescribe to the research philosophy of "scratching your own itch," it is no surprise that I have looked for ways to have my research in ubiquitous computing address the challenges of those impacted by autism. My goal is not to use technology to "cure" autism, but to have it play a vital role in increasing our understanding of that unique human condition and to have it ease the everyday struggles for those who deal with it. In this talk, I will give an overview of my group's research trajectory, reflecting the efforts of a growing community of researchers who are using this real-world health challenge to drive a human-centered research agenda. I will summarize four years of research and give a glimpse of what I think are the important challenges for the next four years, and why I think technologists are an important part of the solution.

PAPERS | ROOM: A1

USABILITY EVALUATION

SESSION CHAIR: Robin Jeffries, *Google,* USA

PAPER | What Happened to Remote Usability Testing? An Empirical Study of Three Methods

Morten Sieker Andreasen, *Systematic A/S,* Denmark
Henrik Villemann Nielsen, *Aalborg University,* Denmark
Simon Ormholt Schroder, *Danske Bank Group,* Denmark
Jan Stage, *Aalborg University,* Denmark

The paper presents results from a systematic comparison of synchronous and asynchronous remote usability testing methods. The results show that these methods are a relevant alternative to conventional usability testing.

PAPER | Usability Testing: What Have We Overlooked?

Gitte G. Lindgaard, *Carleton University,* Canada
Jarinee J. Chattratichart, *Kingston University London,* UK

This paper benefits practitioners most. Evidence provided will likely end the debate about sample size and instigate much research into the role of user tasks on improving usability test results.

PAPER | TouchStone: Exploratory Design of Experiments

Wendy E. Mackay, *INRIA,* France
Caroline Appert, Michel Beaudouin-Lafon, *Université Paris-Sud,* France
Olivier Chapuis, *CNRS,* France
Yang Zhou Du, *Université Paris-Sud,* France
Jean-Daniel Fekete, *INRIA,* France
Yves Guiard, *CNRS,* France

Presents and evaluates an on-line, open source platform for designing, running, and analyzing controlled experiments that compare interaction techniques. Encourages replication and extension of previous research.

PAPERS | ROOM: A2

PROGRAMMING BY & WITH END-USERS

SESSION CHAIR: Les Nelson, *PARC,* USA

PAPER | Making Mashups with Marmite: Towards End-User Programming for the Web

Jeffrey Wong, Jason I. Hong, *Carnegie Mellon University,* USA

Describes a design for an end-user programming system that allows users to create mashups out of web services and data found on the web without doing any programming.

PAPER | VIO: A Mixed-Initiative Approach to Learning and Automating Procedural Update Tasks

John Zimmerman, Anthony Tomasic, Isaac Simmons, Ian Hargraves, Ken Mohnkern, Jason Cornwell, Robert McGuire, *Carnegie Mellon University,* USA

This paper contributes a novel human-agent interaction design that allows agents with little training to reduce task completion time. It benefits society by reducing mundane office work.

PAPER | Storytelling Alice Motivates Middle School Girls to Learn Computer Programming

Caitlin Kelleher, Randy Pausch, Sara Kiesler, *Carnegie Mellon University,* USA

In a study comparing middle school girls' experiences using Storytelling Alice and Generic Alice, we found that both systems are equally educational but Storytelling Alice is more motivating.

■ PAPERS | ROOM: A3

TRUST & ENGAGEMENT

SESSION CHAIR: Terry Winograd, *Stanford University,* USA

PAPER | MultiView: Improving Trust in Group Video Conferencing Through Spatial Faithfulness

David Nguyen, John Canny, *University of California, Berkeley,* USA

Experimentally compares trust formation in video conferencing systems with face-to-face communication. Offers insight on remote collaboration by expanding understanding of the effect of spatial faithfulness on trust formation.

PAPER | Presence and Engagement in an Interactive Drama

Steven Dow, Manish Mehta, Ellie Harmon, Blair MacIntyre, *Georgia Institute of Technology,* USA
Michael Mateas, *University of California, Santa Cruz,* USA

Presents a qualitative study of three different interfaces to the interactive drama, Façade. Shows that immersive technologies may lead to presence, but do not necessarily lead to more engaging play.

