

	8:30-10:00	10:00-10:30	11:30-13:00	14:30-16:00	16:30-18:00
CIVIC AUDITORIUM	Opening Plenary Bill Moggridge Reaching for the Intuitive Page 32	CHI MADNESS Page 32	Interactive Session Usability from the CIO's Perspective Page 33	Interactive Session Who Killed Design?: Addressing Design Through an Interdisciplinary Investigation Page 37	Interactive Session Taking CHI for a Drive: Interaction in the Car Page 40
Room A1			SIG Beyond Usability: Social, Situational, Cultural, & Contextual Factors Page 33	Papers Ubicomp Tools Page 37	Papers Expert/Novice Page 40
Room A2			Papers Faces & Bodies in Interaction Page 33	Papers Mobile Interaction Page 37	Papers Mobile Applications Page 40
Room A3			Papers Attention & Interruption Page 33	Papers Politics & Activism Page 38	Papers Navigation Page 41
Room A4 & A5			Papers Capturing Life Experiences Page 34	Papers Navigation & Interaction Page 38	Papers Photo Sharing Page 41
Room A8			Experience Reports On the Move Page 34	Papers Medical Page 38	Experience Reports Qualitative Research Methods Page 42
Room B1 - B4			Papers Large Displays Page 34	SIG Challenges in International Usability Page 39	Papers Empirical Studies of Web Interaction Page 42
Room C2			Interactivity Shake, Rattle, and Roll: New Forms of Input and Output Page 35	Papers Task & Attention Page 39	ALT.CHI Evaluating Evaluation Page 43
Room C4			SIG Online Health Communities Page 36	SIG Usability and Free/Libre/Open Source Software Page 39	SIG Let's Get Emotional: Emotion Research in Human Computer Interaction Page 43
Room A6			Course 12 Usability Process Improvement - ISO Standards Page 44	Course 13 An Introduction to Human-Robot Interaction Design and Evaluation Page 44	
Room A7			Course 9 How to Collect Field Data and Produce a Tested Design in 1-8 Weeks Page 44	Course 10 Top Field Interview Mistakes: Recognizing and Preventing Them Page 44	Course 11 After the Interviews: Making Sense of Fieldwork Data Page 44
Room C3	Course 7 Collaborative Behavior and Supporting Technologies Page 45		Course 8 Where Usability Meets Desirability: Visual Design with Personas and Goals Page 45		
Almaden Ballroom I	Course 5 Personal Information Management in Theory and Practice Page 45				
Almaden Ballroom II	Course 6 Usability and Product Development Page 45				

▬ = 15 minutes ▬▬ = 30 minutes ○ = unscheduled time

COMMONS	SPECIAL EVENTS
Conference Reception & Exhibits Grand Opening 18:30-22:00	Newcomers' Orientation 10:30-11:30 Civic Auditorium
	Spotlight on Doctoral Consortium, Workshop, & Competition Posters (#1-60) 10:30-11:30 Concourse



■ OPENING PLENARY | CIVIC AUDITORIUM

REACHING FOR THE INTUITIVE

BILL MOGGRIDGE, IDEO, USA

Abstract: Perhaps the mind is like an iceberg, with just a small proportion of the overall amount protruding above the water into consciousness, but the vast bulk of the subconscious submerged and out of sight. If we operate above the water line, we only have a small volume to use, but if we allow ourselves to use the whole submerged mass, we have a lot more to work with.

Bill will attempt to show how design thinking can harness intuitive mental processes, leveraging tacit knowledge as well as the explicit knowledge of logically expressed thoughts. He will give examples of how designers and design teams learn by doing, allowing the subconscious mind to inform intuitions that guide actions. Some of the examples will come from his experience as Cofounder of IDEO, and others will be taken from his recent book *Designing Interactions* (www.designinginteractions.com), in which he interviews 40 influential designers who have shaped our interaction with digital technology.

Biography: Cofounder of IDEO, a firm that helps companies innovate through the design of products, services, environments and digital experiences. Bill founded his design firm in London in 1969, adding a second office in 1979 in Palo Alto, at the heart of California's Silicon Valley. He designed the first laptop computer, the GRiD Compass, and pioneered Interaction Design as a discipline. In 1991 he merged his company with David Kelley and Mike Nuttall to form IDEO, which now has offices in Palo Alto, San Francisco, Chicago, Boston, London, Munich, and Shanghai. Bill has been active in design education throughout his career, notably as Visiting Professor in Interaction design at the Royal College of Art in London, and Associate Professor in the Design program at Stanford University. He is most interested in what people want, who they are, and how they interact with other people, things, and places. His book *Designing Interactions* is available from The MIT Press.

■ CHI MADNESS | CIVIC AUDITORIUM

SESSION CHAIRS:

Patrick Baudisch, Microsoft, USA

Gonzalo Ramos, University of Toronto, Canada

Confused about what to do next? Too many options for you to choose from? We end this session with CHI Madness. The presenters in many of today's sessions will have 30 seconds to tell you what's exciting about their presentation. It's fast-paced; it's fun; sometimes it's even funny.

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

■ INTERACTIVE SESSION | CIVIC AUDITORIUM

USABILITY FROM THE CIO'S PERSPECTIVE
MODERATORS:

James Euchner, Austin Henderson, *Pitney Bowes, Inc., USA*

PANELISTS:

Jan Roberts, *Cisco, USA*

Patty Seybold, *The Seybold Group, USA*

Patañjali S. Venkatacharya, *Oracle, USA*

There is significant frustration among business leaders and CIOs concerning the success of their systems in the field. There is an equal frustration among HCI professionals at the marginalized role that usability often plays in systems development efforts. These frustrations are, to a large extent, two sides of the same coin. This panel will consider how successful CIOs manage the apparently competing challenges of faster/better/cheaper systems and the time and money required for developing highly usable systems. They will discuss the strategies and techniques that they use to integrate usability into systems design and development.

