

Monday April 24

Day at a Glance

	517 ABC	511 ABDE	516 C	516 AB	510 ABCD	516 DE	511 CF	515 C	513 CD	513 EF	514 AB	513 ABC	
8:30 – 10:30	<p>Opening Plenary Session Scott Cook, Intuit: Creating ‘Game Changing’ Innovation - Room: 517ABC <i>p.28</i> CHI Madness - Room: 517ABC <i>p.28</i></p>												8:30 – 10:30
11:30 – 13:00	<p>Panel Usability from the CIO’s Perspective <i>p. 29</i></p>	<p>Papers Navigation <i>p. 29</i></p>	<p>Papers Mobile Surfing & Effects of Wearables <i>p. 29</i></p>	<p>Papers Games <i>p. 30</i></p>	<p>Papers Privacy 1 <i>p. 30</i></p>	<p>Interactivity Listen!: Voice Interfaces <i>p. 31</i></p>	<p>Experience Reports Usability Evaluations: Challenges & Solutions <i>p. 31</i></p>	<p>SIG International Usability Evaluation: Issues & Strategies <i>p. 31</i></p>	<p>Course 2 An Introduction to Designing for the Scent of Information <i>p. 39</i></p>	<p>Course 5 Web Bloopers: Avoiding Common Web Design Mistakes <i>p. 39</i></p>	<p>Course 7 Top 10 Field Interview Mistakes: Recognizing & Preventing Them <i>p. 39</i></p>	<p>Course 9 Faceted Metadata for Information Architecture & Search <i>p. 39</i></p>	11:30 – 13:00
14:30 – 16:00	<p>Panel Managing International User Research <i>p. 33</i></p>	<p>Papers Participatory Design <i>p. 32</i></p>	<p>Papers Interaction Techniques: Haptic & Gestural <i>p. 32</i></p>	<p>Papers Activity & Usability: Design Implications <i>p. 33</i></p>	<p>Papers Social Computing 1 <i>p. 33</i></p>	<p>Interactivity PDAs, Space Invaders, & Chickens: Mobility & Collaboration <i>p. 34</i></p>		<p>SIG Testing Interactive Software <i>p. 34</i></p>	<p>Course 3 Designing for the Scent of Information: Advanced Concepts <i>p. 40</i></p>		<p>Course 8 Building Affinity Diagrams to Reveal User Needs & Engage Developers <i>p. 40</i></p>		14:30 – 16:00
16:30 – 18:00	<p>Research Overview Large Display Research <i>p. 35</i></p>	<p>Papers End User Programming <i>p. 35</i></p>	<p>Papers Personal Information Management <i>p. 36</i></p>	<p>Papers Multidisplay Environments <i>p. 36</i></p>	<p>Papers Managing Voice Input <i>p. 37</i></p>	<p>alt.chi Design is Fun & People are Great <i>p. 37</i></p>	<p>Experience Reports Design Representations <i>p. 38</i></p>	<p>SIG Producing HCI-Competent Managers, CIOs, & CEOs <i>p. 38</i></p>	<p>Course 4 The Goldilocks Content Framework: What Users Want <i>p. 40</i></p>				<p>Course 6 An Exercise in the Politics of Usability: Test Your Skills <i>p. 40</i></p>
COMMONS			SPECIAL EVENTS				NOTES						
<p>Conference Reception, Posters, & Exhibits Grand Opening 18:30 – 21:30 <i>p. 12, 13, 14, 87, 100</i></p>			<p>Newcomers Orientation Room 511ABCD 10:30 – 11:30 <i>p. 13</i></p>		<p>Focus on Doctoral Consortium & Workshop Posters Level 2 Foyer 16:00 – 16:30</p>								

OPENING PLENARY SESSION

ROOM 517ABC

Creating 'Game-Changing' Innovation

Scott Cook, co-founder, Intuit, USA



What role does the customer play in your innovation process? What role do you play in fostering innovation in your work? Hear first-hand from Scott Cook, co-founder of Intuit, about Intuit's philosophy of Customer-Driven Innovation and how you can drive innovation in your work group, business, or community to create breakthrough products and offerings. Scott will describe how Intuit's unwavering focus on the customer has led to the creation of such wildly popular products as Quicken, QuickBooks, and TurboTax and transformed the way people manage their business and financial lives.

[PRESENTER BIO] Scott Cook co-founded Intuit Inc. in 1983 and now serves as executive committee chairman. Before founding Intuit, Mr. Cook managed consulting assignments in banking and technology for Bain & Co., a corporate strategy consulting firm. He previously served Procter & Gamble in various marketing positions, including brand manager, for four years. Mr. Cook is a board member of eBay, Procter & Gamble; the Asia Foundation; the Harvard Business School Dean's Advisory Board; the Center for Brand and Product Management at the University of Wisconsin; and the Intuit Scholarship Foundation. He earned an MBA degree from Harvard University and received a bachelor's degree in economics and mathematics from the University of Southern California.

CHI Madness

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 one minute each to tell you what's exciting about their presentation. It's fast paced; it's fun; sometimes it's even funny.

Join us Tuesday, Wednesday, and Thursday morning at 8:30 for that day's Madness, led by Patrick Baudisch of Microsoft, USA.

PANEL

ROOM 517ABC

Usability from the CIO's Perspective

[PANELISTS]

James A. Euchner (moderator), *Pitney Bowes, USA*
Tod Thompson, *JetBlue Airways, USA*
Keith McGarr, *Reed-Elsevier, USA*
Ron Bitstein, *Improve Technology Advisors, LLC, USA*
Jim Roche, *The Research Board, USA*

CIOs are frustrated with the field success of their systems. HCI professionals are frustrated with the marginalization of usability in systems development. This panel of CIOs will consider strategies and techniques used to balance the apparently competing challenges of faster/better/cheaper systems and the expense of developing highly usable systems.

PAPERS

ROOM 511ABDE

Navigation

[SESSION CHAIR] George Furnas, *University of Michigan, USA*

[PAPER] Faster Document Navigation with Space-Filling Thumbnails

Andy Cockburn, *University of Canterbury, NZ*
Carl Gutwin, *University of Saskatchewan, Canada*
Jason Alexander, *University of Canterbury, NZ*

Describes the Space-Filling Thumbnails interface for document navigation, which replaces scrolling with page-selection from a thumbnail matrix. Evaluations show large performance advantages over scrolling across various document types and lengths.

[PAPER] An Evaluation of Pan&Zoom and Rubber Sheet Navigation with and without an Overview

Dmitry Nekrasovski, Adam Bodnar, Joanna McGrenere, *University of British Columbia, Canada*
François Guimbretière, *University of Maryland, USA*
Tamara Munzner, *University of British Columbia, Canada*

A comparison of Pan&Zoom navigation to a Focus+Context technique, both with and without an overview. Pan&Zoom is found to be significantly faster, while presence of overview improves user satisfaction.

[PAPER] OrthoZoom Scroller: 1D Multi-Scale Navigation

Caroline Appert, *Université Paris-Sud, France*
Jean-Daniel Fekete, *INRIA Futurs, France*

We introduce and evaluate OrthoZoom Scroller, a mouse-based multi-scale 1D scrolling and pointing technique that performs about twice better than the only other mouse-based multi-scale technique.

PAPERS

ROOM 516C

Mobile Surfing and Effects of Wearables

[SESSION CHAIR] Thad Starner, *Georgia Institute of Technology, USA*

[PAPER] Minimap — A Web Page Visualization Method for Mobile Phones

Virpi Roto, Andrei Popescu, *Nokia, Finland*
Antti Koivisto, *Nokia, USA*
Eliina Vartiainen, *Nokia, Finland*

We have developed a modelless web page visualization method for mobile phones. In a long-term usability study, 18 out of 20 participants preferred this Minimap method to a state-of-the-art method.

[PAPER] An Examination of the Effects of a Wearable Display on Informal Face-to-Face Communication

Gerard McAtamney, *Yell Com, Scotland*
Caroline Parker, *Glasgow Caledonian University, Scotland*

Presents findings of a study exploring impact of a wearable display on face-to-face conversation. Demonstrates need for careful design of wearable displays to avoid negative social impact.

[CHI NOTE] Time Based Patterns in Mobile-Internet Surfing

Martin Halvey, Mark T. Keane, Barry Smyth, *University College Dublin, Ireland*

Describes data analyses of mobile web surfing behavior as a function of time and subject. Offers predictive temporal models that improve the design and experience of web personalization.

PAPERS

ROOM 516AB

Games[SESSION CHAIR] Cliff Lampe, *Michigan State University, USA*[PAPER] **Peekaboom: A Game for Locating Objects in Images**Luis von Ahn, Ruoran Liu, Manuel Blum, *Carnegie Mellon University, USA*

Introduces an online interactive system that is an enjoyable game for locating objects in images. By playing, thousands of people have constructed a large database for training computer vision algorithms.

[PAPER] **Representation of Interwoven Surfaces in 2-1/2 D Drawing**Keith Wiley, Lance R. Williams, *University of New Mexico, USA*

Describes Druid, a novel drawing program which permits the construction of scenes of interwoven surfaces. In addition, Druid's user interface possesses affordances that are isomorphic to those of physical surfaces.

 [CHI NOTE] **Verbosity: A Game for Collecting Common-Sense Facts**
Luis von Ahn, Mihir Kedia, Manuel Blum, *Carnegie Mellon University, USA*

Introduces an online interactive system in the form of a game that collects verified and structured common-sense knowledge. Enables builders of intelligent applications to collect large fact databases more easily.

 [CHI NOTE] **Improving Accessibility of the Web with a Computer Game**
Luis von Ahn, Shiry Ginosar, Mihir Kedia, Ruoran Liu, Manuel Blum, *Carnegie Mellon University, USA*

Presents a game that is an online interactive system in which people, as a side effect of playing, enter explanatory image captions. Enables improved web accessibility through wider captioning.

PAPERS

ROOM 510ABCD

Privacy 1[SESSION CHAIR] Wayne Lutters, *University of Maryland, Baltimore County, USA*[PAPER] **Evaluating Interfaces for Privacy Policy Rule Authoring**Clare-Marie Karat, John Karat, Carolyn Brodie, IBM, USA
Jinjuan Feng, *Towson University, USA*

Presents design and evaluation of privacy policy rule authoring approaches in field and laboratory settings. Presents empirical work done in support of the design of privacy enabling technology.

[PAPER] **Putting People in Their Place: An Anonymous and Privacy-Sensitive Approach to Collecting Sensed Data in Location-Based Applications**Karen P. Tang, Pedram Keyani, James Fogarty, Jason I. Hong, *Carnegie Mellon University, USA*

Presents a privacy risk analysis of hitchhiking, a new approach to end-user privacy in location-based applications. Hitchhiking is location-centric, using mobile devices to collect sensed information from locations people visit.

[CHI NOTE] **Advancing Ambiguity**Kirsten Boehner, Jeffrey T. Hancock, *Cornell University, USA*

Examines the use of ambiguity as a resource for personal communication systems by overturning primary assumptions. Proposes guidelines for designers and evaluators in reconceptualizing ambiguity in everyday interactions.

[CHI NOTE] **Girls, Technology, and Privacy: Is My Mother Listening?**Wendy March, *Intel, USA*
Constance Fleuriot, *Featherhouse, UK*

Describes the results of research with teenage girls to understand privacy practices supported by technology. Provides examples of the use of photoblogs as a tool for gathering research data.

INTERACTIVITY

ROOM 516DE

Listen!: Voice Interfaces

SESSION CHAIR| Rafael Ballagas, *RWTH Aachen University*, Germany

Feedback Management in the Pronunciation Training System ARTUR

Olov Engwall, Olle Bälter, Anne-Marie Öster, Hedvig Kjellström, *KTH*, Sweden

Presents a software system to help people with speaking disabilities or foreign speakers improve pronunciation. Provides varying levels of auditory and visual feedback based on user performance, progress and mood.

Enhancing Interactivity in Webcasts Using VoIP

Ronald Baecker, Melanie Baran, Jeremy Birnholtz, Clarence Chan, Joe Laszlo, Kelly Rankin, Russ Schick, Peter Wolf, *University of Toronto*, Canada

Demonstrates a system that combines webcast-style audio/video streaming and voice-over-IP audioconferencing for remote or distributed presentations. Discusses the positive user impact of this combination when used for e-Learning.

VoiceCode: An Innovative Speech Interface for Programming-By-Voice

Alain Désilets, *National Research Council of Canada*, Canada
David C. Fox, *Nuance*, USA
Stuart Norton, *University of California, Santa Cruz*, USA

Describes a tool that uses speech recognition to dictate and navigate source code. May allow programmers with RSI to write code by voice instead of using mouse and keyboard.