PAPER | Engaging Constable: Revealing Art Through New Technologies

Dirk vom Lehn, Jon Hindmarsh, Paul Luff, Christian Heath, *King's College London,* UK

Examines the deployment of touch-screen and gesture interfaces in an art exhibition and indicates how detailed ethnographic/video-based studies may inform the design and deployment of novel interfaces in museums.

■ PAPERS | ROOM: A4 & A5

MODELS OF MOBILE INTERACTION

SESSION CHAIR: Robert St. Amant, *North Carolina State University,* USA

PAPER | Modeling Human Performance of Pen Stroke Gestures

Xiang Cao, *University of Toronto,* Canada
Shumin Zhai, *IBM,* USA

The paper constructs and tests elemental and total models of pen stroke gesture articulation. The models and empirical findings can support research, design, and evaluation of pen gesture interfaces.

PAPER | Keystroke-Level Model for Advanced Mobile Phone Interaction

Paul Holleis, Friederike Otto, Heinrich Hussmann, *University of Munich,* Germany
Albrecht Schmidt, *Fraunhofer IASI, & University of Bonn,* Germany

Extends and updates the Keystroke-Level Model to advanced mobile phone interactions. Gives application designers and implementers a means to estimate user performance of designs and design alternatives before implementing them.

PAPER | An Extended Keystroke Level Model (KLM) for Predicting the Visual Demand of In-Vehicle Information Systems

Michael Pettitt, Gary Burnett, *University of Nottingham,* UK
Alan Stevens, *TRL,* UK

Describes an extended keystroke level model (KLM) for evaluating the visual demand of in-vehicle user interfaces. Intends to assist designers of in-car interfaces in early stages of design.

■ EXPERIENCE REPORTS | ROOM: A8

RESEARCH-ISH

SESSION CHAIR: Erik Stolterman, *Indiana University,* USA

Toward Systematic Research of Multimodal Interfaces of Non-Desktop Work Scenarios

Victoria Carlsson, Bernt Schiele, *TU Darmstadt,* Germany

Non-desktop workplaces often generate challenging multitasking situations for a user attempting to interact with supporting technology. Multimodal applications promise great advantages in this type of context. However, current research does not provide enough knowledge for the ergonomic optimization of multimodal interfaces. This paper discusses a possible strategy for advancing towards systematic research, and describes a preliminary experiment attempting to evaluate a real scenario using this strategy.

Thinking But Not Seeing: Think-Aloud for Non-Sighted Users

Philip Strain, *Queens University, Belfast,* UK
A. Dawn Shaikh, *Wichita State University,* USA
Richard Boardman, *Google,* USA

This paper discusses some of the methodological challenges that can be encountered when usability testing with visually impaired users. These include (1) the need for customized test environments, (2) the potential for audio interference between screen reader output and the moderator to participant dialogue, and (3) the difficulty for observers inexperienced in accessibility technology. In this paper we outline several techniques for dealing with these challenges, including some variations on traditional think-aloud techniques that are useful when a usability participant is using a screen reader.

Designing Software for Consumers to Easily Set Up a Secure Home Network

Brenton Elmore, *Cisco-Linksys, LLC,* USA
Subbarao Ivaturi, *Cisco Systems, Inc.,* USA
Stuart Hamilton, *Cisco-Linksys, LLC,* USA

Home networking continues to expand into a collection of computers and networked devices that are becoming more complex to setup and manage. A central design theme influenced the software solution: If a networking expert was advising a user on how to set up, configure, and secure a home network, what would this person tell the user to do? Results indicated animations, good default settings, and a network map increased the user success rate for network setup.