■ SPECIAL INTEREST GROUP | ROOM: A1

BEYOND USABILITY: TAKING SOCIAL, SITUATIONAL, CULTURAL, AND OTHER CONTEXTUAL FACTORS INTO ACCOUNT
MODERATORS:

Jina Huh, Mark Ackerman, *University of Michigan, USA*

Thomas Erickson, *IBM, USA*

Steve Harrison, *Virginia Polytechnic Institute and State University, USA*

Phoebe Sengers, *Cornell University, USA*

This SIG will provide a forum for people to discuss current and future design approaches that move beyond usability. It will address both the relation of underlying paradigms and the relation of design and research.

■ PAPERS | ROOM: A2

FACES & BODIES IN INTERACTION

SESSION CHAIR: Anne Anderson, *University of Dundee, UK*


PAPER | A Meta-Analysis of the Impact of the Inclusion and Realism of Human-Like Faces on User Experiences in Interfaces

Nicholas Yee, Jeremy N. Bailenson, Kathryn Rickertsen, *Stanford University, USA*

The meta-analysis of previous studies in the area of interface agent research helps to synthesize the accumulated findings in this area, and highlights noticeable effects and differences.


PAPER | Improving Recognition and Characterization in Groupware with Rich Embodiments

Tadeusz Stach, Carl Gutwin, David Pinelle, *University of Saskatchewan, Canada*

Pourang Irani, *University of Manitoba, Canada*

Presents evidence that rich embodiments (which represents much more information about people than traditional embodiments) improve recognition and characterization in groupware, and can enhance richness and subtlety of interaction.

PAPER | Coordinating Joint Activity in Avatar-Mediated Interaction

Robert J. Moore, *PARC, USA*

E. Cabell Gathman, *University of Wisconsin, Madison, USA*

Nicholas Ducheneaut, Eric Nickell, *PARC, USA*

A deeper understanding of user-to-user coordination in the avatar-mediated social interaction of online game worlds based on qualitative video analysis.

■ PAPERS | ROOM: A3

ATTENTION & INTERRUPTION

SESSION CHAIR: Brian Bailey, *University of Illinois, USA*

PAPER | How it Works: A Field Study of Non-Technical Users Interacting with an Intelligent System

Joe Tullio, *Motorola Labs, USA*

Anind K. Dey, Jason Chalecki, *Carnegie Mellon University, USA*

James Fogarty, *University of Washington, USA*

We describe a novel field study of how users' mental models develop around an intelligent system. Designers can use our results to design user interfaces to correct flawed mental models.

PAPER | Matching Attentional Draw with Utility in Interruption

Jennifer Gluck, Andrea Bunt, Joanna McGrenere, *University of British Columbia, Canada*

Demonstrates that matching interruption signal salience to interruption utility decreases annoyance and increases benefit. Applying this matching strategy will help mitigate the negative perception of interruptions in many systems today.

PAPER | Biases in Human Estimation of Interruptibility: Effects and Implications for Practice

Daniel Avrahami, *Carnegie Mellon University, USA*

James Fogarty, *University of Washington, USA*

Scott E. Hudson, *Carnegie Mellon University, USA*

Describes a study examining the differences between self-reports of interruptibility, and estimates of that interruptibility, provided by others. Our findings are important for successful design of CMC and awareness systems.



■ PAPERS | ROOM: A4 & A5

CAPTURING LIFE EXPERIENCES

SESSION CHAIR: Sara Kiesler, *Carnegie Mellon University, USA*

PAPER | Understanding Videowork

David Kirk, *University of Nottingham, UK*
Abigail Sellen, Richard Harper, Ken Wood, *Microsoft, UK*

An in-depth study of how people work with home video, deriving two distinct sets of practices emerging from the interrelationship between technologies and users' goals.



PAPER | Software or Wetware? Discovering When and Why People Use Digital Prosthetic Memory

Vaiva Kalnikaite, Steve Whittaker, *The University of Sheffield, UK*

A laboratory study examining the factors influencing people's choice of when to use prosthetic memory or organic memory and why. Can assist in developing effective memory aids.



PAPER | Do Life-Logging Technologies Support Memory for the Past? An Experimental Study Using SenseCam

Abigail Sellen, Andrew Fogg, *Microsoft, UK*
Mike Aitken, *University of Cambridge, UK*
Steve Hodges, Carsten Rother, Ken Wood, *Microsoft, UK*

Experimentally evaluates the efficacy of still images in triggering the remembering of past personal events, having implications for how we conceive of and the claims we make about "life-logging" technologies.

■ EXPERIENCE REPORTS | ROOM: A8

ON THE MOVE

SESSION CHAIR: Katie Minardo, *MITRE Corporation, USA*

The LiLiPUT Prototype: A Wearable Lab Environment for User Tests of Mobile Telecommunication Applications

Peter Reichl, Peter Froehlich, Lynne Baillie, Raimund Schatz, Antitza Dantcheva, *Telecommunications Research Center Vienna, Austria*

In this paper we describe LiLiPUT (Lightweight Lab Equipment for Portable User Testing in Telecommunications), a highly flexible wearable test system which has been realized as a fully operational prototype and illustrate how we use LiLiPUT for testing mobile applications in the wild.

Implementation of Interactive Poster "SuiPo"

Fuminori Tsunoda, Takayuki Matsumoto, Takeshi Nakagawa, Mariko Utsunomiya, *East Japan Railway, Japan*

We discuss the implementation of new media "SuiPo," or Suica Poster, which uses a combination of IC card ticket Suica and Internet accessible mobile phone where customers can get e-mail information by touching their IC card ticket on the reader located near the poster. Two pilot tests and their results are discussed.