EXPERIENCE REPORTS

ROOM 511CF

Usability Evaluations: Challenges and Solutions

SESSION CHAIR| Janice Rohn, *World Savings Bank*, USA

No IMI Please, We're Testing

Richard P. Boardman, *Google*, USA

The author surveyed usability moderators and observers about their experiences using instant messaging to communicate between interview and observation rooms. Observers were more positive than moderators, who found distraction an issue.

Influences of Personal Preference on Product Usability

Shinyoung Park, *University of Tsukuba*, Japan
Akira Harada, *Sapporo City University*, Japan
Hiroya Igarashi, *University of Tsukuba*, Japan

The authors describe a comparative experiment using the NASA-TLX workload assessment tool that demonstrated lower mental/physical demands on participants when using products they preferred. Brand image perceptions influenced participants' subjective evaluations of usability.

SIG

ROOM 515C

International Usability Evaluation: Issues and Strategies

[ORGANIZERS]

Emilie W. Gould, *Acadia University*, Canada
Aaron Marcus, *Aaron Marcus and Associates*, USA
Apala Lahiri Chavan, *Human Factors International*, India
Huatong (Hannah) Sun, *Grand Valley State University*, USA

In this SIG, practitioners will discuss challenges they faced in selecting and customizing methods for international usability design. Facilitators and then participants will contribute experiences, case studies, and helpful multicultural contacts.

PANEL ROOM 517ABC
Managing International User Research

[PANELISTS]
 Alexandra Mack (moderator), *Piney Bowes, USA*
 Susan M. Dray, *Dray and Associates, USA*
 Patrick Larvie, *Yahoo!, USA*
 Tracey Lovejoy, *Microsoft, USA*
 Girish Prabhju, *Intel, USA*
 Christian Sturm, *Arolis, Germany*

Many corporate researchers spend a great deal of their time traveling the globe to meet and study consumers, while others look to partner with other researchers or outsource the work entirely. This panel will explore these diverse approaches, how and why choices are made, the issues and challenges faced, and lessons learned based on past experiences.

PAPERS ROOM 511ABDE

Participatory Design

[SESSION CHAIR] Michael Muller, *IBM, USA*



[PAPER] **"LINc-ing" the Family: The Participatory Design of an Inkable Family Calendar**

Carman Neustaedter, *University of Calgary, Canada*
 A.J. Bernheim Brush, *Microsoft, USA*

Describes the participatory design of an inkable family calendar for the home in an effort to address family coordination problems. Presents key implications for the design of family coordination systems.

[PAPER] **Participatory Design with Proxies: Developing a Desktop-PDA System to Support People with Aphasia**

Jordan L. Boyd-Graber, Sonya S. Nikolova, *Princeton University, USA*
 Karyn A. Moffatt, *University of British Columbia, Canada*
 Kenrick C. Kin, Joshua Y. Lee, Lester W. Mackey, *Princeton University, USA*
 Marilyn M. Tremaine, *Rutgers University, USA*
 Maria M. Klawe, *Princeton University, USA*

A novel system to aid people with aphasia was developed via participatory design with therapists as surrogates for the primary audience and highlights the unique information gleaned from ethnographic interviewing.

[PAPER] **Participatory Design in Emergency Medical Service: Designing for Future Practice**

Margit Kristensen, Morten Kynng, *University of Aarhus, Denmark*
 Leysia Palen, *University of Aarhus & University of Colorado, Boulder, Denmark & USA*

Results of a participatory design process for emergency medical service address future practice and challenges of designing for major incidents

PAPERS ROOM 516C

Interaction Techniques: Haptic and Gestural

[SESSION CHAIR] Kori Inkpen, *Dalhousie University, Canada*



[PAPER] **A Role for Haptics in Mobile Interaction: Initial Design Using a Handheld Tactile Display Prototype**

Joseph Luk, *University of British Columbia, Canada*
 Jérôme Pasquero, *McGill University, Canada*
 Shannon Little, Karon Maclean, *University of British Columbia, Canada*
 Vincent Lévesque, Vincent Hayward, *McGill University, Canada*

Describes principled process applying haptics to mobile interaction needs, including scenarios, a new device and its perceptual characterization. Provides insight into appropriate mappings between technology and application roles.

[PAPER] **The Springboard: Multiple Modes in One Spring-Loaded Control**

Ken Hinckley, *Microsoft, USA*
 François Guimbretière, *University of Maryland, USA*
 Patrick Baudisch, Raman Sarin, Maneesh Agrawala, Ed Cutrell, *Microsoft, USA*

Contributes Springboard technique and experiment that underscores why it is difficult to design local marking menus that can beat round-trips to a tool palette at the edge of the screen.

[PAPER] **The Globefish and the GlobeMouse: Two New Six Degree of Freedom Input Devices for Graphics Applications**

Bernd Froehlich, Jan Hochstrate, Verena Skuk, Anke Huckauf, *Bauhaus-Universitaet Weimar, Germany*
 Describes two new 6-DOF input devices for graphics applications and a user study. The devices are shown to perform better than the SpaceMouse and subjective data confirms these results.

PAPERS

ROOM 5116AB

Activity & Usability: Design Implications[SESSION CHAIR] Bonnie Nardi, *University of California, Irvine, USA***[PAPER] Making Action Visible in Time-Critical Work**Jonas Landgren, *Viktorina Institute & Göteborg University*
Sweden

Ethnographic accounts of time-critical physical work. Design implications for making verbal communication persistent to provide accountability. Inspiration for designers and practitioners of systems and applications for time-critical settings.

[PAPER] Support for Activity-Based Computing in a Personal Computing Operating SystemJakob Bardram, Jonathan Bunde-Pedersen, Mads Soegaard,
University of Aarhus, Denmark

Presents the design, implementation, and evaluation of activity-based computing support embedded in Windows XP. Enables users to handle multiple parallel activities which can move between different computers.

[PAPER] Share and Share Alike: Exploring the User Interface Affordances of File SharingStephen Volda, W. Keith Edwards, *Georgia Institute of Technology, USA*Mark W. Newman, *PARC, USA*Rebecca E. Grinter, *Georgia Institute of Technology, USA*
Nicolas Ducheneaut, *PARC, USA*

Describes a typology of sharing technologies and presents a new user interface for file sharing. Informs the design of file sharing mechanisms that more closely match users' actual sharing practices.

PAPERS

ROOM 510ABCD

Social Computing 1[SESSION CHAIR] Elizabeth Churchill, *PARC, USA***[PAPER] Dogear: Social Bookmarking in the Enterprise**David R. Millen, Jonathan Feinberg, Bernard Kerr, *IBM, USA*

Describes an enterprise social bookmarking service (dogear), supporting shared and non-anonymous bookmarking for internet and intranet sources. Design approach and results will benefit designers of related kinds of social software.

[PAPER] Increasing User Decision Accuracy Using SuggestionsPearl Pu, Paolo Viappiani, Boi Faltings, *EPFL, Switzerland*

Proposes novel strategies for improving the accuracy and usability of example-based recommender systems and evaluates their performance on user studies.

[PAPER] Co-Authoring with Structured AnnotationsQixing Zheng, Kellogg Booth, Joanna McGrenere, *University of British Columbia, Canada*

Describes a comprehensive taxonomy of structured annotations for collaborative authoring based on requirements derived from a field investigation. Structured annotations improve speed and accuracy and thereby improve reviewing workflow.

INTERACTIVITY

ROOM 516DE

PDAs, Space Invaders, and Chickens: Mobility and Collaboration

[SESSION CHAIR] Jan Borchers, *RWTH Aachen University, Germany*

Age Invaders: Social and Physical Inter-Generational Family Entertainment

Eng Tat Khoo, Shang Ping Lee, Adrian David Cheok,
Nanyang Technological University, Singapore
Sameera Kodagoda, *University of Moratuwa, Sri Lanka*
Yu Zhou, Gin Siong Toh, *Nanyang Technological University, Singapore*

Proposes a game in which children play with their grandparents while parents participate remotely over the net.
Suggests a way to close generational gaps in society and connect distributed families.

mSpace Mobile: a UI Gestalt to Support On-the-Go Information

Max Wilson, Daniel A. Smith, Alistair Russel, m c schraefel,
University of Southampton, UK

Demonstrates seven interaction techniques for mobile devices built around a focus+context viewer that rearranges web content. Enables users on the move to rapidly search information and explore compound query results.

Poultry.Internet: A Remote Human-Pet Interaction System

Keng Soon Teh, Shang Ping Lee, Adrian David Cheok,
Nanyang Technological University, Singapore

Presents a system that forwards touch information from a doll to a distant pet wearing a jacket, and feeds back pet movements. Allows humans to connect to their pets remotely.

SIG

ROOM 515C

Testing Interactive Software: a Challenge for Usability and Reliability

[ORGANIZERS]

Philippe Palanque, *University Toulouse, France*
Regina Bernhaupt, *Universität Salzburg, Austria*
Ronald Boring, *Idaho National Laboratory, USA*
Chris Johnson, *University of Glasgow, Scotland*

This SIG provides a forum for researchers and practitioners interested in testing interactive software. Our goal is to define a roadmap of activities to cross fertilize usability and reliability testing.

INVITED RESEARCH OVERVIEW

ROOM 517ABC

Large Display Research

SESSION CHAIR | Judith S. Olson, *University of Michigan, USA*

Mary Czerwinski, *Microsoft, USA*

Our early user studies documenting the increased productivity gained through the use of large displays allowed us to observe quite quickly that Windows and current applications do not scale well when vast amounts of screen real estate are available. Our group therefore set about iteratively designing software tools, based on real user problems, to support large-scale navigation and interaction. To ensure our software user interfaces provided value, we ran user studies against existing features and performed user-centered design. This talk will provide an overview of the prototypes we designed, and our methodology. In addition, I will discuss a few areas of long-term basic research on information visualization and interaction, and our attempts to scale the user experience across the spectrum of large and smaller displays.

[PRESENTER BIO] Mary Czerwinski is a Senior Researcher and Manager of the Visualization and Interaction Research group at Microsoft Research. The group is responsible for studying and designing advanced technology and interaction techniques that leverage human capabilities across a wide variety of input and output channels. Mary's primary research areas include spatial cognition, information visualization and task switching. Mary has been an affiliate assistant professor at the Department of Psychology, University of Washington since 1996. More information about Dr. Czerwinski can be found at <http://research.microsoft.com/users/marycz>.

PAPERS

ROOM 511ABDE

End User Programming

SESSION CHAIR | Mary Beth Rosson, *The Pennsylvania State University, USA*

[PAPER] **Tinkering and Gender in End-User Programmers' Debugging**

Laura Beckwith, Cory Kissinger, Margaret Burnett, *Oregon State University, USA*

Susan Wiedenbeck, *Drexel University, USA*

Joseph Lawrence, *Oregon State University, USA*

Alan Blackwell, *University of Cambridge, UK*

Curtis Cook, *Oregon State University, USA*

Investigates males' and females' tinkering (feature 'playfulness') in end-user debugging environments. Our results show that tinkering, reflection, and self-efficacy combine to impact debugging effectiveness differently for each gender.

[PAPER] **An Evaluation of Using Programming by Demonstration and Guided Walkthrough Techniques for Authoring and Utilizing Documentation**

Madhu Prabaker, *Carnegie Mellon University, USA*

Lawrence Bergman, Vittorio Castelli, *IBM, USA*

Describes and evaluates combining programming-by-demonstration and guided walkthrough techniques to create live documentation. Enables more efficient and accurate creation and consumption of documentation than traditional tools.

[PAPER] **Providing Support for Adaptive Scripting in an On-Line Collaborative Learning Environment**

Gahgene Gweon, Carolyn Rose, Regan Carey, Zachary Zaiss, *Carnegie Mellon University, USA*

Provides motivation and support for exploring issues related to structuring productive group dynamics in collaborative e-learning environment. The authors experimentally evaluate mechanisms for enhancing collaborative learning interactions.

PAPERS

ROOM 516C

Personal Information Management

[SESSION CHAIR] William Newman, *Microsoft & University College London, UK*



[PAPER] **Fast, Flexible Filtering with Phlat - Personal Search and Organization Made Easy**

Edward Cutrell, Daniel Robbins, Susan Dumais, Raman Sarin, *Microsoft, USA*

We describe the design and deployment of a new UI for searching personal information. The interface encourages fast, intuitive query iteration and includes a unified tagging system for personal content.

[PAPER] **To Have and to Hold: Exploring the Personal Archive**

Joseph 'Jofish' Kaye, Janet Vertesi, Shari Avery, Allan Dafeo, Shay David, Lisa Onaga, *Cornell University, USA*
Ivan Rosero, *Amazon.com, USA*
Trevor Pinch, *Cornell University, USA*

Describes a study of 48 academics' personal archives, highlights their rationales behind archiving: 'finding it later', legacy, sharing, confronting fears, identity construction. Describes how this affects archive structure and function.