Early Research Strategies in Context: Adobe Photoshop Lightroom

Grace Kim, *Adobe Systems,* USA

In January of 2006, Adobe Systems introduced the public beta of Lightroom, a digital imaging solution designed specifically for professional photographers and serious amateurs that offers a modular, task-based environment that flexibly supports a complete photography workflow. This paper describes two foundation-setting research strategies pursued during the early concept and definition phases of Lightroom To emphasize the context in which specific research approaches were crafted rather than simply executed, the term research strategies is used in favor of research methods.

■ INTERACTIVE SESSION | ROOM: B1-B4

THE I IN CHI

MODERATORS:
Lars Erik Holmquist, *Swedish Institute of Computer Science,* Sweden
Tom Igoe, *ITP, NYU,* USA

PANELISTS:
Patrick Baudisch, *Microsoft,* USA
Elizabeth Goodman, *University of California, Berkeley,* USA
Florian 'Floyd' Mueller, *The University of Melbourne,* Australia
Michael Naimark, *University of Southern California,* USA
Phoebe Sengers, *Cornell University,* USA
Ben Shneiderman, *University of Maryland,* USA

Members of the CHI Interactivity jury and other experts discuss this year's interactive demonstrations. The panel will be an opportunity to reflect on interactivity – in a broad sense – and its role in the field of human-computer interaction.

■ INTERACTIVE SESSION | ROOM: C2

USER INTERFACE DESCRIPTION LANGUAGES: XUL & XAML

MODERATOR:
John 'Scooter' Morris, *University of California, San Francisco,* USA

PANELISTS:
Scott Stanfield, *Vertigo Software,* USA
Mark Finkle, *Mozilla Corporation,* USA

XML-based user interface description languages are now in wide deployment: Adobe's Flex provides an XML-based language (MXML); Microsoft has released WPF, which supports XAML; and Mozilla's Firefox (and other products) supports XUL. These languages (as well as UIML and UsiXML) all share common characteristics: they are XML-based, they can be used to specify a user interface, and they can be "compiled" into a user interface that only requires some form of "glue" code to link elements and provide behaviors that are dependent on other elements. These languages provide HCI professionals with an opportunity to prototype user interfaces and hand those prototypes off to be directly integrated into the functioning system. This provides a cleaner separation of concerns, but also allows the interaction designer/engineer to become a more integral part of the iterations in the development cycle. This invited session will feature presentations by experts on XAML and XUL. Each presenter will outline their language and where that language is used, focusing on the strengths and weaknesses of their environment. Then each presenter will build a "toy" user interface that will be provided to them in advance using their respective languages. The session will end with a brief opportunity for each presenter to extol the virtues of their approach and significant time for audience Q&A.

■ SPECIAL INTEREST GROUP | ROOM: C4

EDUCATION COMMUNITY SIG

MODERATORS:
Charles van der Mast, *Delft University of Technology,* the Netherlands
Scott Berkun, *Scott Berkun Consulting,* USA
Alan Dix, *Lancaster University,* UK
Stefano Levialdi, *University of Rome, Sapienza,* Italy

For a few years several public databases have opened with online material for undergraduate, and graduate education in Human-Centered Computing, Human-Computer Interaction, and related areas. The list of databases will be shared. Who are using these databases? What kind of content is available? How are professors and students using these materials? A survey will be given. We are looking for your experiences. Both positive and negative experiences will be discussed, and new requirements may be generated.

PAPERS | ROOM: A1

COLOR/BLIND

SESSION CHAIR: Steve Feiner, *Columbia University,* USA

PAPER | Towards Developing Assistive Haptic Feedback for Visually Impaired Internet Users

Ravi Kuber, Wai Yu, Graham McAllister, *Queens University Belfast,* UK

A novel approach is proposed for designing assistive haptic feedback for visually-impaired Internet users. Preliminary results are reported which will inform a haptic vocabulary, assisting development of inclusive browsing interfaces.

NOTE | An Interface to Support Color Blind Computer Users

Luke Jefferson, Richard Harvey, *University of East Anglia,* UK

Presents and evaluates an adaptive technique for improving accessibility to color displays by color blind computer users. The technique significantly improves the legibility of color images for color blind viewers.