Towards the Perfect Infrastructure for Usability Testing on Mobile Devices

Rudy Schusteritsch, Carolyn Y. Wei, *Google, USA*
Mark LaRosa, *Google & University of Michigan, USA*

We describe various setups that allow usability professionals to conduct effective user studies on mobile devices and describe the factors relevant when building a solution for mobile device observation, including a set-up developed for mobile testing.

Designing for Totality of Mobile and Non-Mobile Interaction: A Case Study

Shweta Aneja, *Kosmix & Indiana University, Bloomington, USA*
Youn-Kyung Lim, *Indiana University, Bloomington, USA*

This project studied the mobile needs of users to support activities that closely relate to non-mobile contexts in the real estate industry. We identified some unique challenges that such a mixed work environment proposes, such as recording contextual data in the mobile environment and streamlining it with other related information in the non-mobile environment. We designed an integrated system of a web-based application "REMAP" (for information analysis) and a mobile device "NotePod" (for information capture).

■ PAPERS | ROOM: B1-B4

LARGE DISPLAYS

SESSION CHAIR: Mary Czerwinski, *Microsoft, USA*

PAPER | An Exploratory Study of Input Configuration and Group Process in a Negotiation Task Using a Large Display

Jeremy P. Birnholtz, Tovi Grossman, Clarissa Mak, Ravin Balakrishnan, *University of Toronto, Canada*

Explores differences in group process and competitive behavior for groups using a shared large display with shared vs. individual input devices. Results inform design of large display interfaces.

PAPER | Beyond Visual Acuity: The Perceptual Scalability of Information Visualizations for Large Displays

Beth Yost, Yonca Haciahmetoglu, Chris North, *Virginia Polytechnic Institute and State University, USA*

Presents a study on the usefulness of displays that exceed visual acuity for scaling up information visualizations. Encourages designers to take advantage of larger displays for visualization.

PAPER | White Rooms and Morphing Don't Mix: Setting and the Evaluation of Visualization Techniques

Derek Reilly, Kori M. Inkpen, *Dalhousie University, Canada*

We present a comparative evaluation examining the impact of experimental setting on the effectiveness of two visualization techniques. The results indicate that setting must be considered when evaluating visualizations.

■ **INTERACTIVITY | ROOM: C2**

SHAKE, RATTLE, AND ROLL: NEW FORMS OF INPUT AND OUTPUT

SESSION CHAIR: Lars Erik Holmquist, *Viktoria Institute, Sweden*

Tangible Programming in the Classroom with Tern

Michael Horn, Robert J. K. Jacob, *Tufts University, USA*

Demonstrates a tangible programming language for middle school and late elementary school students consisting of a collection of wooden blocks shaped like jigsaw puzzle pieces. Provides the ability for teachers to conduct engaging programming activities in their classrooms.

NOTE | Shoogle: Excitatory Multimodal Interaction on Mobile Devices

John Williamson, Roderick Murray-Smith, Stephen Hughes, *University of Glasgow, UK*

Describes a novel audio and vibrotactile interface based on exciting information from a physical model. Sets out a foundation for building compelling non-visual, handheld multimodal interfaces which include complex inference.

Dynamics of Tilt-Based Browsing on Mobile Devices

Sung-Jung Cho, *Samsung Advanced Institute of Technology, Republic of Korea*

Roderick Murray-Smith, *Glasgow University & Hamilton Institute, NUIM, UK*

Changkyu Choi, Younghoon Sung, Kwanghyeon Lee, Yeun-Bae Kim, *Samsung, Republic of Korea*

Demonstrates a tilt-controlled photo browsing method for small mobile devices is presented which uses continuous inputs from an accelerometer and a multimodal display. Shows how dynamics of the physical model can be shaped to make the handling qualities of the mobile device fit the browsing task and compares a tilt-based interaction method with a button-based browser and an iPod wheel.

Soap: How to Make a Mouse Work in Mid-Air

Patrick Baudisch, Mike Sinclair, Andrew Wilson, *Microsoft, USA*

In this demo, we demonstrate how to combine a mouse and a mouse pad into "soap," a device that can be operated in mid air with a single hand. We have used "soap" to control video games, interact with wall displays and Windows Media Center, and to give slide presentations.

I/O Brush: Beyond Static Collages

Kimiko Ryokai, *University of California, Berkeley, USA*

Stefan Marti, *Samsung Advanced Systems Research Lab, USA*

Hiroshi Ishii, *MIT, USA*

I/O Brush is our ongoing effort to empower people to create new expressions and meanings by painting with attributes of everyday objects and movements in their physical world. Using examples from our case studies, we discuss I/O Brush's most distinguishing features and how they enable people to invent new expressions and meaning making with objects in their physical environment.

GUIDE: Gaze-Enhanced User Interface Design

Manu Kumar, Terry Winograd, *Stanford University, USA*

Explores how gaze information can be effectively used as an augmented input in addition to keyboard and mouse. Presents three practical applications of gaze as an augmented input for pointing and selection, application switching, and scrolling.



■ SPECIAL INTEREST GROUP | ROOM: C4

ONLINE HEALTH COMMUNITIES

MODERATORS:

Lisa Neal, *Tufts University, USA*

Kate Oakley, *Carleton University, USA*

Derek Hansen, *University of Michigan, USA*

David Kaufman, *New York State Psychiatric Institute &
Columbia University, USA*

Jan Marco Leimeister, *Technische Universität München, Germany*

Ted Selker, *MIT, USA*

This SIG will explore current trends in online health communities and how the design and evaluation expertise of the CHI community can benefit and improve online health community research and development.