[CHI NOTE] **The Project Fragmentation Problem in Personal Information Management**

Ofar Bergman, *Tel Aviv University, Israel*
Ruth Beyth-Marom, *The Open University of Israel, Israel*
Rafi Nachmias, *Tel Aviv University, Israel*

This study sheds light on the Project Fragmentation Problem - the separation of project-related documents, emails, and web favorites into different collections. A new solution is presented to improve usability.

[CHI NOTE] **Peripheral Display of Digital Handwritten Notes**

Gary Hsieh, *Carnegie Mellon University, USA*
Kenneth Wood, Abigail Sellen, *Microsoft, UK*

Describes the development and initial testing of a peripheral display supporting digital handwritten notes. Guides designers in balancing serendipity with the costs of ambient display.

PAPERS

ROOM 516AB

Multidisplay Environments

[SESSION CHAIR] Dan Horn, *Army Research Institute, USA*

[PAPER] **Perspective Cursor: Perspective-Based Interaction for Multi-Display Environments**

Miguel A. Nacenta, Samer Sallam, Bernard Champoux, Sriam Subramanian, Carl Gutwin, *University of Saskatchewan, Canada*

We present Perspective Cursor, a technique that uses a mouse and the user's perspective for multi-display interaction. We show through a user study that Perspective Cursor is better than existing alternatives.

[PAPER] **Improving Selection of Off-Screen Targets with Hopping**

Pourang Irani, *University of Manitoba, Canada*
Carl Gutwin, *University of Saskatchewan, Canada*
Xing Dong Yang, *University of Alberta, Canada*

Introduces Hop, a technique for selecting off-screen targets that combines halos and proxies. A study showed that hopping is faster than either zooming or panning, and is strongly preferred

[PAPER] **Effects of Display Position and Control Space Orientation on User Preference and Performance**

Daniel Wigdor, *University of Toronto & Mitsubishi Electric Research Labs, Canada & USA*
Chia Shen, Clifton Forlines, *Mitsubishi Electric Research Labs, USA*
Ravin Balakrishnan, *University of Toronto, Canada*

Two experiments that explore the impact of display space position and input control space orientation on users' subjective preference and objective performance. Provide guidelines as to optimal display placement and control orientation in collaborative computing environments with one or more shared displays.

PAPERS

ROOM 510ABCD

Managing Voice Input[SESSION CHAIR] Paul Aoki, *PARC, USA***[PAPER] The Benefits of Augmenting Telephone Voice Menu Navigation with Visual Browsing and Search**Min Yin, Shumin Zhai, *IBM, USA*

A set of experiments demonstrating that telephone voice menu navigation can be significantly improved with a visual channel augmentation, resulting in both human performance improvement and user experience satisfaction.


[PAPER] Time is of the Essence: An Evaluation of Temporal Compression Algorithms
Simon Tucker, Steve Whittaker, *Sheffield University, UK*

We evaluate novel techniques for accessing speech recordings, developing a new evaluation method. Users prefer and perform better with excision that removes unimportant speech, than with standard speedup techniques.

[PAPER] Error Correction of Voicemail Transcripts in SCANMailMoira Burke, *Carnegie Mellon University, USA*
Brian Amento, Philip Isenhour, *AT&T Labs, USA*

Describes a system that generates text transcripts of voicemail messages, and an empirical evaluation of transcript error correction. Users can skim, archive, and retrieve voicemail transcripts from mobile devices.

alt.chi

ROOM 516DE

Design is Fun and People are Great[SESSION CHAIR] Sidney Fels, *University of British Columbia, Canada***A New Playground Experience: Going Digital?**Susanne Seittinger, Elisabeth Sylvan, Oren Zuckerman,
Marko Popovic, Orit Zuckerman, *MIT, USA*

Explores the benefits and drawbacks of integrating digital technologies into outdoor playgrounds. Presents new prototypes, a participatory design process, and field observations. Frames future HCI work on computationally enhanced playgrounds.

Tokyo Youth at Leisure: Towards the Design of Media to Support Leisure Planning and PracticeDiane Schiano, Ame Elliot, Victoria Bellotti, *PARC, USA*

A large project explored leisure practices and resources—including mobile phones and other media—of Tokyo young adults. Findings will help inform the design of future leisure support technologies.

RoomBugs: Simulating Insect Infestations in Elementary Classrooms Using Commodity HardwareMichael Barron, Tom Moher, *University of Illinois, Chicago, USA*Jeff Maharry, *Galileo Scholastic Academy of Mathematics and Science, USA*

This paper examines the creation of an embedded simulation inside a classroom. Using minimal instrumentation we attempt to create a rich environment useful for student scientific observation and manipulation.

The Orbital Browser: Composing Ubicomp Services Using Only Rotation and SelectionNicolas Ducheneaut, Trevor F. Smith, James 'Bo' Begole,
Mark W. Newman, *PARC, USA*Chris Beckmann, *University of California, Berkeley, USA*

Presents the design of a novel user interface to control large networks of devices using only two operations: rotation and selection.

Quill: A Narrative-Based Interface for Personal Document RetrievalDaniel Gonçalves, Joaquim A. Jorge, *Instituto Superior Técnico, Portugal*

We present a novel interaction paradigm, narrative-based interfaces, usable for information retrieval. We describe the Quill system: soundly designed, based on user studies, it uses narratives to retrieve personal documents.

EXPERIENCE REPORTS

ROOM 511 CF

Design Representations

SESSION CHAIR | Kristina Höök, *Swedish Institute of Computer Science*, Sweden

Growing Bloom: Design of a Visualization of Project Evolution

Bernard Kerr, Li-Te Cheng, *IBM, USA*

Timothy Sweeney, *Carnegie Mellon University, USA*

Bloom Diagram is a tool to visualize the evolution of individual participants' code and comment contributions to open source software projects. The design blends techniques such as concentric pie charts, animation, motion trails, and social proxies to produce a compact presentation of the large scale dynamics around software development.

Scalability in System Management GUIs: A Designer's Nightmare

Andreas Dieberger, Eser Kandogan, Cheryl A. Kieliszewski, *IBM, USA*

Designing effective interactions and representations of large systems with intricate relationships among components is a formidable challenge. The presented approach addresses these challenges by extensive use of semantic zooming and progressive information disclosure.

SIG

ROOM 515C

Producing Human-Centered, Usability-Sensitive, and HCI-Competent Managers, CIOs, and CEOs

ORGANIZER |

Ping Zhang, *Syracuse University, USA*

Taking a collaborative and multi-disciplinary perspective, we discuss issues and opportunities in college education so that our future managers, CIOs, and CEOs are inherently and intrinsically human-centered, usability-sensitive, and HCI-competent.

Tuesday April 25										Day at a Glance				
517 AB	517 C	511 ABDE	516 C	516 AB	510 ABCD	516 DE	511 CF	515 C	513 CD	513 EF	514 ABC	513 AB	515 AB	
8:30 CHI Madness - Room: 517AB p.44														
9:00 – 10:30 Plenary Panel: Expert Design Critique: XBOX 360 - Room: 517AB p.44										Course 13	Course 10	Course 11	Course 14	Course 12
11:30 – 13:00	Panel Putting Personas to Work p. 45	Panel Institutionalizing HCI: What Do I-Schools Offer? p. 45	Papers Interaction Methods p. 45	Papers Understanding Programs & Interfaces p. 46	Papers Games & Performances p. 46	Papers Designing for Tangible Interactions p. 46	SIG Mobile iTV p. 47	Experience Reports End to End Design p. 47	SIG Rhetoric & Argumentation p. 47	The Usability Engineering Lifecycle	Understanding Users in Context: An In-Depth Introduction to Fieldwork	Re-Positioning User Experience as a Strategic Process	Usability & Product Development: A Usability Course for Management	Personal Information Management in Theory & Practice
14:30 – 16:00	Panel Managing Deviant Behavior in Online Communities p. 48	Panel Building User Value into the Business Case p. 48	Papers Text Input p. 48	Papers Visualization & Search p. 49	Papers Information Handling p. 48	Papers Design: Creative & Historical Perspectives p. 50	Interactivity Meet the Artists: Music, Dance, & Painting p. 50	Experience Reports Real-World Design Solutions p. 51	SIG Assessing & Improving Information Usability p. 51					
16:30 – 18:00	Panel Service Innovation & Design p. 52	Panel Agile Development: Opportunity or Fad? p. 52	Papers Automatic Generation & Usability p. 52	Papers Security p. 52	Papers Media p. 53	alt.chi It's a Small World After All p. 53		Experience Reports Usability in the Wild p. 54	SIG Designing Environments for Outdoors Gaming & Play p. 54					
COMMONS							NOTES							
Commons Open: 08:00 – 20:00 p. 16		Exhibits, Interactivity 10:30 – 18:00 p. 12, 14, 15, 100		Focus on Posters Including Student Design Competition 10:30 – 11:30 p. 13, 14, 15, 89			Job Fair 18:00 – 20:00 p. 14							

ROOM 517AB

CHI Madness

8:30 – 9:00

[SESSION CHAIR] Patrick Baudisch, *Microsoft, USA*

Join us again for the session that will tell you what's what and where to go. Presenters for today's sessions will again have less than a minute each to entice you to their session.

PANEL

ROOM 517AB

Expert Design Critique: Xbox 360

9:00 – 10:30

[PANELISTS]

Russ Glaser (moderator), *Microsoft, USA*

Paolo Malabuyo, *Microsoft, USA*

Duan Evans, *AKQA, UK*

Peter Boatwright, *Carnegie Mellon University, USA*

Nicole Lazzaro, *XEODesign, USA*

Maxime Beland, *Ubisoft, Canada*

Scott Berkun, *ScottBerkun.com, USA*

Get a behind the scenes look into the actual process used to solve design problems behind the creation of the Xbox 360 and hear expert critique of the process and results.

PANEL ROOM 517AB

Putting Personas to Work

[PANELISTS]

Tamara Adlin (moderator), *Adlin, Inc., USA*
 John Pruitt, *Microsoft, USA*
 Kim Goodwin, *Cooper, USA*
 Colin Hynes, *Staples, USA*
 Karen McGrane, *Avenue A / Razorfish, USA*
 Aviva Rosenstein, *Yahoo! Inc., USA*
 Michael Muller, *IBM, USA*

This panel brings together professionals who have used personas to solve real business problems.

PAPERS ROOM 511ABDE

Interaction Methods

[SESSION CHAIR] Shumin Zhai, *IBM, USA*

[PAPER] **symSpline: Symmetric Two-Handed Spline Manipulation**

Celine Latulipe, Stephen Mann, Craig S. Kaplan, Charlie L.A. Clarke, *University of Waterloo, Canada*

This paper describes a new interaction technique for manipulating splines that uses dual mice and dual cursors. An experiment shows that symSpline outperforms other techniques in a spline matching task.

PANEL ROOM 517C

Institutionalizing HCI: What Do I-Schools Offer?

[PANELISTS]

John M. Carroll, *The Pennsylvania State University, USA*
 Paul Dourish, *University of California, Irvine, USA*
 Batya Friedman, *University of Washington, USA*
 Masaki Kurosu, *Graduate University for Advanced Studies, Japan*
 Gary M. Olson, *University of Michigan, USA*
 Alistair Sutcliffe, *University of Manchester, UK*

I-schools (schools of information, of informatics, of information studies, and of information sciences) have emerged as a new academic home for university programs in HCI. This panel will discuss the significance of i-schools, the trajectory of HCI within i-schools, and the role the CHI community can play in this development.

[PAPER] **Effects of Feedback, Mobility, and Index of Difficulty on Deictic Spatial Audio Target Acquisition in the Horizontal Plane**

Georgios N. Marentakis, Stephen A. Brewster, *University of Glasgow, Scotland*

Deictic acquisition of feedback marked 3D-audio targets is effective in standing and mobile situations without increasing workload, users maintaining 73% of their walking speed. Mobility degrades interaction performance by 20%.

[CHI NOTE] **Prototyping Retractable String-Based Interaction Techniques for Dual-Display Mobile Devices**

Gabor Blasko, *Columbia University, USA*
 Chandra Narayanaswami, *IBM, USA*
 Steven Feiner, *Columbia University, USA*

Introduces a novel interaction method based on retractable strings with embedded linear displays. Provides end-users and designers with an expressive but mechanically simple I/O method for small devices.

[CHI NOTE] **Enhancing Human-Machine Interactions: Virtual Interface Alteration Through Wearable Computers**

Alexandre Plouznikoff, Nicolas Plouznikoff, Jean-Marc Robert, Michel Desmarais, *École Polytechnique de Montréal, Canada*

Presents a system enabling the virtual augmentation of real-world appliance interfaces. Provides designers with a means of helping end-users to navigate appliance interfaces more efficiently.