NOTE | An Adaptive and Adaptable Approach to Enhance Web Graphics Accessibility for Visually Impaired People

Chui Chui Tan, Wai Yu, Graham McAllister, *Queen's University Belfast,* UK

Describes an adaptive and adaptable approach that analyzes user's preferences, graphical content, and assistive technologies. Presents accessible graphics-based Web content to visually impaired people according to their profiles and needs.

EXPERIENCE REPORT | Music Organisation Using Colour Synaesthesia

Michael Voong, Russell Beale, *Birmingham University,* UK

The movement of music from physical discs to digital resources managed on a computer has had an effect on the listening habits of users. We explore using the potential of the innate synaesthesia that some people report feeling between colour and mood in a novel interface that enables a user to explore their music collection and create musical playlists in a more relevant way. We show that there is a reasonable degree of consistency between users' associations of colour and music and show that an indirect descriptor can aid in the recall of music via mood, making playlist generation a simpler and more useful process.

PAPERS | ROOM: A2

SOCIAL INFLUENCE

SESSION CHAIR: Elizabeth F. Churchill, *Yahoo!,* USA

PAPER | Modeling the Impact of Shared Visual Information on Collaborative Reference

Darren Gergle, *Northwestern University,* USA
Carolyn P. Rosé, Robert E. Kraut, *Carnegie Mellon University,* USA

We present a computational description of collaborative reference that can be applied to the development of conversational agents, applications that dynamically track collaboration, and dialogue managers for natural language interfaces.

NOTE | Similarity is More Important than Expertise: Accent Effects in Speech Interfaces

Nils Dahlbäck, *Linköping University,* Sweden
Qianying Wang, Clifford I. Nass, *Stanford University,* USA
Jenny Alwin, *Linköping University,* Sweden

Experimental study of users' voice interface accent preferences, showing that even when participants have an alternative to focus on, i.e. the speakers' presumptive competence, they nonetheless opt for similarity-attraction.

NOTE | Provoking Sociability

Brooke Foucault, *Northwestern University,* USA
Helena M. Mentis, *The Pennsylvania State University,* USA
Phoebe Sengers, *Cornell University,* USA
Devon Welles, *Intel,* USA

This paper demonstrates that deviance can be used as a resource to achieve positive social outcomes by discussing the outcomes of a study where co-workers interacted with a gossiping agent.

PAPER | Social Responses to Virtual Humans: Implications for Future Interface Design

Catherine Zanbaka, Amy Ulinski, Paula Goolkasian, Larry Hodges, *University of North Carolina, Charlotte,* USA

Presents results of an experimental study illustrating virtual humans can affect task performance through social influence. Highlights the importance of understanding human-virtual human social interactions when designing virtual human interfaces.

■ PAPERS | ROOM: A3

LEARNING

SESSION CHAIR: Michael Twidale, *University of Illinois,* USA

PAPER | Hard Lessons: Effort-Inducing Interfaces Benefit Spatial Learning

Andy Cockburn, *University of Canterbury,* New Zealand
Per Ola Kristensson, *Linköpings Universitet,* Sweden
Jason Alexander, *University of Canterbury,* New Zealand
Shumin Zhai, *IBM,* USA

Shows that spatial memory is improved by effortful interfaces. Describes a "frost-brushing" training interface that forces users to either recall items from memory or 'brush the frost' for visual guidance.

PAPER | Multiple Mice for Retention Tasks in Disadvantaged Schools

Udai S. Pawar, *Microsoft,* India
Joyojeet Pal, *University of California, Berkeley,* USA
Rahul Gupta, Kentaro Toyama, *Microsoft,* India

A 238-student study of various single- and multi-mouse configurations for an educational retention-based learning application in rural developing-world schools. Results are complex, but suggest shared use is as effective as one-student-per-PC.

PAPER | Strategies for Accelerating On-Line Learning of Hotkeys

Tovi Grossman, Pierre Dragicevic, Ravin Balakrishnan, *University of Toronto,* Canada

Presents new designs for accelerating the learning of hotkeys, and their experimental evaluation. The new designs can be used to improve hotkey use in any GUI application.