■ INTERACTIVE SESSION | CIVIC AUDITORIUM

WHO KILLED DESIGN?: ADDRESSING DESIGN THROUGH AN INTERDISCIPLINARY INVESTIGATION

MODERATORS:

Scott Pobiner, *Parsons The New School for Design, USA*
Anijo Mathew, *Mississippi State University, USA*

PANELISTS:

Bill Moggridge, *IDEO, USA*
Bill Buxton, *Microsoft, USA*
Terry Winograd, *Stanford University, USA*
Meg Armstrong, *Parsons The New School for Design, USA*

This interactive session brings together significant voices from a variety of “design-engaged” disciplines to lead a discussion about the oft-used, but seldom agreed upon notion of “Design”. The primary goal of this session is to address “Design” from a much wider variety of perspectives than could occur within any singular discipline. In doing so, the session intends to re-visit the definitions of “Design”, “Designer”, and “Designed”.

This session is intended to be truly “interactive” and will rely on active discussion from the audience as well as panelists. In an effort to jump-start the discussion and to facilitate what is likely to be a very broad range of perspectives the organizers have set-up a Wiki, which all are encouraged to participate in editing.

■ PAPERS | ROOM: A1

UBICOMP TOOLS

SESSION CHAIR: Beverly Harrison, *Intel, USA*

PAPER | Momento: Support for Situated Ubicomp Experimentation

Scott Carter, *FX Palo Alto Laboratory, USA*
Jennifer Mankoff, *Carnegie Mellon University, USA*
Jeffrey Heer, *Univeristy of California, Berkeley, USA*

We present the iterative design of Momento, which supports situated ubicomp experimentation, and demonstrate its use in three studies. Momento supports remote testing and can gather quantitative and qualitative data.

PAPER | Toolkit Support for Developing and Deploying Sensor-Based Statistical Models of Human Situations

James Fogarty, *University of Washington, USA*
Scott E. Hudson, *Carnegie Mellon University, USA*

Presents Subtle, a toolkit that enables sensor-based statistical models of human situations. Subtle focuses research on applications and datasets, instead of the difficulties in collecting sensor data and learning models.



PAPER | Authoring Sensor-Based Interactions by Demonstration with Direct Manipulation and Pattern Recognition

Bjoern Hartmann, Leith Abdulla, *Stanford University, USA*
Manas Mittal, *MIT, USA*
Scott R. Klemmer, *Stanford University, USA*

Contributes method and tool for rapidly designing sensor-based interactions by demonstration, emphasizes control of generalization criteria through integrating direct manipulation and pattern recognition, and offers theoretical and first-use lab evaluations.

■ PAPERS | ROOM: A2

MOBILE INTERACTION

SESSION CHAIR: Kori M. Inkpen, *Dalhousie University, Canada*

NOTE | Questions Not Answers: A Novel Mobile Search Technique

Matt Jones, George Buchanan, *University of Wales, Swansea, UK*
Richard Harper, Pierre-Louis Xech, *Microsoft, UK*

Presents a novel perspective on the mobile search problem using low-cost, incidental information. Demonstrates how other people’s queries can provide users with insights into the locations they encounter.

NOTE | Tactile Feedback for Mobile Interactions

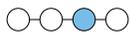
Stephen Brewster, Faraz Chohan, Lorna Brown, *University of Glasgow, UK*

Presents two studies (one static, one mobile) investigating the use of tactile feedback for enhancing touch-screen buttons. Improves performance and reduces workload, even when users are mobile.

NOTE | Revisiting and Validating a Model of Two-Thumb Text Entry

Edward Clarkson, Kent Lyons, James Clawson, Thad Starner, *Georgia Institute of Technology, USA*

This work contributes a comparison of a model of two-thumb text entry with empirical data, modifies it to account for observed behavior, and validates the revised model.



NOTE | Jump and Refine for Rapid Pointing on Mobile Phones

Martin Hachet, *INRIA, France*
Joachim Pouderoux, *LaBRI-INRIA, France*
Florence Tyndiuk, *UTBM, France*
Pascal Guitton, *LaBRI-INRIA, France*

The technique we propose improves the user performance for pointing tasks on mobile phones when no pointing device is available. It favors the development of new mobile applications (e.g., 3D).

■ PAPERS | ROOM: A3

POLITICS & ACTIVISM

SESSION CHAIR: Jodi Forlizzi, *Carnegie Mellon University, USA*

PAPER | Usability of Voting Systems: Baseline Data for Paper, Punch Cards, and Lever Machines

Michael D. Byrne, Kristen K. Greene, Sarah P. Everett,
Rice University, USA

This paper contributes information about the usability of traditional pre-computer voting technologies, the benefit being that new systems now have a point of comparison.



PAPER | A Game Design Methodology to Incorporate Activist Themes

Mary Flanagan, *Hunter College, CUNY, USA*
Helen Nissenbaum, *New York University, USA*

The contribution our project makes to the next decade of game design is a rigorous, systematic means to take human values into consideration in design at many levels.

■ PAPERS | ROOM: A4 & A5

NAVIGATION & INTERACTION

SESSION CHAIR: Patrick Baudisch, *Microsoft, USA*



PAPER | Move to Improve: Promoting Physical Navigation to Increase User Performance with Large Displays

Robert Ball, Chris North, Doug A. Bowman, *Virginia Polytechnic Institute and State University, USA*

We contribute a greater understanding of user preference for, and performance with, physical and virtual navigation in visualizations. Readers learn how to afford increased physical navigation, leading to improved performance.

PAPER | Copy-and-Paste Between Overlapping Windows

Olivier Chapuis, Nicolas Roussel, *Université Paris-Sud & CNRS, INRIA, France*

Presents a study comparing four copy-and-paste techniques under four window management conditions. Introduces two new window management techniques that significantly reduce the time to copy text between partially overlapping windows.

NOTE | Consistency, Multiple Monitors, and Multiple Windows

Dugald Hutchings, *Bowling Green State University, USA*
John Stasko, *Georgia Institute of Technology, USA*

Lab study showing reduced navigation time for interacting with dialog boxes on multiple monitors when using the mudibo prototype. Illuminates broader problems with the concept of "consistency" for multiple-monitor interfaces.