PAPERS

ROOM 516C

Understanding Programs and Interfaces

[SESSION CHAIR] Ronald Baecker, *University of Toronto, Canada*

[PAPER] Evaluating a Fisheye View of Source Code

Mikkel R. Jakobsen, Kasper Hornbæk, *University of Copenhagen, Denmark*

Describes a fisheye view for supporting programmers' navigation and understanding based on both syntactic and semantic relations in programs. The fisheye view significantly improves task completion times and satisfaction.

[PAPER] Barista: An Implementation Framework for Enabling New Tools, Interaction Techniques, and Views in Code Editors

Andrew J. Ko, Brad A. Myers, *Carnegie Mellon University, USA*

Toolkit that enables the creation of structured code editors with visualizations, annotations and alternative views embedded in code. Helps editor designers explore new tools not possible with textual code editors.

[PAPER] Answering Why and Why Not Questions in User Interfaces

Brad A. Myers, David A. Weitzman, Andrew J. Ko, Duen H. Chau, *Carnegie Mellon University, USA*

The new 'Why' interaction techniques can significantly help people understand what their user interfaces are doing, increasing learning, productivity, etc.

PAPERS

ROOM 516AB

Games and Performances

[SESSION CHAIR] Dennis Wixon, *Microsoft, USA*

[PAPER] Alone Together? Exploring the Social Dynamics of Massively Multiplayer Online Games

Nicolas Ducheneaut, *PARC, USA*
 Nicholas Yee, *Stanford University, USA*
 Eric Nickell, Robert J. Moore, *PARC, USA*

Reports on longitudinal analysis of play and grouping patterns in one of the largest massively multiplayer online games. Offers guidelines for the design of future games and online social spaces.

[PAPER] Interweaving Mobile Games With Everyday Life

Marek Bell, Matthew Chalmers, Louise Barkhuus, Malcolm Hall, Scott Sherwood, Paul Tennent, Barry Brown, *University of Glasgow, Scotland*
 Duncan Rowland, *University of Lincoln, UK*
 Steve Benford, Alastair Hampshire, *University of Nottingham, UK*

The first detailed study of a mobile multiplayer game, showing how people fit it into their everyday lives and took advantage of the game's exposure of ubicomp infrastructure.

[PAPER] Designing for the Opportunities and Risks of Staging Digital Experiences in Public Settings

Steve Benford, Andy Crabtree, Stuart Reeves, *University of Nottingham, UK*

Jennifer Sheridan, Alan Dix, *Lancaster University, UK*
 Martin Flintham, Adam Drozd, *University of Nottingham, UK*

Studying a touring mixed-reality performance reveals how designers exploit opportunities and manage risks associated with blurring the boundaries of public interaction, inspiring proposals for extending design frameworks for spectator interfaces.

PAPERS

ROOM 510ABCD

Designing for Tangible Interactions

[SESSION CHAIR] Wendy Mackay, *INRIA, France*

[PAPER] Getting a Grip on Tangible Interaction: A Framework on Physical Space and Social Interaction

Eva Hornecker, *University of Sussex, UK*
 Jacob Buur, *MCI & University of Southern Denmark, Denmark*

We introduce a framework that contributes to understanding the (social) user experience of tangible interaction and provides concepts aiding analysis and design.

[PAPER] Finding Design Qualities in a Tangible Programming Space

Viva Fernaeus, Jakob Tholander, *Stockholm University, Sweden*

Through experimental designs we contribute to the understanding of the design of tangible programming tools for children. We specifically address how to support children's collaborative construction of screen-based systems.

[PAPER] Design Requirements for Technologies that Encourage Physical Activity

Sunny Consolvo, *Intel & University of Washington*, USA
 Katherine Everitt, *University of Washington*, USA
 Ian Smith, *Intel*, USA
 James Landay, *Intel & University of Washington*, USA

Presents design requirements for technology to encourage physical activity and fitness derived from an *in situ* pilot study. Can prevent designers and developers from overlooking key elements of fitness-enabling technologies.

SIG

ROOM 516DE

Mobile iTV: New Challenges for the Design of Pervasive Multimedia Systems

[ORGANIZERS]

Anxo Cereijo Roibás, *University of Brighton*, UK
 David Geerts, Licia Calvi, *Centre for Usability Research*, Belgium
 Akseli Anttila, *Nokia*, Finland
 Owen Daly-Jones, *Serco Usability Services*, UK

This SIG will stimulate informal debate around the futures of interfaces for pervasive multimedia systems such as mobile and ubiquitous iTV with special attention to the new contextual usage of this media in entertainment, work, and government contexts.

EXPERIENCE REPORTS

ROOM 511CF

End-to-End Design

[SESSION CHAIR] Thea Turner, *FXPAL*, USA

The Experience Engineering Framework Applied in Two Contexts

Rick Spencer, Monty Hammontree, Donna Wallace,
Microsoft, USA

Analysis of existing User-centered Design methods revealed an underlying common framework consisting of three components and three principles. It is named the Experience Engineering Framework (EEF) and two applications of EEF are discussed.

Theatre as an Intermediary between Users and CHI Designers

Alan F. Newell, M. E. Morgan, Peter Morgan, Alex Carmichael, *University of Dundee, Scotland*

Through a theatre, including professional actors, scriptwriters and artistic directors, it is possible to do requirements gathering, usability testing, and communicate the results of such work to the design community, or individual designers.

Phases of Use: A Means to Identify Factors that Influence Product Utilization

Karin den Bouwmeester, Edward Bosma, *Océ Technologies*, Netherlands

A very easy to use product that exactly fits the tasks of the users is no guarantee that the product will be a success. The users must be aware of the product, be seduced to try it, learn the product, and change their behaviour to imbed the product in their daily lives.

SIG

ROOM 515C

How Can Rhetoric and Argumentation Help Us Make the Case for UCD?

[ORGANIZERS]

Colleen Pettit Jones, Nick Sabadosh, *Cingular Wireless*, USA
 Susan J. Robinson, *Centers for Disease Control and Prevention*, USA
 David Bishop, *MAYA Design, Inc.*, USA
 Sanjay Koyani, *U.S. Department of Health and Human Services*, USA

This SIG will explore how rhetoric and argumentation can help advance the case for UCD on organizational and project levels in various contexts and organizations.

PANEL

ROOM 517AB

Managing Deviant Behavior in Online Communities

[PANELISTS]

Amy Bruckman, *Georgia Institute of Technology, USA*
 Catalina Danis, *IBM, USA*
 Cliff Lampe, *Michigan State University, USA*
 Janet Sternberg, *Fordham University, USA*
 Chris Waldron, *Cartoon Network New Media, USA*

How do designers of online communication systems decide what kind of conduct is acceptable? How are these expectations communicated to members? How can designers help prevent and manage deviant behavior? What are the implications of corporate control of content for ideals of free expression? The panel will explore current issues in this complex research area.

PANEL

ROOM 517C

Building User Value into the Business Case

[PANELISTS]

Austin Henderson (moderator), *Pitney Bowes, USA*
 Monty Hammontree, *Microsoft, USA*
 Patrik Heuman, *Sony Ericsson, USA*

Product managers with experience in making user-centered business cases will discuss the practical realities of building effective business cases, the role of user value in those cases, and what HCI professionals can do to help product managers make mutually satisfying business cases.

PAPERS

ROOM 511ABDE

Text Input

[SESSION CHAIR] Yves Guiard, *University of Marseilles, France*

[CHI NOTE] **An Intuitive Text Input Method for Touch Wheels**

Morten Proschowsky, Nette Schultz, *Technical University of Denmark, Denmark*
 Niels Ebbe Jacobsen, *Nokia, Denmark*

This paper introduces a method for using language knowledge to improve text entry speed. The method is transparent for the user and does not require any extra user interaction.

[CHI NOTE] **A New Error Metric for Text Entry Method Evaluation**

Jun Gong, Peter Tarasewich, *Northeastern University, USA*

Describes a new metric for text entry error analysis that uses the complete keypress input stream. Can assist designers in better understanding how users input text using a given interface.

[CHI NOTE] **Text Entry Using a Dual Joystick Game Controller**

Andrew D. Wilson, *Microsoft, USA*
 Maneesh Agrawala, *Microsoft and University of California, Berkeley, USA*

Presents a new bimanual text entry technique designed for today's dual-joystick game controllers. The technique is readily learnable and provides strong performance benefits over traditional onscreen selection keyboards.

[CHI NOTE] **Few-Key Text Entry Revisited: Mnemonic Gestures on Four Keys**

Jacob Wobbrock, Brad Myers, Brandon Rothrock, *Carnegie Mellon University, USA*

Presents a gestural text entry method that uses only four keys, and compares it to predominant few-key methods. Has implications for mobile device design, mobile text entry, and wearable computing.



[PAPER] **Trackball Text Entry for People with Motor Impairments**

Jacob Wobbrock, Brad Myers, *Carnegie Mellon University, USA*

Presents a novel text entry method designed specifically for trackballs. Helps motor-impaired users to enter text with mnemonic, Roman-like gestures significantly faster than with on-screen keyboards.

PAPERS

ROOM 516C

Visualization and Search[SESSION CHAIR] Ed Cutrell, *Microsoft*, USA
 [PAPER] **The Effect of Speech Recognition Accuracy Rates on the Usefulness and Usability of Webcast Archives**
Cosmin Munteanu, Ronald Baecker, Gerald Penn, *University of Toronto*, CanadaElaine Toms, *Dalhousie University*, Canada
David James, *University of Toronto*, Canada

Study investigating on effects of the accuracy of transcripts obtained through speech recognition on webcast archives' usefulness and usability. Can assist designers in enhancing webcast interfaces by integrating text transcripts.

[PAPER] **Visual Search and Reading Tasks Using ClearType and Regular Displays: Two Experiments**Andrew Dillon, Lisa Kleinman, Gil Ok Choi, Randolph Bias, *University of Texas, Austin*, USA

Two experiments tested reading of digital documents with ClearType display enhancement. Contributes to readability research by demonstrating speed improvements for different ways users work online (scanning versus reading for meaning).

[CHI NOTE] **Using Hybrid Networks for the Analysis of Online Software Development Communities**Yevgeniy "Eugene" Medynsky, *Cornell University*, USA
Nicolas Ducheneaut, *PARC*, USA
Ayman Farahat, *PricewaterhouseCoopers, Inc.*, USA

Describes method for visualizing heterogeneous networks of users, digital artifacts, and relationships, integrating multiple data sources. Supports analysts of role and work patterns in online communities.

[CHI NOTE] **Visualization of Large Hierarchical Data by Circle Packing**Weixin Wang, Hui Wang, Guozhong Dai, Hongan Wang, *Chinese Academy of Sciences*, China

Describes a novel approach for tree visualization using nested circles. Offers widget designers an alternative to tree-maps with improved visual properties (aspect ratio and hierarchy).

PAPERS

ROOM 516AB

Information Handling[SESSION CHAIR] Stu Card, *PARC*, US[PAPER] **Mobile Phones and Paper Documents: Evaluating A New Approach for Capturing Microfinance Data in Rural India**Tapan S. Parikh, Paul Javid, *University of Washington*, USA
Sasi K. Kumar, *ekgaon technologies*, India
Kaushik Ghosh, *Human Factors India*, India
Kentaro Toyama, *Microsoft*, India

Description and evaluation of a novel mobile interface for collecting data from rural microfinance groups in India. Demonstrates that mobile phones, with an appropriate UI, are viable for rural computing.

[PAPER] **Handling Documents and Discriminating Objects in Hybrid Spaces**Paul Luff, Christian Heath, *King's College London*, UK
Hideaki Kuzuoka, *University of Tsukuba*, Japan
Keiichi Yamazaki, *Saitama University*, Japan
Jun Yamashita, *University of Tsukuba*, Japan

This paper suggests implications for the design of collaborative systems such as enhanced video-mediated communication systems and for the understanding of the conduct to be supported by such technologies.

[PAPER] **ButterflyNet: A Mobile Capture and Access System for Field Biology Research**Ron Yeh, *Stanford University*, USA
Chunyuan Liao, *University of Maryland*, USA
Scott Klemmer, *Stanford University*, USA
Francois Guimbretière, *University of Maryland*, USA

Brian Lee, Boyko Kakaradov, Jeannie Stamberger, Andreas Paepcke, *Stanford University*, USA

Introduces techniques for enriching field biologists' paper notes through automatic capture, correlation with other data sources, and transformation. Reports on current practice, system implementation, and evaluation with field biologists.

PAPERS

ROOM 510ABCD

Design: Creative and Historical Perspectives

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



Dispelling "Design" as the Black Art

Tracee Vetting Wolf, *IBM, USA*

Jennifer A. Rode, *University of California, Irvine, USA*

Jeremy Sussman, Wendy A. Kelloog, *IBM, USA*

This paper differentiates creative design from user centered design. A key contribution of this work is an example providing a framework to CHI.