■ SPECIAL INTEREST GROUP | ROOM: A4 & A5

UXD BUSINESS MODELS

MODERATORS:
Garett Dworman, *Tec-Ed, Inc.,* USA
James Nieters, Subbarao Ivaturi, *Cisco,* USA

This SIG will facilitate a systematic exploration by attendees whose organizations follow, or are considering, one or more UXD models. It will result in a broader understanding for managers of UXD teams on how they can optimally structure their internal UXD functions, given their unique corporate environments and cultures.

■ SPECIAL INTEREST GROUP | ROOM: A8

TECHNOLOGIES FOR AUTISM

MODERATORS:
Daniel Gillette, *Greenleaf Medical,* USA
Gillian R. Hayes, Gregory D. Abowd, *Georgia Institute of Technology,* USA
Justine Cassell, *Northwestern University,* USA
Rana el Kaliouby, *MIT,* USA
Dorothy Strickland, *Virtual Reality Aids,* USA
Patrice Weiss, *University of Haifa,* Israel

This SIG aims to bring together those who study the use of technology by and for individuals with autism, those who design and develop new technologies, and those who are curious about getting involved. Areas that this SIG will consider include assistive technologies; tools for data collection and analysis; educational software; virtual reality rehabilitation environments; identifying users; need finding; user-centered collaborative design processes that include individuals who cannot speak or write; and product assessment.

■ INTERACTIVE SESSION | ROOM: B1–B4

TOWARD A LESS WIMPY WEB

MODERATORS:
Tom Foremski, *SiliconValleyWatcher.com,* USA
Bill Lucas, *Maya Design,* USA

PANELISTS:
Aza Raskin, *Humanized, Inc.,* USA
Blake Ross, *Firefox/Parakey,* USA

This interactive session will start with a pair of position statements and end with a facilitated discussion. The participants represent two teams of people with accordant goals. Collectively, they call into question the recent wave of Web offerings that replicate traditional desktop applications. Their presentations will address human cognitive needs and basic usability problems with computers today. In turn, they will advocate the creation of "humane interfaces." Asking, "What does a true Web platform look like and why is it different from anything we've used before?"

■ ALT.CHI | ROOM: C2

IDEAS LAB: INSPIRATIONS, INNOVATIONS, AND INSIGHTS

SESSION CHAIR: Joseph 'Jofish' Kaye, *Cornell University,* USA

Table Tennis for Three – The Video (12 min)

Florian 'Floyd' Mueller, Martin Gibbs, *The University of Melbourne,* Australia

We aim to demonstrate that a networked exerting leisure game for three players is possible and can be enjoyed by players. We believe it can be inspiring for other CHI researchers who design interfaces that aim to support social interactions between geographically distant participants.

Design of an Ecosystem for Ad-Hoc End-User Prototyping (12 min)

Seung Chan Lim, Peter Lucas, *MAYA Design,* USA

Our goal with the Javascript Dataflow Architecture (JDA) is to bring this spirit of end-user innovation back to the Web. We aim to achieve this while fully harnessing the powerful modern day Web technologies. The architecture fosters the growth of a marketplace of components and lends itself nicely to the ad-hoc copy-paste-and-tweak paradigm of end-user rapid prototyping.

Arduino: An Open Electronics Prototyping Platform (12 min)

David Mellis, *Copenhagen Institute of Interaction Design,* Denmark
Massimo Banzi, *Tinker.it!,* Italy
David Cuartielles, *Malmö University,* Sweden
Tom Igoe, *ITP, NYU,* USA

Arduino is a platform for prototyping interactive objects using electronics. It consists of both hardware and software: a circuit board that can be purchased at low cost or assembled from freely-available plans and an open-source development environment and library for writing code to control the board. Arduino comes from a philosophy of learning by doing and strives to make it easy to work directly with the medium of interactivity.