NOTE | How Pairs Interact Over a Multimodal Digital Table

Edward Tse, *University of Calgary, Canada*
Chia Shen, *Mitsubishi Electric Research Labs, USA*
Saul Greenberg, *University of Calgary, Canada*
Clifton Forlines, *Mitsubishi Electric Research Labs, USA*

This paper presents the first observations of how pairs of people communicated and interacted in a multimodal digital table environment and contributes to the understanding of multi-user multimodal digital table interaction.

■ PAPERS | ROOM: A8

MEDICAL

SESSION CHAIR: David McDonald, *University of Washington, USA*

PAPER | An Observational Study on Information Flow During Shift Change

Charlotte Tang, Sheelagh Carpendale, *University of Calgary, Canada*

Observational study investigating information flow during shift change in medical setting. Presents multitude of information media involved in information assembly and disassembly and interplay between common and personal information space.

NOTE | Medical Sensemaking with Entity Workspace

Dorrit Billman, Eric A. Bier, *PARC, USA*

Presents a new sensemaking tool for knowledge workers that integrates searching, reading, and note-taking. A user study provides guidance for developers of future tools and reveals multiple strategies users adopt.

■ SPECIAL INTEREST GROUP | ROOM: B1-B4

DEALING WITH KEY CHALLENGES IN INTERNATIONAL USABILITY AND USER RESEARCH

MODERATORS:

David A. Siegel, Susan M. Dray, *Dray & Associates, Inc., USA*
 Rolf Molich, *DialogDesign, Denmark*

In this SIG, we will present scenarios that exemplify many of the key challenges of doing user research and usability evaluation internationally. We will use these to stimulate discussion about solutions and approaches, and then share our own recommendations.

■ PAPERS | ROOM: C2

TASK & ATTENTION

SESSION CHAIR: Anthony Hornof, *University of Oregon, USA*



PAPER | A Cognitive Constraint Model of Dual-Task Trade-Offs in a Highly Dynamic Driving Task

Duncan P. Brumby, *Drexel University, USA*
 Andrew Howes, *University of Manchester, UK*
 Dario D. Salvucci, *Drexel University, USA*

Describes a modeling study of the strategic variations in distracted driving and their effects on driver performance. Demonstrates how a constraint modeling approach can be applied to complex dynamic tasks.

PAPER | iPod Distraction: Effects of Portable Music-Player Use on Driver Performance

Dario D. Salvucci, Daniel Markley, Mark Zuber, Duncan P. Brumby, *Drexel University, USA*

Describes an empirical study of driver distraction from portable music-player (iPod) interaction. Augments our understanding of “off-the-desktop” interaction in complex, multitasking environments.

PAPER | InkSeine: In Situ Search for Active Note Taking

Ken Hinckley, *Microsoft, USA*
 Shendong Zhao, *Microsoft & University of Toronto, Canada*
 Raman Sarin, Patrick Baudisch, Ed Cutrell, Michael Shilman, Desney S. Tan, *Microsoft, USA*

Prototype that supports active note taking by coupling a pen-and-ink interface with an in situ search facility that flows directly from a user’s ink notes.

■ SPECIAL INTEREST GROUP | ROOM: C4

USABILITY AND FREE/LIBRE/OPEN SOURCE SOFTWARE: HCI EXPERTISE AND DESIGN RATIONALE

MODERATORS:

Paula M. Bach, John M. Carroll, *The Pennsylvania State University, USA*
 Bryan Kirschner, *Microsoft, USA*

The purpose of this SIG is to bring together HCI professionals and researchers to discuss current issues in Free/Libre/Open Source Software. Specifically, this SIG looks at usability, the role of HCI expertise, and design rationale in these projects.



■ INTERACTIVE SESSION | CIVIC AUDITORIUM

TAKING CHI FOR A DRIVE: INTERACTION IN THE CAR

PANELISTS:

David M. Krum, *Bosch Research and Technology Center, USA*
Dietrich Manstetten, *Robert Bosch, GmbH, Germany*
Clifford Nass, *Stanford University, USA*
K. Venkatesh Prasad, *Ford Motor Company, USA*
Roberto Sicconi, *IBM, USA*

With the increasing number of cars on the road, longer commutes, and the proliferation of complex information and entertainment features, there is a greater need for careful interaction design in the car. The automobile is a challenging environment for designing and deploying good user interfaces. Interaction designers must balance brand identity, safety, legislation, and manufacturability, among other issues. In this panel, practitioners and researchers from industry, industrial labs, and academia will discuss the challenges of interaction design in an automotive environment. While some members of the CHI community are active in the automotive field, the general CHI community may not be aware of this work, the open research issues, and opportunities for collaboration in this area. This panel will provide an introduction into HCI research in the automotive industry. Some successful examples of interaction design will be discussed, as well as a few not-so-successful examples. Questions and comments from the audience are welcomed.

■ PAPERS | ROOM: A1

EXPERT/NOVICE

SESSION CHAIR: Paul Aoki, *Intel, USA*

PAPER | Sharing a Single Expert Among Multiple Partners

Jeffrey Wong, Jiazhi Ou, *Carnegie Mellon University, USA*
Lui Min Oh, *DSO National Laboratories, Singapore*
Carolyn P. Rosé, Jie Yang, Susan R. Fussell, *Carnegie Mellon University, USA*

Preliminary laboratory study exploring how an expert helps two novices simultaneously on physical tasks. Provides design implications and an algorithm for predicting attention shifts in a mediated system.

PAPER | Dynamic Detection of Novice vs. Skilled Use Without a Task Model

Amy Hurst, Scott E. Hudson, Jennifer Mankoff, *Carnegie Mellon University, USA*

Describes machine learning based techniques to automatically detect expertise from low-level pointing interactions using statistical models with 91% accuracy, and explores how to dynamically adapt the interface with this knowledge.