[PAPER] Interaction in Creative Tasks: Ideation, Representation, and Evaluation in Composition

Tim Coughlan, Peter Johnson, *University of Bath, UK*

Identifies key factors in the individual and collaborative creative processes of composers, describes the design of a support tool, considers the application of this knowledge to supporting other creative activities.



Implications for Design

Paul Dourish, *University of California, Irvine, USA*

Provides an alternative account of the value of ethnographic work based on historical and conceptual exploration of ethnographic practice. Helps practitioners, researchers, and reviewers assess ethnographic studies and their contributions.

INTERACTIVITY

ROOM 516DE

Meet the Artists: Music, Dance, and Painting

SESSION CHAIR: Elaine Huang, *Georgia Institute of Technology, USA*

Magic Asian Art

Eunkwang Park, Byeongsoo Kim, William Salim, Adrian

David Cheok, *Nanyang Technological University, Singapore*

Presents a system that lets viewers of a painting influence its contents dynamically, using gaze tracking, object movement models, and Asian-style rendering. Can make art viewing a more interactive experience.

iSymphony: An Adaptive Interactive Orchestral Conducting System for Digital Audio and Video Streams

Eric Lee, Henning Kiel, Saskia Dedenbach, Ingo Gruell,

Thorsten Karer, Marius Wolf, Jan Borchers, *RWTH Aachen University, Germany*

Presents an interactive exhibit that recognizes different conducting gestures and time-stretches a digital recording accordingly in real time. Lets users conduct audio-visual orchestral recordings while adapting to their skill level.

Virtual Rap Dancer: Invitation to Dance

Dennis Reidsma, Anton Nijholt, Ronald Poppe, Rutger

Rienks, Hendri Hondorp, *University of Twente, Netherlands*

Presents a system that displays a virtual avatar dancing to the beat of incoming music or human dance movements. Uses captured styles of various rap dancers to generate its moves.

EXPERIENCE REPORTS

ROOM 511 CF

Real-World Design Solutions

[SESSION CHAIR] Jim Miller, *Miramontes Computing, USA*

Café Life in the Digital Age: Augmenting Information Flow in a Café-Work-Entertainment Space

Elizabeth F. Churchill, Les Nelson, *PARC, USA*
Gary Hsieh, *Carnegie Mellon University, USA*

In this paper we describe our installation of a large-screen public, interactive community board, the eyeCanvas, in a neighbourhood café and art gallery in San Francisco.

The Design of a Tangible Interaction Device to Alleviate Anxiety and Pain in Paediatric Burns Patients

Sam Bucolo, *ACID, Australia*
Roy Kimble, Jonathan Mott, *Royal Children's Hospital, Australia*

This paper presents a case study of the design of a unique tangible media device to alleviate anxiety and pain in paediatric burns patients.

Use of Keyboard for Mouseless Data Entry in UI Design

Rachel M. Nilsson, Sam J. Racine, *Unisys Corporation, USA*

In the airline industry, mouseless operation is a standard form of user interface design. The presented design solution relies on a particular configuration of commands mapped to specific keys of the keyboard.

SIG

ROOM 515C

Current Issues in Assessing and Improving Information Usability

[ORGANIZERS]

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

In this 16th annual forum on human factors of information design, we address information usability issues from the facilitators' list of topics, augmented by attendees' suggestions. Five issues are selected by the group and discussed in depth.

PANEL
Service Innovation and Design

ROOM 517AB

[PANELISTS]
 Jeanette Blomberg, *IBM, USA*
 Shelley Evenson, *Carnegie Mellon University, USA*
 Ryan Armbruster, *The Mayo Clinic, USA*
 Mark Jones, *IDEO, USA*
 Mary Jo Bitner, *Arizona State University, USA*
 Terry Winograd, *Stanford University, USA*

This panel introduces the CHI community to a growing area of innovation and business development that leverages new technology platforms, namely service design. This topic is explored through a series of case studies of service design in a diverse set of industries and contexts from healthcare delivery to IT services.

PANEL
Agile Development: Opportunity or Fad?

ROOM 517C

[PANELISTS]
 Helen Sharp, *The Open University, UK*
 Robert Biddle, *Carleton University, Canada*
 Philip D. Gray, *University of Glasgow, Scotland*
 Lynn Miller, *Alias, Canada*
 Jeff Patton, *Thoughtworks, USA*

Agile development, e.g., eXtreme Programming (XP), is an approach to software engineering that explicitly champions an active role for the customer. This panel explores whether agile development provides an opportunity to integrate software engineering and HCI and overcome problems encountered with more traditional development processes.

PAPERS
Automatic Generation and Usability

ROOM 511ABDE

[SESSION CHAIR] Erik Nielsen, *Lewis & Clark University, USA*

[PAPER] **UNIFORM: Automatically Generating Consistent Remote Control User Interfaces**

Jeffrey Nichols, Brad Myers, Brandon Rothrock, *Carnegie Mellon University, USA*

This paper describes UNIFORM, the first system to automatically generate consistent remote control user interfaces from models of appliances that are guaranteed not to be consistent.



[PAPER] **Generating Automated Predictions of Behavior Strategically Adapted to Specific Performance Objectives**

Katherine Eng, *NASA, USA*
 Richard L. Lewis, *University of Michigan, USA*
 Irene Tollinger, *NASA, USA*
 Alina Chu, *University of Michigan, USA*
 Andrew Howes, *Manchester University, UK*
 Alonso Vera, *NASA, USA*

Describes a novel modeling capability to generate multiple predictions of strategic performance by manipulating an objective function (speed / working memory load). Supports affordable interface and procedure modeling for designers.

[PAPER] **Automated Summative Usability Studies: An Empirical Evaluation**

Ryan West, Katherine Lehman, *SAS Institute, USA*

Empirical evaluation of a method for automating summative usability studies and conducting them remotely. Offers practitioners an affordable way to conduct summative studies remotely and describes the trade-offs compared to manual lab testing.

PAPERS
Security

ROOM 516C

[SESSION CHAIR] Batya Friedman, *University of Washington, USA*

[PAPER] **Why Phishing Works**

Rachna Dhamija, *Harvard University, USA*
 J. D. Tygar, Marti Hearst, *University of California, Berkeley, USA*

This paper provides the first empirical evidence about phishing strategies that successfully deceive users. To design systems that protect users from fraudulent websites, we must understand how users are deceived.

[PAPER] **Secrecy, Flagging, and Paranoia: Adoption Criteria in Encrypted Email**

Shirley Gaw, Edward W. Felten, Patricia Fernandez-Kelly, *Princeton University, USA*

Qualitative study analyzing why encrypted e-mail has failed to gain popularity and demonstrating how social norms affect adoption. Can assist designers incorporate social context in secure e-mail clients.



[PAPER] **Do Security Toolbars Actually Prevent Phishing Attacks?**

Min Wu, Robert C. Miller, Simson L. Garfinkel, MIT, USA

User study showing that security toolbars are not effective at preventing people from being tricked by fake websites. Can assist in developing usable software to protect people's online identity.

PAPERS

ROOM 516AB

Media

[SESSION CHAIR] Bill Gaver, *Royal College of Art, UK*

[PAPER] **Olfoto: Designing a Smell-Based Interaction**

Stephen Brewster, David McGookin, Christopher Miller, *University of Glasgow, Scotland*

Study looking at the use of smell to evoke memories to help recall of digital photos. Can help designers use smell effectively and users to search for images more efficiently.

[PAPER] **Personal vs. Commercial Content: The Similarities Between Consumer Use of Photos and Music**

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

Our work explores similarities between consumer use of music and photos based on two separate ethnographic studies. This work contributes new insights for applications that manage and share digital content.

[CHI NOTE] **The Television Will Be Revolutionized: Effects of PVRs and Filesharing on Television Watching**

Barry Brown, Louise Barkhuus, *University of Glasgow, Scotland*

Presents the first study of the effects of personal video recorders (PVR) and filesharing on TV watching. Illustrates the changing 'media lifecycle' of TV and new design concepts.

alt.chi

ROOM 510ABCD

It's a Small World After All

[SESSION CHAIR] Joseph 'Jofish' Kaye, *Cornell University, USA*

Snapshots from a Study of Context Photography

Maria Håkansson, Sara Ljungblad, Lalya Gaye, Lars Erik Holmquist, *Viktorja Institute, Sweden*

Presents a user study of a novel camera application, in which contextual movement and sound visually affect the picture. Shows how photography can be extended beyond the analogue metaphor.

TinyMotion: Camera Phone Based Interaction Methods

Jingtao Wang, John F. Canny, *University of California, Berkeley, USA*

This paper presents TinyMotion, a pure software approach that detects the movements of cellphones in real time by analyzing image sequences captured by the built-in camera.

Virtual Information Piles for Small Screen Devices

QianYing Wang, Tony Tsieh, Meredith Ringel Morris, Andreas Paepcke, *Stanford University, USA*

We present our design and implementation of the Piles Across Space system. This facility breaks through the screen real-estate barrier that PDAs impose on their applications.

Z-agon: Mobile Multi-Display Browser Cube

Takashi Matsumoto, Daisuke Horiguchi, Shihori Nakashima, Naohito Okude, *Keio University, Japan*

Based on research of user needs and user interaction, a cubic multi-display device named Z-agon was envisioned as a packaged design of the hardware, tangible interface and contents.

CARCOACH: A Polite and Effective Driving Coach

Ernesto Arroyo, Shawn Sullivan, Ted Selker, *MIT, USA*

Experiment evaluating an in-vehicle driving advisor using controlled feedback and continuous feedback (positive and negative). Can assist designers in deciding what type of feedback works best for guidance systems.

EXPERIENCE REPORTS

ROOM 511 CF

Usability in the Wild

[SESSION CHAIR] Gary Marsden, *University of Cape Town*, South Africa

SIG

ROOM 515C

Designing Interactive Environments for Outdoors Gaming and Play

[ORGANIZERS]

Oren Zuckerman, *MIT*, USA
 Narcis Pares, *Universitat Pompeu Fabra*, Spain
 Steve Benford, *University of Nottingham*, UK
 Henrik Hautop Lund, *University of Southern Denmark*, Denmark

Web Tool for Health Insurance Design by Small Groups: Usability Study

Laurie Kantner, *Tec-Ed, Inc.*, USA
 Marion Danis, *National Institutes of Health*, USA
 Susan Dorr Gooch, Mike Nowak, Lesa Monroe-Gattrell, *University of Michigan*, USA

The authors describe iterative usability evaluation of a web-based collaborative health insurance benefits planning application, which was developed by the U.S. National Institutes of Health and the University of Michigan.

In this SIG we want to discuss the key points in the design of an outdoor interactive environment, including interaction techniques, appropriate technologies, usage patterns, robustness, and safety.

Applying Contextual Design to ERP System Implementation

Inka Viipola, Kaisa Väänänen-Vainio-Mattila, Taru Salmimaa, *Institute of Human-Centered Technology*, Finland

Enterprise resource planning systems (ERP) affect the daily work of millions of users. Applying Contextual Design introduces the missing user-centered approach in ERP implementations and improves the system success.

Making Oracle Behave

Sofie Vanophem, Kris Vanstappen, *The Human Interface Group*, Belgium

The authors describe how usability consultants worked with developers using Oracle Designer to build an ERP tool for temporary agencies, creating a custom user interface for 7000 end-users familiar with Windows, not Oracle applications.