RadioActive: Enabling Persistent Mobile Communications for Groups (12 min)

Aaron Zinman, Judith Donath, *MIT,* USA

RadioActive is a technological and interaction design for persistent mobile audio chat spaces. Our work focuses on strategies to navigate and structure large asynchronous audio discussions. In this paper we examine related work, describe our approach, highlight a conceptual framework for navigation, discuss our evaluations, and provide suggestions for future research.

Tug n' Talk: A Belt Buckle for Tangible Tugging Communication (12 min)

Drew Harry, Matt Adcock, *MIT,* USA
Matthew Boch, *Harvard University,* USA
Vanessa Harden, Raul-David V. Poblano, *MIT,* USA

Tug n' Talk is a prototype of a tuggable communication device, allowing for intimate communication between two individuals using tugging as a metaphor. In this paper we discuss the advantages of tugging over other haptic communication modalities, such as vibration, with a focus on input/output spaces and meaning construction.

Qualities of Perceived Aesthetic in Data Visualization (12 min)

Nick Cawthon, Andrew Vande Moere, *University of Sydney,* Australia

Through results gathered from a large-scale online survey, this paper empirically investigates the assessment of aesthetic in 11 common data visualization techniques. Visualizations represented in this study were generated from an identical hierarchical dataset and visually normalized to avoid unwanted implications of default application parameters or personal preferences.

Using Equations in Concept Maps to Graphically Build Knowledge Bases (12 min)

Aaron Spaulding, Vinay K. Chaudhri, Bonnie. E. John, Gus Prevas, Sunil Mishra, John Pacheco, *SRI International,* USA

In this paper we describe a graph based user interface to connect equations to richly defined concepts within a knowledge base. This makes it possible to support reasoning about the concepts referenced in an equation.

■ SPECIAL INTEREST GROUP | ROOM: C4

USABILITY COMMUNITY SIG

MODERATORS:
Carol Righi, Janice James, *Perficient,* USA

This SIG is sponsored by the CHI 2007 and CHI 2008 Usability Community chairs to collect feedback and discuss how CHI can best serve the Usability Community, both at the annual conference and in other activities.

CLOSING PLENARY | CIVIC AUDITORIUM

THE MOBILE AS A POST INDUSTRIAL PLATFORM FOR SOCIO-ECONOMIC DEVELOPMENT

NITI BHAN, *BHAN LLC*, USA, SINGAPORE, & INDIA

Abstract: The internet is the foundation of the world wide web of humanity online. Today, there is no such facility on the cell phone platform comparable as yet to the great degree of usability and freedom of movement that browsing currently offers those of us in "broadband nations". At the same time there is a great digital divide between the haves and the have nots. Many have tried with different degrees of success to bridge this chasm, because they all see the potential for growth that unleashing the flow of wealth to and from the bottom-most segments of socioeconomic and geopolitical strata, can effect real change in the standard of living for a great majority on our planet rather than just the fortunate few.

The numbers of cell phones sold in the past two years alone in the unexpected markets of the bottom of the pyramid, that includes a surprising numbers of luxury or high end mobiles, far more than any market survey could have predicted even two years ago, is a clear signal of the shift in economic activity. Look at what is already happening now in Bangladesh – microfinance and cell phones; South Africa – banking the unbanked through their cell phones; Uganda – microentreprise using the cell phone and more.

The challenge before us today is to ask "What if...?" in the best traditions of creativity and imagination and visualize a near future, within the constraints of existing or installed technology, that could bridge this digital divide and develop the applications and the foundation to provide connectivity, commerce, and community on the mobile platform. What kind of difference could this make?

Biography: Niti Bhan is an emerging markets strategy consultant with over 15 years of experience in conceiving, developing, and implementing strategies for entering new markets for companies such as Hewlett-Packard, Bank of America, Phillips, Scientific Atlanta, Creative Labs, HCL and the Cybermedia group of publications.

She is the founder of Bhan LLC, a boutique San Francisco based strategy think tank that offers early stage research and development of products and services catering to the overlooked markets in developing nations. She partners with Readymade, a product design and innovation consulting studio based in Pretoria, South Africa, Spire Innovation of Vancouver, Canada, Zago LLC of New York and Rio de Janeiro, and Brazil to offer new product design and development for new businesses, products or messaging.