PAPER | Approaches to Web Search and Navigation for Older Computer Novices

Anna Dickinson, *University of Dundee, UK*
Michael J. Smith, *Fujitsu, UK*
John L. Arnott, Alan F. Newell, *University of Dundee, UK*
Robin L. Hill, *University of Edinburgh, UK*

Development and evaluation of proof-of-concept web search and navigation system for older novice computer users. Supports older, inexperienced users in initial encounters with web. We offer possible approaches for interface researchers.

■ PAPERS | ROOM: A2

MOBILE APPLICATIONS

SESSION CHAIR: Scott McCrickard, *Virginia Polytechnic Institute and State University, USA*



NOTE | Designing a Mobile User Interface for Automated Species Identification

Sean White, Dominic Marino, Steven Feiner, *Columbia University, USA*

Our contribution focuses on design research and user interface techniques for mobile devices relevant to automated vision-based identification in the field.

NOTE | BrickRoad: A Light-Weight Tool for Spontaneous Design of Location-Enhanced Applications

Alan L. Liu, Yang Li, *University of Washington, USA*

BrickRoad supports the spontaneous design of location-enhanced applications using the wizard to simulate both location and application logic. We believe this tool will lower the threshold for prototyping location-enhanced applications.

NOTE | Psychophysical Elements of Wearability

Lucy E. Dunne, Barry Smyth, *University College Dublin, Ireland*

Explores the psychological and physiological components of wearability, the human-device interface of wearable technology. Helps designers to understand the way in which worn technologies become part of the body schema.

NOTE | The Tilt Cursor: Enhancing Stimulus-Response Compatibility by Providing 3D Orientation Cue of Pen

Feng Tian, Xiang Ao, Hongan Wang, *Institute of Software, Chinese Academy of Sciences, China*
 Vidya Setlur, *Nokia, USA*
 Guozhong Dai, *Institute of Software, Chinese Academy of Sciences, China*

Describes a new cursor for enhancing stimulus-response compatibility of touchpad, that dynamically reshapes itself to providing 3D orientation cue of pen. The cursor can significantly reduce response latencies in drawing.

PAPER | How Younger and Older Adults Master the Usage of Hyperlinks in Small Screen Devices

Martina Ziefle, Ulrik Schroeder, Judith Strenk, Thomas Michel, *RWTH Aachen University, Germany*

This research introduces a software tool for analyzing navigation paths. The outcomes contribute to the understanding how older adults interact with small screen devices and which difficulties they experience when using hyperlinks.

■ PAPERS | ROOM: A3

NAVIGATION

SESSION CHAIR: Robert J. K. Jacob, *Tufts University, USA*

PAPER | Modeling Steering within Above-the-Surface Interaction Layers

Ragu Kattinakere, *University of Saskatchewan, Canada*
 Tovi Grossman, *University of Toronto, Canada*
 Sriram Subramanian, *University of Saskatchewan, Canada*

Investigates human capabilities when steering through above-the-surface interaction layers. Proposed models are verified, which can be used to guide the design of future interaction techniques.

PAPER | Quantifying Degree of Goal Directedness in Document Navigation: Application to the Evaluation of the Perspective-Drag Technique

Yves Guiard, *Université Mediterranee & CNRS, France*
 Yangzhou Du, Olivier Chapuis, *Université Paris-Sud & CNRS, INRIA, France*

Introduces degree of goal directedness (DGD), an important new quantitative dimension for taxonomizing HCI tasks, and implements the DGD concept to the evaluation of perspective-drag, a novel technique.

PAPER | PageLinker: Integrating Contextual Bookmarks into a Browser

Aurélien Tabard, Wendy E. Mackay, Nicolas Roussel, *Université Paris-Sud & CNRS, INRIA, France*
 Catherine Letondal, *Institut Pasteur, France*

Presents the participatory design and a controlled longitudinal field study with research biologists of PageLinker, a browser extension that significantly reduces pageloads and time spent on web navigation tasks.

■ PAPERS | ROOM: A4 & A5

PHOTO SHARING

SESSION CHAIR: Jakob Bardram, *IT University of Copenhagen, Denmark*

PAPER | Give and Take: A Study of Consumer Photo-Sharing Culture and Practice

Andrew Miller, *Schematic, USA*
 W. Keith Edwards, *Georgia Institute of Technology, USA*

Describes one of the first examinations of the community of practice around Flickr.com, especially in contrast to traditional consumer photographers. Provides design implications for meeting needs of consumer photographers.

PAPER | Over-Exposed? Privacy Patterns and Considerations in Online and Mobile Photo Sharing

Shane Ahern, Dean Eckles, Nathaniel S. Good, Simon King, Mor Naaman, Rahul Nair, *Yahoo!, USA*

Qualitative and quantitative study of privacy decisions in mobile and online photo sharing, using previously unavailable, context-rich data. We provide a taxonomy of privacy considerations, and implications for content-sharing systems.

PAPER | EasyAlbum: An Interactive Photo Annotation System

Jingyu Cui, *Tsinghua University, China*
 Fang Wen, Rong Xiao, *Microsoft, China*
 Yuandong Tian, *Shanghai Jiao Tong University, China*
 Xiaou Tang, *Microsoft, China*

We propose a novel interactive UI for semi-automatic photo annotation. The key contributions are: “cluster annotation”, “contextual re-ranking”, and “ad hoc annotation”.



■ EXPERIENCE REPORTS | ROOM: A8

QUALITATIVE RESEARCH METHODS

SESSION CHAIR: Jeanette Blomberg, *IBM, USA*

How to Look Beyond What Users Say They Want

Younghee Jung, *Nokia, Japan*
Akseli Anttila, *Nokia, Finland*

This report shares our experience with a strategic design project for defining the key user experience scenarios in utilizing location information available on mobile devices.