Wednesday April 26										Day at a Glance				
517 AB	517 C	511 ABDE	516 C	516 AB	510 ABCD	516 DE	511 CF	515 C	513 CD	513 EF	514 ABC	513 AB	515 AB	
8:30 CHI Madness - Room: 517AB p.60														
9:00 – 10:30 Plenary Panel: Add a Dash of Interface: Taking Mash-Ups to the Next Level - Room 517AB p.61										Course 15	Course 19	Course 20	Course 18	Course 17
11:30 – 13:00	Panel Why Do Tagging Systems Work? p. 61	Panel Integrating Socially Relevant Projects into HCI Teaching p. 61	Papers Ubiquitous Computing p. 61	Papers Search & Navigation: Mobiles & Audio p. 62	Student Design Competition: Final Round p. 62	Papers Using Knowledge to Predict & Manage p. 62	Papers Collecting & Editing Photos p. 63	Experience Reports Managing Design p. 63	SIG The CHI Engineering Community p. 63	The Art of Speaking: Fundamentals for HCI Professionals: Part 1 p. 70	From Usability Testing to User Experience: Tools for Data Collection & Analysis p. 70	Analyzing Qualitative Data from Field Studies p. 70	Designing for User Efficiency p. 71	Web Design for Usability p. 71
14:30 – 16:00	Panel Does Think Aloud Work? How Do We Know? p. 64	Panel Design Communication: How Do You Get Your Point Across? p. 64	Papers Privacy 2 p. 64	Papers Pen p. 64	Papers Everyday Use of Mobiles p. 65	Interactivity Touch Me: Haptics & Clothes p. 65	Papers Visualization 1 p. 66	HCI Overviews HCI Overviews 1 p. 66	SIG The CHI Management Community p. 66	Course 16 The Art of Speaking: Fundamentals for HCI Professionals: Part 2 p. 71				
16:30 – 18:00	Panel The Route to the Sea for User Value p. 67	Research Overview End-User Programming p. 67	Papers Awareness & Presence p. 67	Papers Healthcare p. 68	Papers Online Communities p. 68	Papers Visualization 2 p. 69	SIG The CHI Design Community p. 69	HCI Overviews HCI Overviews 2 p. 69	SIG The CHI Education Community p. 69					
COMMONS					SPECIAL EVENTS					NOTES				
Commons Open: 08:00 – 18:00 p. 16					Exhibits, Interactivity 10:30 – 18:00 p. 12, 14, 15, 100					Focus on Posters 10:30 – 11:30 p. 14, 15, 87				
					SIGCHI Member Meeting Room 511ABDE 18:10 – 19:30 p. 15					Hospitality Events Hyatt Regency Montréal 18:30 – 20:30 p. 14				

ROOM 517AB

CHI Madness

8:30 – 9:00

[SESSION CHAIR] Patrick Baudisch, *Microsoft*, USA

Join us again for the session that will tell you what's what and where to go. Presenters for today's sessions will again have less than a minute each to entice you to their session.

PANEL

ROOM 517AB

Add a Dash of Interface: Taking Mash-Ups to the Next Level

9:00 – 10:30

[SESSION CHAIR] David Gilmore, *Intel*, USA

[PANELISTS]

Ben Metcalfe, *BBC*, UK

Bret Taylor, *Google*, USA

Hart Rossmann (discussant), *SAIC*, USA

Mash-ups traditionally consisted of the fusion of two or more data sources to create a new proposition. Ben Metcalfe and Bret Taylor will introduce how the remix community is going to take mash-ups to the next level—by combing data sources with your innovate interfaces to produce consumer-friendly mash-ups. Find out why extendable interfaces and open design patterns are a welcome addition to Web2.0 to the community.

[PRESENTER BIOS] Ben Metcalfe is the Project Lead of <http://backstage.bbc.co.uk>, the BBC's developer network.

Before helping to create backstage, Ben was a software engineer on the award winning BBC News website. He has also been a member of the BBC's New Media Accessibility Working Group and is a strong advocate for user-centred design processes. Ben blogs at <http://benmetcalfe.com/blog/>

Bret Taylor is the Product Manager for Google Maps. He joined Google in early 2003 and has managed a number of products, including Google Local, Google's web search infrastructure, and Search Quality. Prior to Google, Bret worked as a software engineer at Reactivity, a startup incubator in Silicon Valley. Bret holds an M.S. and B.S. in Computer Science from Stanford University.

PANEL

ROOM 517AB

Why Do Tagging Systems Work?

[PANELISTS]

George Furnas, *University of Michigan, USA*
Caterina Fake, *Yahoo!, USA*
Luis von Ahn, *Carnegie Mellon University, USA*
Joshua Schachter, *del.icio.us, Inc., USA*
Kevin Fox, *Google, USA*
Scott Golder, *Hewlett-Packard Laboratories, USA*
Marc Davis, *Cameron Marlow, Mor Naaman, Yahoo!, USA*

Web-based social tagging systems such as Del.icio.us and Flickr allow participants to annotate a particular resource, such as a web page or an image, with a freely chosen set of keywords ('tags'). As tagging systems grow in scale and popularity, new challenges must be addressed in their design and affordances.

PANEL

ROOM 517C

Making a Difference: Integrating Socially Relevant Projects into HCI Teaching

[PANELISTS]

Ben Shneiderman, *University of Maryland, USA*
Batyá Friedman, *University of Washington, USA*
Jonathan Lazar, *Towson University, USA*
Gary Marsden, *University of Cape Town, South Africa*
Cliff Nass, *Stanford University, USA*
Matt Jones, *University of Swansea, UK*
Ann Bishop, *University of Illinois, USA*

Leading human-computer interaction educators describe how they enrich their courses with socially-relevant team projects that provide compelling opportunities for students to improve their education and make socially beneficial contributions. These group projects can produce life-changing experiences for students and give them excellent portfolios when seeking employment.

PAPERS

ROOM 511ABDE

Ubiquitous Computing

[SESSION CHAIR] Lars Erik Holmquist, *Viktorika Institute, Sweden*

[PAPER] Beyond Record and Play - Backpacks: Tangible Modulators for Kinetic Behavior

Hayes Raffle, Amanda Parkes, Hiroshi Ishii, Joshua Lifton, MIT, USA

Backpacks are physical components that modulate parameters of motion recordings in modular robotic creations, extending the conceptual limits of record-and-play by making tangible some of the benefits of symbolic abstraction.

[PAPER] Embedded Phenomena: Supporting Science Learning with Classroom-Sized Distributed Simulations

Tom Moher, *University of Illinois, Chicago, USA*

Describes method and case studies extending ambient media to represent simulated science phenomena in classrooms. Can assist designers in development of classroom learning environments and activities supporting science inquiry.

[CHI NOTE] TAP: Touch-And-Play

Duck Gun Park, Jin Kyung Kim, Jin Bong Sung, Jung Hwan Hwang, Chang Hee Hyung, Sung Weon Kang, *Electronics and Telecommunications Research Institute, Republic of Korea*

Describes a system for controlling interaction between intelligent devices using intra-body signaling. Provides designers with a practical and intuitive means of creating ad hoc device networks.

PAPERS

ROOM 516C

Search and Navigation: Mobiles and Audio[SESSION CHAIR] Stephen Brewster, *University of Glasgow*, Scotland

SPECIAL

ROOM 516AB

Student Design Competition[SESSION CHAIR] Elizabeth F. Churchill, *PARC*, USA
[SESSION CHAIR] Steven Wall, *University of Glasgow*, Scotland[PAPER] **A Large Scale Study of Wireless Search Behavior: Google Mobile Search**Maryam Kamvar, *Google & Columbia University*, USA
Shumeet Baluja, *Google & Carnegie Mellon University*, USA

This is the first large-scale study of mobile users' search behavior. We hope this provides insight to facilitate a quantitative understanding of the needs and shortcomings of wireless search interfaces.


 [PAPER] **FaThumb: A Facet-Based Interface for Mobile Search**
Amy K. Karlson, *University of Maryland*, USA
George G. Robertson, Daniel C. Robbins, Mary Czerwinski, Greg R. Smith, *Microsoft*, USA

A novel facet-based navigation technique is presented for searching large datasets on mobile phones. Study results characterize tasks for which the technique is most effective, providing a better user experience.

[PAPER] **Searching in Audio: The Utility of Transcripts, Dichotic Presentation, and Time-Compression**Abhishek Ranjan, Ravin Balakrishnan, Mark Chignell, *University of Toronto*, Canada

Contributes empirical data evaluating the value of text transcripts, dichotic presentation, and time-compression in user ability to search in audio streams. Results can guide design of audio access interfaces.

PAPERS

ROOM 510ABCD

Using Knowledge to Predict and Manage[SESSION CHAIR] Joe Konstan, *University of Minnesota*, USA[PAPER] **Responsiveness in Instant Messaging: Predictive Models Supporting Inter-Personal Communication**Daniel Avrahami, Scott E. Hudson, *Carnegie Mellon University*, USA

Describes the successful creation of statistical models that are able to accurately predict users' responsiveness to incoming instant messages, and in particular responsiveness to attempts at initiating a new session.

[PAPER] **Leveraging Characteristics of Task Structure to Predict the Cost of Interruption**Shamsi T. Iqbal, Brian P. Bailey, *University of Illinois*, USA

Contributes a model for predicting the cost of interruption (COI) at subtask boundaries. Systems can use it to predict a more accurate COI, enabling effective decisions about when to interrupt.

[PAPER] **A Goal-Oriented Web Browser**Alexander Faaborg, Henry Lieberman, *MIT*, USA

Presents how large scale knowledge bases of semantic information can be leveraged to expand the breadth and functionality of programming by 'Example Systems' and 'Data Detectors.'

PAPERS

ROOM 516DE

Collecting and Editing Photos

[SESSION CHAIR] Andreas Paepcke, *Stanford University, USA*

[PAPER] Understanding Photowork

David Kirk, *University of Nottingham, UK*
Abigail Sellen, Carsten Rother, Kenneth Wood, *Microsoft, UK*

Field study of how users work with their home photo collections. Offers implications for software design and a descriptive framework of realistic tasks against which new tools can be assessed.

[PAPER] Gaze-Based Interaction for Semi-Automatic Photo Cropping

Anthony Santella, *Rutgers University, USA*
Maneesh Agrawala, *University of California, Berkeley, USA*
Doug DeCarlo, *Rutgers University, USA*
David Salesin, *Adobe Systems & University of Washington, USA*
Michael Cohen, *Microsoft, USA*

Presents a gaze-based interface allowing photo cropping with no explicit user effort. Includes an algorithm for identifying important photo content that should be broadly useful in gaze-based interaction with photographs.

[PAPER] Tabletop Sharing of Digital Photographs for the Elderly

Trent Apted, Judy Kay, *University of Sydney, Australia*
Aaron Quigley, *University College Dublin, Ireland*

Usability studies of digital photograph sharing interfaces for the demographic with the most life experience to share—the elderly—has been neglected. We contribute a novel interface and study.

EXPERIENCE REPORTS

ROOM 511CF

Managing Design

[SESSION CHAIR] Austin Henderson, *Pitney Bowes, USA*

Managing International Usability Projects: Cooperative Strategy

Lada Gorlenko, *IBM, USA*
Sven Krause, *Foviance, UK*

Managing international usability teams using cooperative strategy, particularly the setup and data analysis.

When Design Is Not the Problem: Better Usability Through Non-Design Means

Luke Kowalski, Jeremy Ashley, Misha Vaughan, *Oracle, USA*
In shipping quality software, design is not the hard part. Through interdisciplinary collaboration, design impact can instead be made through non-design means: technology, organizational, legal, marketing, documentation/QA, and development tools.

In Search of End-Users

Rachel K. E. Bellamy, Tracee Vetting Wolf, Rhonda Rosenbaum, *IBM, USA*

In order to learn from end-users we need to find end-users to collaborate with. However, finding end-users can be the hardest part of a project.

SIG

ROOM 515C

The CHI Engineering Community

[ORGANIZERS]

Bonnie E. John, *Carnegie Mellon University, USA*
William Newman, *Consultant, Microsoft, UK*
Alan Blackwell, *Cambridge University, United Kingdom*
Scooter Morris, *University of California, San Francisco, USA*

This SIG will provide a forum for people interested in bringing the best of the field of engineering to the field of HCI.

PANEL

ROOM 517AB

Does Think Aloud Work? How Do We Know?

[PANELISTS]

Judith Ramey, *University of Washington, USA*
 Ted Boren, *The Church of Jesus Christ of Latter-day Saints, USA*

Elisabeth Cuddihy, *University of Washington, USA*

Joe Dummas, *Bentley College, USA*

Zhiwei Guan, *University of Washington, USA*

Maaike J. van den Haak, Menno D.T. De Jong, *University of Twente, Netherlands*

The think-aloud method is widely employed in usability research to gain insights into underlying usability problems, but concerns remain about its validity and usefulness. This panel presents current studies of the think-aloud method, examines its usage in the field, discusses pitfalls that may threaten its validity, and comments on how to apply the method.

PANEL

ROOM 517C

Design Communication: How Do You Get Your Point Across?

[PANELISTS]

Scott Jenson (moderator), *Google, USA*

Harry Sadler, *Nasa, USA*

Charlie Hill, *IBM Software Group, USA*

Carl DiSalvio, *Carnegie Mellon University, USA*

One of the core issues of design is communication. Not only between designers, but just as importantly between managers and developers. There hasn't been much discussion in the design community on how to communicate design.

PAPERS

ROOM 511ABDE

Privacy 2

[SESSION CHAIR] Ian Smith, *Intel, USA*

[PAPER] Keeping Up Appearances: Understanding the Dimensions of Incidental Information Privacy

Kirstie Hawkey, Kori Inkpen, *Dalhousie University, Canada*

Survey investigated the privacy of incidental information visible in web browsers. Provides understanding of dimensions of privacy that combine to affect a user's comfort level when others view their display.