Her education includes a Bachelor of Engineering from Bangalore University, an MBA in Strategy & Marketing as well as significant education in the graduate program of product design at the National Institute of Ahmedabad and the Institute of Design, IIT, Chicago. Her articles on design, strategy and innovative business practices have been published in BusinessWeek, Core77, New Design magazine, and on her blog.

COURSE 39 | ROOM: A6

ADVANCED DATA COLLECTION AND ANALYSIS TOOLS FOR HCI RESEARCH AND USABILITY TESTING

9:00–13:00

INSTRUCTORS:
Lucas P.J.J. Noldus, *Noldus Information Technology BV,* the Netherlands
Tobias Heffelaar, *Noldus Information Technology BV,* the Netherlands

Benefits: This course offers participants an intensive half-day course in video technology, software tools and integrated solutions for field and lab studies. After this course you will be up to date with the latest proven techniques, tools and best practices for data collection in HCI research or usability testing. If your next project is a field study, a focus group or a usability lab test, attend this course to learn how to select the right tool for the job and how to put it to optimal use.

Intended Audience: HCI researchers and usability practitioners (usability engineers, UI designers, usability testers) working in academia or industry.

COURSE 40 | ROOM: A6

ENSURING THE USABILITY OF SYSTEMS THAT ADAPT TO THEIR USERS

14:30–16:00

INSTRUCTOR:
Anthony Jameson, *DFKI,* Germany

Benefits: You will acquire active, in-depth understanding of the usability issues that arise in the design of systems that adapt to their users – ranging from personalized e-commerce web sites to adaptive user interfaces – and of ways of dealing with these issues.

Intended Audience: Practitioners and researchers who are or will be involved in the design of systems that adapt to their users.

COURSE 41 | ROOM: A7

KEEPING THE WEB IN WEB 2.0: AN HCI APPROACH TO DESIGNING WEB APPLICATIONS

9:00–10:30

INSTRUCTORS:
Steffen Meschkat, *Google,* USA
Josh Mittleman, *Google,* USA

Benefits: We observe a key difference between the interaction paradigms of web applications and traditional, desktop applications: the universal and uniform presence of history and bookmarks. We explain the AJAX architecture for web applications and how it provides the interactive quality of desktop applications, but also how effective use of browser history and bookmarks, which comes (almost) for free in classical web applications, has to be built explicitly into AJAX applications. In part I, we use the user interface of complete web applications such as Google Maps, Spreadsheets, and Gmail, as illustrations for a taxonomy of application state; and discuss the semantics, consequences, and adequate uses of each type of state. The discussion centers on concepts that underlie software design, but includes no actual code.

Intended Audience: Part I requires a general understanding of software applications.

COURSE 42 | ROOM: A7

KEEPING THE WEB IN WEB 2.0: AN HCI APPROACH TO DESIGNING WEB APPLICATIONS (PREREQUISITE COURSE 41)

11:30–13:00

INSTRUCTORS:
Steffen Meschkat, *Google,* USA
Josh Mittleman, *Google,* USA

Benefits: In part II we use simple coding examples to further illustrate the principles derived in part I, introducing and discussing javascript and DHTML language and library features as we encounter them. Participants will be equipped with conceptual tools to effectively and systematically design modern web applications combining the usability advantages of desktop applications with those of web applications; and with technical understanding of the building blocks and capabilities of AJAX applications to guide learning to apply these technologies.

Intended Audience: Part II is more technical: participants should have a working knowledge of at least one modern programming language, and should be familiar with the concepts of HTML, HTTP, and CGI programming. We recommend against attending part II without part I.

COURSE 38 | ROOM: A7

USABILITY TESTING: USABLE COMMUNICATION TECHNIQUES

14:30–16:00

INSTRUCTOR:
Rolf Molich, *DialogDesign,* Denmark

Benefits: Even a perfectly executed usability test is worthless if test results are poorly communicated to the people who are responsible for making beneficial changes to the product. This course looks at the pitfalls in this seemingly simple process. It describes the KJ-method for effectively communicating usability findings. Participants also evaluate a sample usability test report containing frequently occurring communication problems.