Common & Particular Needs: A Challenge to Participatory Design

Rachel Bellamy, John Richards, Rhonda Rosenbaum, Thomas Erickson, Wendy A. Kellogg, John C. Thomas, Jonathan Brezin, Cal Swart, *IBM, USA*

We argue that participatory design projects that appear to lead to a successful technical solution may appear less successful when viewed from the perspectives of how well the solution will support evolving work practices, or how well the solution supports the particular and contextual tasks of individuals. We illustrate these issues with a design story in which a risk and compliance visualization is designed to support controllers who monitor IBM's controls process. To address the issues we raise, we conclude by reframing the participatory design problem as the design, education, and socialization of end-user programming.

Learning Observation Skills by Making Peanut Butter and Jelly Sandwiches

Juan P. Hourcade, Olga Garcia, Keith Perry, *University of Iowa, USA*

In this report we describe our experience conducting a class activity where students learned and practiced observation skills in small groups making peanut butter and jelly sandwiches. The groups then used their observations to sketch designs for a peanut butter and jelly maker that they presented to the class. We found that the activity helped students learn about the difficulties involved in observing and being observed. It also taught them about the value of observing users, even if they are performing tasks familiar to the observer.

Pottering: A Design-Oriented Investigation

Susan P. Wyche, *Georgia Institute of Technology, USA*
Alex Taylor, *Microsoft, UK*
Joseph 'Jofish' Kaye, *Cornell University, USA*

In this paper we examine a ubiquitous yet overlooked aspect of home-life, pottering. The Oxford English Dictionary defines pottering as "To occupy oneself in an ineffectual or trifling way; to work or act in a feeble or desultory manner; to trifle, to dabble." We attempt to give shape to the practice of pottering, and in doing so aim to demonstrate its value in exploring how technology should manifest itself in the home.

■ PAPERS | ROOM: B1-B4

EMPIRICAL STUDIES OF WEB INTERACTION

SESSION CHAIR: Joanna McGrenere, *University of British Columbia, Canada*



PAPER | An Exploration of Web-Based Monitoring: Implications for Design

Melanie Kellar, Carolyn Watters, Kori M. Inkpen, *Dalhousie University, Canada*

Examines web-based monitoring in the context of web information tasks. Provides both general and task specific implications for the design of future monitoring tools.

PAPER | Investigating Attractiveness in Web User Interfaces

Jan Hartmann, Alistair Sutcliffe, Antonella De Angeli, *University of Manchester, UK*

Introduces a theoretical framework for assessing the attractiveness of websites, influence of context, and user-background on experience with websites. which is analyzed in an empirical study. Implications for UI-design are discussed.

PAPER | The Relationship Between Accessibility and Usability of Websites

Helen Petrie, Omar Kheir, *University of York, UK*

Possible relationships between accessibility and usability and the importance of the ratings of user problems are addressed. A study with blind and sighted participants is presented to address these issues.

■ ALT.CHI | ROOM: C2

EVALUATING EVALUATION**SESSION CHAIR:** Barry Brown, *Glasgow University, UK***The Evolution of Evaluation (30 min)**Joseph 'Jofish' Kaye, Phoebe Sengers, *Cornell University, USA*

We provide a historical context for assessing evaluation methods by explicating the history of evaluation in HCI. We trace the history of evaluation in the field from electrical engineering and computer science, to experimental approaches drawn from cognitive science, to usability's emphasis on in-situ studies and expertise.

From Mice to Men – 24 Years of Evaluation in CHI (20 min)Louise Barkhuus, *University of Glasgow, UK*Jennifer A. Rode, *University of California, Irvine, USA*

This paper analyzes trends in the approach to evaluation taken by CHI Papers in the last 24 years. A set of papers was analyzed according to our schema for classifying type of evaluation. Our analysis traces papers' trend in type and scope of evaluation. Findings include an increase in the proportion of papers that include evaluation and a decrease in the median number of subjects in quantitative studies.

Make Evaluation Poverty History (20 min)Gilbert Cockton, *University of Sunderland, UK*

Argues for the need to ground evaluation in achieved worth rather than established psychological measures, and proposes the use of worth maps, based on approaches from consumer psychology, to do so, providing a shared representation for design and evaluation.

Public Usability Laboratory (20 min)Ana Klasnja, *Ontario Science Centre, Canada*

This case study describes the concept of a public usability laboratory within a science museum environment. The integration of formal and community education will improve accessibility of cutting edge research and stimulate creativity.

■ SPECIAL INTEREST GROUP | ROOM: C4

LET'S GET EMOTIONAL: EMOTION RESEARCH IN HUMAN COMPUTER INTERACTION**MODERATORS:**Elizabeth Crane, *University of Michigan, USA*N. Sadat Shami, *Cornell University, USA*Christian Peter, *Fraunhofer Institute for Computer Graphics, Germany*

The aim of this SIG is to bring together an interdisciplinary group of researchers and practitioners actively working on projects where emotion is an essential component. The goals of the SIG are to identify current themes related to emotion specific HCI work and discuss strategies for moving forward.

COURSE 12 | ROOM: A6

Usability Process Improvement – ISO Standards

11:30–13:00

INSTRUCTOR:

Nigel Bevan, *Professional Usability Services, UK*

Benefits: Participants will become familiar with the ISO 18529 model for human-centred design, and learn how to use this to identify areas where an organization needs to improve its usability capability. The approach can be used informally for process improvement, or for more formal assessments of usability capability.

Intended Audience: Anyone who has some responsibility for user centered design in their organization, or who would like to make a case for improving their organizational capability. Basic familiarity with the area of user centered design is assumed.