[PAPER] Being Watched or Being Special: How I Learned to Stop Worrying and Love Being Monitored, Surveilled, and Assessed

Erica Robles, Abhay Sukumaran, Kathryn Rickertsen, Cliff Nass, *Stanford University, USA*

Experimental study shows that rationale mediates perceptions and judgments of being monitored and evaluated in public/private. Interdisciplinary understanding of social aspects of public/private suggested as needed research area.

PAPERS

ROOM 516C

Pen

[SESSION CHAIR] Jean-Marc Robert, *Ecole Polytechnique de Montréal, Canada*

[PAPER] Effectiveness of Annotating by Hand for Non-Alphabetical Languages

Muhd Dzulkhiflee Hamzah, Shun'ichi Tano, Mitsuru Iwata, Tomonori Hashiyama, *The University of Electro-Communications, Japan*

Describes a quantitative analysis of the effectiveness of hand-written annotations during a note-taking task in Japanese. Can assist in developing better annotation systems for non-alphabetical languages such in East Asian countries.

[PAPER] Speech Pen: Predictive Handwriting Based on Ambient Multimodal Recognition

Kazutaka Kurihara, *The University of Tokyo*, Japan
 Masataka Goto, Jun Ogata, *National Institute of Advanced Industrial Science and Technology, Japan*,
 Takeo Igarashi, *The University of Tokyo & JST*, Japan
 Shows that handwriting with prediction can be useful in Japanese, and presents a prototype system using speech and handwriting recognition. Can make digital writing faster and more efficient.

[PAPER] Hover Widgets: Using the Tracking State to Extend the Capabilities of Pen-Operated Devices

Tovi Grossman, *Microsoft and University of Toronto*, USA & Canada
 Ken Hinckley, Patrick Baudisch, *Microsoft*, USA
 Maneesh Agrawala, *Microsoft and University of California, Berkeley*, USA
 Ravin Balakrishnan, *University of Toronto*, Canada
 The paper presents Hover-Widgets, a new technique for pen-based interfaces using gestures made in the tracking state. We found Hover Widgets to have beneficial qualities in a formal evaluation.

PAPERS

ROOM 516AB

Everyday Use of Mobiles

[SESSION CHAIR] Pannu Korhonen, Nokia, Finland

[PAPER] Everyday Practices with Mobile Video Telephony

Kenton O'Hara, *Hewlett-Packard*, UK
 Alison Black, *Alison Black Research and Consulting*, UK
 Matthew Lipson, *Orange*, UK

The paper presents a study of everyday use of mobile video telephony. Real use episodes highlight key motivations underlying video calling and the social and practical barriers that hinder it.

[CHI NOTE] Sashay: Designing for Wonderment

Eric Paulos, Chris Beckmann, *Intel*, USA

Presents a cultural perspective on locative media, and descriptions of two projects that intervene in the urban landscape. Provides a strong rethinking of methods and goals for designing systems in urban context.

[CHI NOTE] Urbanhermes: Social Signaling with Electronic Fashion

Christine M. Liu, Judith S. Donath, *MIT*, USA
 Describes a prototype 'communicative accessory', a brief user study and the underlying conceptual framework for social signaling. Draws insights for the design of 'fashion signaling' systems.

[PAPER] Because I Carry My Cell Phone Anyway: Functional Location-Based Reminder Applications

Pamela J. Ludford, Dan Frankowski, Ken Reilly, Kurt Wilms, Loren Terveen, *University of Minnesota*, USA
 Develops a novel location-based reminder system. Demonstrates its utility for everyday task management and identifies a rich model for effective location-based information delivery.

INTERACTIVITY

ROOM 510ABCD

Touch Me: Haptics and Clothes

[SESSION CHAIR] Eric Lee, RWTH Aachen University, Germany

MultiVis: Improving Access to Visualisations for Visually Impaired People

David McGookin, Stephen Brewster, *University of Glasgow*, Scotland

Illustrates a system to construct and browse mathematical graphs using haptic and auditory feedback. Points to better ways for visually impaired users to create and interact with graph-based data representations.

A Haptic Memory Game Using the STReSS2 Tactile Display

Qi Wang, Vincent Levesque, Jerome Pasquero, Vincent Hayward, *McGill University*, Canada

Presents a memory card game that uses tactile feedback on the finger tip to distinguish cards. Showcases a new 2D haptic display and three different tactile rendering techniques.

Memory-Rich Clothing

Joanna Berzowska, Marcelo Coelho, *Concordia University*, Canada

This paper describes conceptual and technical prototypes of reactive body-worn artifacts that display their history of use and communicate physical (or embodied) memory.

PAPERS

ROOM 516DE

Visualization 1

[SESSION CHAIR] Mary Czerwinski, *Microsoft, USA*

[PAPER] **GUESS: A Language and Interface for Graph Exploration**

Eytan Adar, *University of Washington, USA*

The main contributions of GUESS are a) the design of a domain-specific language for graph exploration and the experience of its design and b) the interactive interpreter which connects visual components to the programming environment.

[PAPER] **The Sandbox for Analysis—Concepts and Evaluation**

William Wright, David Schroh, Pascale Proulx, Alex Skaburskis, Brian Cort, *Oculus, Canada*

New sense-making system uses innovative human information interactions and visualizations to provide flexible, expressive thinking environment for analysis. Experiments show it's easy to learn, encourages best practices and saves time.

[PAPER] **Visual Exploration of Multivariate Graphs**

Martin Wattenberg, *IBM, USA*

This paper describes a new visualization technique for a common type of graph structure. We believe it is broadly applicable and a useful complement to current graph visualization methods.

HCI OVERVIEWS

ROOM 511CF

HCI Overviews 1

[SESSION CHAIR] David Millen, *IBM, USA*

UCD of Financial Services at the Smart Internet Technology Centre

Supriya Singh, *RMIT University, Australia*

The experience of contributing sociological and anthropological perspectives to the user-centered design of financial services in the Smart Internet Technology Cooperative Research Centre in Australia.

COST294-MAUSE: A Pan European Usability Research Community

Effe Lai-Chong Law, *ETH Zurich, Switzerland*
Ebba Thora Hvannberg, *University of Iceland, Iceland*

COST294-MAUSE is a usability research community whose goal is to apply more science to usability evaluation methods and transfer this deeper understanding to industry and educators. Its working groups address usability database management, comparative studies, defect classification, and formalized models.

The HTI Lab @ ftw: User Research for Telecom Systems

Peter Fröhlich, Lynne Baillie, Peter Reichl, Raimund Schatz, Florian Hammer, Georg Niklfeid, *Telecommunications Research Center Vienna (ftw.), Austria*

This overview presents the Human-Telecom Systems Interaction Laboratory at the Telecommunications Research Center (FTW), Vienna. The current setup of the HTI Lab and its contributions to related application-oriented projects at FTW are described.

SIG

ROOM 515C

The CHI Management Community

[ORGANIZER]

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

This SIG will provide those interested in the interplay between management and HCI to explore this subject and the ongoing development of the Management Community at the CHI conferences.

PANEL

ROOM 517AB

The Route to the Sea for User Value

[PANELISTS]

Austin Henderson (moderator), *Pitney Bowes, USA*

Lisa Anderson, *Intuit, USA*

Jeremy Ashley, *Oracle, USA*

Patrik Heuman, *Sony Ericsson, USA*

Janice Rohn, *World Savings Bank, USA*

HCI managers with experience in participating in delivering user value as shipping products that make good businesses will discuss the hazards that the product development process holds, and what it takes for HCI managers to ensure that user value remains in the products throughout that process.

INVITED RESEARCH OVERVIEW

ROOM517C

End-User Programming

[SESSION CHAIR] Dan Olsen, *Brigham Young University, USA*

Brad Myers, *Carnegie Mellon University, USA*

In the past few decades there has been considerable work on empowering end users to be able to write their own programs, and as a result, users are indeed doing so. In fact, we estimate that over 12 million people in American workplaces would say that they do programming at work, and almost 50 million people use spreadsheets or databases (and therefore may potentially program), compared to only 3 million professional programmers. The motivation for end-user programming is to have the computer be useful for each person's specific individual needs. While the empirical study of programming has been an HCI topic since the beginning of the field, it is only recently that there has been a focus on the End-User Programmer as a separate class from novices who are assumed to be studying to be professional programmers. Another recent focus is on making end-user programming more reliable, using End-User Software Engineering. My presentation will summarize the current and past research in the area of End-User Programming.

[PRESENTER BIO] Brad A. Myers is a Professor in the Human-Computer Interaction Institute in the School of Computer Science at Carnegie Mellon University, where he is the principal investigator for various research projects including: the Pebbles Hand-Held Computer Project, Natural Programming, User Interface Software, and Demonstrational Interfaces. He is the author or editor of over 275 publications, including the books "Creating User Interfaces by Demonstration" and "Languages for Developing User Interfaces," and he is on the editorial board of five journals.

He became an ACM Fellow in 2005, and in 2004, he was elected to the CHI Academy. His research interests include user interface development systems, user interfaces, hand-held computers, programming by example, end-user programming, visual programming, programming language design, interaction techniques, window management, and programming environments.

PAPERS

ROOM 511ABDE

Awareness and Presence

[SESSION CHAIR] Steve Benford, *University of Nottingham, UK*

[PAPER] **From Awareness to Connectedness: The Design and Deployment of Presence Displays**

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

Ed de Guzman, *University of Illinois, Urbana-Champaign, USA*

Describes user-centered process for designing awareness displays and evaluation demonstrating these displays improve sense of awareness and connectedness. Assists display designers in building displays that effectively support awareness and connectedness.

[CHI NOTE] **Negotiating Presence-in-Absence: Contact, Content, and Context**

Steve Howard, *The University of Melbourne, Australia*

Jesper Kjeldskov, Mikael B. Skov, Kasper Garnaaes, Olga

Grünberger, *Aalborg University, Denmark*

Develops an analytic framework integrating previous HCI findings on intimate communication and illustrates it with a case study. Offers a design space for social presence systems.

[CHI NOTE] **Using Linguistic Features to Measure Presence in Computer-Mediated Communication**

Adam D. I. Kramer, *University of Oregon, USA*

Lui Min Oh, *DSO National Laboratories, Singapore*

Susan R. Fussell, *Carnegie Mellon University, USA*

Presents a new technique for measuring presence in computer-mediated communication using linguistic features of dialogues. Provides an easy-to-use method for assessing the effects of communications technologies on presence.

[PAPER] **The Paradox of the Assisted User: Guidance Can Be Counterproductive**

Christof C. van Nimmwegen, *Utrecht University*, Netherlands
 Daniel Burgos, *Open University of the Netherlands*, Netherlands
 Herre H. van Oostendorp, Hermina H.J.M Schijf, *Utrecht University*, Netherlands

This paper contributes to the empirical and cognitive foundation of principles underlying human computer interaction. It shows that guidance in interfaces by externalizing information does not always yield better performance.

PAPERS

ROOM 516C

Healthcare

[SESSION CHAIR] Lisa Neal, *Lisaneal.com*, USA

 **[PAPER]** **Investigating Health Management Practices of Individuals with Diabetes**

Lena Mamykina, *Siemens*, USA
 Elizabeth D. Mynatt, *Georgia Institute of Technology*, USA
 David R. Kaufman, *Columbia University*, USA

The paper presents analysis of diabetes self-management practices using qualitative interviews, an observational study and a technology probe. We draw implications for the design of health monitoring applications.

[PAPER] **Tensions in Designing Capture Technologies for an Evidence-Based Care Community**

Gillian Hayes, Gregory Abowd, *Georgia Institute of Technology*, USA

An analysis of privacy, surveillance, and awareness concerns with regard to evidence-based healthcare and education. The design of socially appropriate capture technologies for the community of stakeholders in this domain.

[CHI NOTE] **Pride and Prejudice: Learning How Chronically Ill People Think about Food**

Katie A. Siek, Kay H. Connelly, Yvonne Rogers, *Indiana University*, USA

Presents a formative study exploring how chronically ill people organize food and read nutrition indicator icons. Can assist researchers develop nutrition applications and motivate participant usage for patient populations.

PAPERS ROOM 516AB
Online Communities

[SESSION CHAIR] John Thomas, *IBM*, USA

[CHI NOTE] **Insert Movie Reference Here: A System to Bridge Conversation and Item-Oriented Web Sites**

Sara Drenner, Max Harper, Dan Frankowski, John Riedl, Loren Terveen, *University of Minnesota*, USA

Describes and evaluates a system that identifies discussion forum movie references to link forums with recommender systems. Suggests a design tradeoff between content augmentation and inter-site navigation.

[CHI NOTE] **Motivating Participation by Displaying the Value of Contribution**

Al M. Rashid, *University of Minnesota*, USA
 Kimberly Ling, Regina D. Tassone, *Carnegie Mellon University*, USA
 Paul Resnick, *University of Michigan*, USA
 Robert Kraut, *Carnegie Mellon University*, USA
 John Riedl, *University of Minnesota*, USA

Describes an experimental study of under-contribution in online communities. Suggests that designers can motivate contributions by giving end-users feedback about its value to others.