Intended Audience: Usability professionals at all levels who want to improve their usability problem communication abilities.

COURSE 37 | ROOM: C3

THE TOP 5 UNIVERSAL DESIGN PROBLEMS AND WAYS TO SOLVE THEM

9:00–13:00

INSTRUCTORS:
Ann Chadwick-Dias, *Fidelity Investments,* USA
Marguerite Bergel, *Fidelity Investments,* USA
Tom Tullis, *Fidelity Investments,* USA

Benefits: Applying existing accessibility standards (WCAG, Section 508) to the design and development of Web sites can be challenging. Many of the standards leave ample room for interpretation. This course will examine the top 5 universal design problems we have encountered in our work along with potential solutions. We will review each design problem using assistive technologies to understand what challenges exist and will then examine solutions to understand how they improve accessibility. This is an applied course that will allow you to return to your organization with practical knowledge of what universal design means and how to achieve it.

Intended Audience: Web Designers, Developers, & Usability Practitioners

COURSE 34 | ALMADEN BALLROOM I

THE PERSONA LIFECYCLE

9:00–16:00

INSTRUCTORS:
Tamara Adlin, *Adlin Inc.,* USA
John Pruitt, *Microsoft,* USA
Jonathan Grudin, *Microsoft,* USA

Benefits Learn why personas can be an effective technique for design, development, and testing, when they are likely to be useful, and how to use them effectively. Get hands-on experience with practical persona creation and use methods.

Intended Audience: The course is intended for those who are or might be engaged in team-based design and development, those who teach design methods, and those interested in the psychology of design.

COURSE 35 | ALMADEN BALLROOM II

PRINCIPLES OF INTERACTION DESIGN

9:00–13:00

INSTRUCTOR:
Shane Morris, *Echo Interaction Design,* Australia

Benefits: This course introduces and explores many of the fundamental principles that underlie the practice of interaction design and user interface design. It is by consciously or unconsciously drawing on these principles that practicing designers are able to efficiently produce excellent designs, and minimize redesign. Nevertheless, apart from some 'heuristics', many practitioners have not been formally introduced to these principles.

This course gives participants a 'kick start' towards master status by exploring the underlying principles of interaction design through examples.

Intended Audience: This course is for designers and evaluators of all forms of user interfaces, including graphical user interfaces, internet applications and physical devices. The course material is aimed at an intermediate level audience. No specific prior knowledge is assumed.

COURSE 36 | ALMADEN BALLROOM II

INTERACTION DESIGN STUDIO

14:30–16:00

INSTRUCTOR:
Shane Morris, *Echo Interaction Design,* Australia

Benefits: The 'design studio' plays an important role in the education of designers from many disciplines. Acknowledging that design theory and formal techniques are only half of the equation, design studios provide students with an environment where they are able to experiment, explore, access and defend their own work. In doing so they build their own design 'intuition' – the part that can't be learnt from books.

Acknowledging that many people who have come to the field of interaction design have not come from a design background, this course aims to reproduce, for a very short time, the environment of the design studio.

Interaction Design Studio provides a dynamic, fun and most importantly safe environment for practicing user interface designers, interaction designers and information architects to explore and build their design intuition, hone their ability to generate design solutions and critique and defend their own work, and the work of others – away from the demands of clients, colleagues and production deadlines. There are no formal lectures, no formal content – just the chance to develop new and existing skills through fun, fast-paced design exercises, active dialogue and the sharing of ideas in a safe environment. This is place where experienced designers can take risks and make mistakes all in the name of building their skills, knowing that no project deadlines will be harmed in the creation of their designs.

WARNING: This course contains crayons.

Intended Audience: This course is for experienced interaction designers, user interface designers and information architects. Beginners may find it difficult due to be productive and gain the most benefit from this course, given the fast pace and lack of formal materials.