COURSE 13 | ROOM: A6

An Introduction to Human-Robot Interaction Design and Evaluation

14:30–18:00

INSTRUCTOR:

Jean Scholtz, *Pacific Northwest National Laboratory, USA*

Benefits: The objective of this course is to provide experienced HCI researchers and practitioners with an overview of a new area: human-robot interaction (HRI). The course will introduce the types of robots and the challenges associated with user interfaces for various robot types. The evaluation segment will describe current efforts in usability and utility evaluation and outline areas where modification of traditional HCI methods are needed for HRI evaluation.

Intended Audience: The audience should be knowledgeable in HCI evaluation methods (usability testing, user modeling, field studies, etc.). The design segment of the course will outline the challenges associated with designing user interfaces and interactions for robots. This material is essential to understand in order to design effective evaluations.

COURSE 9 | ROOM: A7

How to Collect Field Data and Produce a Tested Design in 1–8 Weeks

11:30–13:00

INSTRUCTOR:

Karen Holtzblatt, *InContext Enterprises, USA*

Benefits: Rapid Contextual Design provides tools for infusing customer data into designs, even when resources and schedules are restricting. Learn guidelines for selecting customers, creating schedules, and working inside agile development iterations.

Intended Audience: No background is expected; the course will off the most value to those leading user experience aspects of projects. Attendees will learn the 3 variants of Rapid CD and how to select the right one, guidelines for selecting the right number and mix of customers given available time and project type, and how to create day-by-day schedules based on project scope and available time, including agile iterations

COURSE 10 | ROOM: A7

Top Field Interview Mistakes: Recognizing and Preventing Them

14:30–16:00

INSTRUCTOR:

Karen Holtzblatt, *InContext Enterprises, USA*

Benefits: The Top Mistakes format serve as a framework to explain the underlying principles of Contextual Inquiry interviewing and point out the most common or problematic pitfalls that interviewers can fall into. Attendees will learn tested techniques for getting the most out of interviews with users, which they can both use for improving their own skills and as a framework for assisting others in their organizations. The course also provides practical

Do's and Don'ts tips for interviewing, and interviewing style characterizations that illustrate ineffective styles.

Intended Audience: No specific background is required. It is appropriate for all roles.

COURSE 11 | ROOM: A7

After the Interviews: Making Sense of Fieldwork Data

16:30–18:00

INSTRUCTOR:

Sara Bly, *Sara Bly Consulting, USA*

Benefits: A growing number of HCI researchers and practitioners use the results of fieldwork to guide the design of interactive systems and technologies. Often it is tempting to assume that collecting the data is the main task of fieldwork. However, the need for systematic analysis of the data is a critical part of uncovering and justifying valid findings. This course provides an overview of several methods for making sense of the fieldwork data with examples and in-class exercises.

Intended Audience: The course is intended for participants who have some familiarity with open-ended interview and observation techniques and for participants who have some experience conducting fieldwork and wish to broaden their repertoire of techniques. It is not intended for those who are trained in qualitative study methodologies or for those with considerable experience in fieldwork data collection and analysis.

COURSE 7 | ROOM: C3

Collaborative Behavior and Supporting Technologies
11:30–16:00

INSTRUCTORS:

Steven Poltrock, *Boeing Phantom Works, USA*
 Jonathan Grudin, *Microsoft, USA*

Benefits: You will learn about collaboration and technologies designed to support collaboration in the workplace. The focus is on collaboration practices and technologies that are currently emerging or advancing into widespread use, and on the human computer interaction challenges that are encountered.

Intended Audience: The course is designed for anyone interested in collaboration and its challenges.

COURSE 8 | ROOM: C3

**Where Usability Meets Desirability:
 Visual Design with Personas and Goals**
16:30–18:00

INSTRUCTORS:

Kim Goodwin, *Cooper, USA*
 Nate Fortin, *Cooper, USA*

Benefits: Visual design contributes to usability by clarifying hierarchy and relationships, making type more readable, and making screens less cluttered. It enhances desirability by appealing to our aesthetic sense and emotions. This course focuses on how field research, personas, and requirements provide effective means for doing so.

After this course, attendees should understand how to differentiate between interaction design and visual interface design skills, use research and personas to guide the emotional and aesthetic aspects of a design, develop and get consensus on visual design requirements, and use requirements to develop and present visual design style studies.

Intended Audience: Usability and design practitioners who want a rigorous way to approach visual design decisions. Some familiarity with field research, personas, and using scenarios to guide interaction design is helpful, but not required.

COURSE 5 | ALMADEN BALLROOM I

**Personal Information Management in Theory
 and Practice**
11:30–18:00

INSTRUCTORS:

William Jones, *University of Washington, USA*
 Jacek Gwizdka, *Rutgers University, USA*

Benefits: Personal Information Management (PIM) includes the acquisition, organization, maintenance and retrieval of information by an individual in support of his/her roles and activities. This course provides an overview of PIM both as a field of inquiry and as an activity that all of us perform every day.

Intended Audience: The course is designed for a general audience. Researchers will learn about PIM as a field of inquiry and will be able to map from key activities and fundamental problems of PIM to an evaluation of tools and strategies. Everyone who attends will gain a deeper understanding of PIM, its fundamental problems, the roles it plays in daily life, how selected strategies and supporting tools can help, and how the new directions in research and development will likely impact our practices of PIM.

COURSE 6 | ALMADEN BALLROOM II

Usability and Product Development
11:30–18:00

INSTRUCTOR:

Jon Meads, *Usability Architects, Inc., USA*

Benefits: Attendees will obtain a better understanding of why usability engineering is needed – why something that seems so simple is so difficult to achieve in practice. They will obtain an understanding of what the various usability engineering techniques and methods provide when they are appropriate, and how to integrate them into the development process (both standard and Agile). Finally they will understand the strategic value of usability engineering, where to find the ROI for it, and how to include the usability engineering function in their organization.

This is a course on product development – not one on user interface guidelines or on the “how to” of usability engineering methods and techniques

Intended Audience: Managers and project leaders with responsibility for developing usable products who have little or no knowledge of usability engineering techniques and methods.