[PAPER] **Talk to Me: Foundations for Successful Individual-Group Interactions in Online Communities**

Jaime Arguello, *Carnegie Mellon University*, USA
 Brian S. Butler, *University of Pittsburgh*, USA
 Lisa Joyce, *Edinboro University*, USA
 Robert Kraut, Kimberly Ling, *Carnegie Mellon University*, USA

Xiaoqing Wang, *University of Pittsburgh*, USA
 Longitudinal archival study of newsgroup messages identifying individual, content, and context factors that influence community responsiveness and individual commitment. Results can assist developers building tools to enhance community interactions.

 **[PAPER]** **Routine Patterns of Internet Use and Psychological Well-Being: Coping with a Residential Move**

Irina Shklovski, Robert Kraut, *Carnegie Mellon University*, USA
 Jonathon Cummings, *Duke University*, USA

This paper examines a complex interaction between habitual technology use behaviors and psychological well-being, extending research and raising new questions

PAPERS

ROOM 510ABCD

Visualization 2

[SESSION CHAIR] Martin Wattenberg, *IBM, USA*

[PAPER] **Visualizing Email Content: Portraying Relationships from Conversational Histories**

Fernanda B. Viégas, *IBM, USA*

Scott Golder, *Hewlett-Packard, USA*

Judith Donath, *MIT, USA*

Presents a visualization of email content. Discusses different interaction modes that emerged in user study: exploration of overall trends and detail-oriented investigation. Can help improve user interaction with email archives.

[PAPER] **Clipping Lists and Change Borders: Improving Multitasking Efficiency with Peripheral Information Design**

Tara Matthews, *University of California, Berkeley, USA*

Mary Czerwinski, George Robertson, Desney Tan, *Microsoft, USA*

We compare abstraction techniques in peripheral interfaces to determine their effects on task flow, resumption timing, and reacquisition in multitasking situations. Our empirical results will help guide future peripheral design.

[PAPER] **A Fisheye Follow-up: Further Reflections on Focus + Context**

George Furnas, *University of Michigan, USA*

Further understanding for creating small interfaces to large information worlds, includes unification of several visual techniques, discussion of non-visual fisheye-views, and models for why these kinds of presentations are valuable.

SIG

ROOM 516DE

The CHI Design Community

[ORGANIZERS]

David Gilmore, *Intel, USA*

Kristina Höök, *Swedish Institute of Computer Science, Sweden*

Jon Kolko, *Savannah College of Art and Design, USA*

Bill Lucas, *MAYA, USA*

While most of the HCI literature can be seen as part of an engineering-science practice (with an emphasis on the acquisition and interpretation of ‘facts’), the CHI 2006 Design Community focuses on how arts and engineering come together in the construction, study and interpretation of created objects (maybe more like the study of literature and criticism).

HCI OVERVIEWS

ROOM 511CF

HCI Overviews 2

[SESSION CHAIR] Mike Atwood, *Drexel University, USA*

Games in Asia Project

Vivian Hsueh-Hua Chen, Henry Been-Lirn Duh, *Nanyang Technological University, Singapore*

Beth Kolko, *University of Washington, USA*

Leo Sang-Min Whang, *Yonsei University, Republic of Korea*

Michael Ching-Hui Fu, *Gamania INC, Taiwan*

The new technologies associated with computer games bring tremendous changes in human life at both the individual and societal level. This project seeks to understand the social, cultural, psychological, economic and educational implications of game playing in different Asian regions.

The ChiCI Group

Janet C. Read, Stuart MacFarlane, S. Rebecca Kelly,

Emanuela Mazzone, Matthew Horton, *University of Central Lancashire, UK*

This overview describes the work, the vision, and the approach of the Child Computer Interaction (ChiCI) group at the University of Central Lancashire in the UK. This group, formed four years ago, has grown to become one of the leaders in its field whilst maintaining a democratic structure, an open mind, and an invigorating message.

HCI for Older and Disabled People in the Queen Mother Research Centre at Dundee University, Scotland

Alan F. Newell, Peter Gregor, Alm Norman, *University of Dundee, Scotland*

Research on cognitive support for elderly users. Includes designers, nurses, therapists, linguists, etc.

SIG

ROOM 515CF

The CHI Education Community

[ORGANIZERS]

James Foley, *Georgia Institute of Technology, USA*

Jenny Preece, *University of Maryland, USA*

The purpose of this SIG is to ask “What can the CHI Education Community do for you at CHI conferences?” and to discuss criteria for CHI Education Experience Reports.

Thursday April 27

Day at a Glance

	517 AB	517 C	511 ABDE	516 C	516 AB	510 ABCD	516 DE	511 CF	515 C	513 CD	514 ABC	513 AB	515 AB	
8:30 CHI Madness - Room: 517AB p.74														
9:00 - 10:30	Panel HCI Engineering for Disasters, Driving, & Distributed Work p. 74		Papers Novel Methods: Emotions, Gestures, Events p. 74	Papers Social Computing 2 p. 74	Papers Selecting & Tracking p. 75	Papers Menus p. 75		Experience Reports Creative User Experience Methods p. 76	SIG Tips & Tricks for Better Usability Test Recommendations p. 76	Course 22 The Art of Speaking: Advanced Skills for the Lecture Hall & the Hallway p. 84	Course 24 How to Build Rich Personas from Field Data p. 84	Course 21 Usable for the World: A Practical Guide to International User Studies p. 84		9:00 - 10:30
11:30 - 13:00	Panel The State of Tangible Interfaces: Projects, Studies, & Open Issues p. 77		Papers Beliefs & Affect p. 77		Papers Gestures & Visualizations p. 77	alt.chi Loving Me Loving You p. 78	Papers Disabilities p. 78	Experience Reports User-Centered Design for Learning & Education p. 79	SIG Usability Community: Past, Present, & Future p. 79		Course 25 How to Collect Field Data & Produce a Tested Design in 1-8 Weeks p. 85		Course 26 Usability Design: A New Rational Unified Process Discipline p. 85	11:30 - 13:00
14:30 - 16:00		Panel "It's About the Information, Stupid!" p. 80	Papers Social Computing 3 p. 80	Papers Usability Methods p. 80	Papers Interacting with Large Surfaces p. 81	Papers Computer-Mediated Communication p. 81		Experience Reports Mobile Design Experiences p. 82	SIG Online Health Communities p. 82	Course 23 Designing Responsive Software p. 84				14:30 - 16:00
16:30 - 18:00 Closing Plenary Session: Digital Comics: An Art Form in Transition, Scott McCloud - Room: 517ABC p.83														
COMMONS						NOTES								
<p>Commons Open: 08:00 - 12:00 p. 16</p> <p>Exhibits, Interactivity 10:30 - 12:00 p. 12, 14, 15, 100</p> <p>Focus on Posters 10:30 - 11:30 p. 14, 15, 87</p>														

ROOM 517AB

CHI Madness

8:30 – 9:00

[SESSION CHAIR] Patrick Baudisch, *Microsoft*, USA

Join us again for the session that will tell you what's what and where to go. Presenters for today's sessions will again have less than a minute each to entice you to their session.

[CHI NOTE] **Design and Experimental Analysis of Continuous**

Location Tracking Techniques for Wizard of Oz Testing

Yang Li, Evan Welbourne, *University of Washington*, USA
James A. Landay, *University of Washington & Intel*, USA

Describes and evaluates two new gesture-based techniques for continuously tracking a moving object by hand, for use in Wizard of Oz studies of location-aware systems. Study shows an improvement in terms of task load.

[CHI NOTE] **Measuring Emotional Valence during Interactive**

Experiences: Boys at Video Game Play

Richard L. Hazlett, *Johns Hopkins University*, USA

Describes the use of facial EMG as a measure of positive and negative emotion during interactive computer games. These methods appear useful for associating the player's emotion with game events, and could be applied to HCI in general.

PANEL

ROOM 517AB

Real HCI: What it Takes to do HCI Engineering for Disasters, Driving, and Distributed Work

[PANELISTS]

Stuart Card, *PARC*, USA

Robin Murphy, *University of South Florida*, USA

Judith S. Olson, *University of Michigan*, USA

John D. Lee, *University of Iowa*, USA

William Newman, *Microsoft*, UK

How are interactive technologies helping tackle major societal problems? Panelists will present and contrast four very different yet topical problem domains, describing how HCI research is enabling measurable advances in each. They will join with the audience in discussing how best to engineer progress for society.

PAPERS

ROOM 511ABDE

Novel Methods: Emotions, Gestures, Events

[SESSION CHAIR] Terry Winograd, *Stanford University*, USA

 [PAPER] **Prototyping and Sampling Experience to Evaluate Ubiquitous Computing Privacy in the Real World**

Giovanni Iachello, *Georgia Institute of Technology*, USA

Khair N. Truong, *University of Toronto*, Canada

Gregory D. Abowd, Gillian R. Hayes, *Georgia Institute of Technology*, USA

Molly Stevens, *Logical Design Solutions*, USA

Presents an event-contingent experience sampling technique to gather situated opinions on technology with reference to real-life situations. The technique can improve the design of mobile and ubiquitous computing applications.

PAPERS

ROOM 516C

Social Computing 2

[SESSION CHAIR] Victoria Bellotti, *PARC*, USA

[PAPER] **Using Intelligent Task Routing and Contribution Review to Help Communities Build Artifacts of Lasting Value**

Dan Cosley, Dan Frankowski, Loren Terveen, John Riedl, *University of Minnesota*, USA

We provide researchers and designers with experimentally-supported algorithms and models for influencing and reasoning about contributions to lasting artifacts of value created and maintained by online communities.

[PAPER] **groupTime: Preference Based Group Scheduling**

Mike Brzozowski, Kendra Carattini, Scott Klemmer, Patrick Mihelich, Jiang Hu, Andrew Y. Ng, *Stanford University, USA*

Introduces a user interface that combines machine learning and direct manipulation for lightweight group scheduling, exploiting social pressure while preserving plausible deniability. Describes design implications for similar intelligent user interfaces.

[PAPER] **Accounting for Taste: Using Profile Similarity to Improve Recommender Systems**

Philipp Bonhard, Clare Harries, John McCarthy, M. Angela Sasse, *University College London, UK*

This paper presents insights into user decision-making strategies in online environments. It uses this as a basis to suggest how the utility and usability of recommender systems can be improved.

PAPERS

ROOM 516AB

Selecting and Tracking

[SESSION CHAIR] Brad Myers, *Carnegie Mellon University, USA*

[PAPER] **Face-Tracking as an Augmented Input in Video Games: Enhancing Presence, Role-Playing, and Control**

Shuo Wang, *Microsoft, China*
Xiaocao Xiong, *Tsinghua University, China*
Yan Xu, *Renmin University, China*
Chao Wang, *Tsinghua University, China*
Weiwei Zhang, Xiaofeng Dai, Dongmei Zhang, *Microsoft, China*

We designed and implemented two game prototypes, applying face/head information to different user experiences. These prototypes were based on analysis from prior camera-based games and face tracking technology.

[CHI NOTE] **Direct Pointer: Direct Manipulation for Large-Display Interaction Using Handheld Cameras**

Hao Jiang, *Tsinghua University, China*
Eyal Ofek, *Microsoft, China*
Neema Moraveji, *Microsoft, China*
Yuanchun Shi, *Tsinghua University, China*

Introduces and evaluates a new pointing technique for large (possibly multi-user) displays using input from a hand-held camera. Provides designers with a method with reduced hardware requirements and UI modifications.

[CHI NOTE] **Interacting with Communication Appliances: An Evaluation of Two Computer Vision-Based Selection Techniques**

Jacob Eisenstein, *MIT, USA*
Wendy E. Mackay, *INRIA Futurs, France*

Experimentally compares two computer-vision based selection techniques (object-tracking, motion-sensing). Suggests that designers should consider object-tracking as well as (the widely-accepted) motion-sensing.

[PAPER] **Attention Funnel: Omnidirectional 3D Cursor for Mobile Augmented Reality Platforms**

Frank Biocca, *Michigan State University, USA*
Arthur Tang, *University of Central Florida, USA*
Charles Owen, Fan Xiao, *Michigan State University, USA*

Research contributes unique mobile AR interface technique. General and broad applicability. Guides attention via any location-aware interface including cell phones. Controlled experiment validates improved user performance on search time, consistency, and mental workload.

PAPERS

ROOM 510ABCD

Menus

[SESSION CHAIR] Robert Jacobs, *Tufts University, USA*

[PAPER] **Improving Menu Interaction: A Comparison of Standard, Force Enhanced, and Jumping Menus**

David Ahlstrom, Rainer Alexandrowicz, Martin Hitz, *Klagenfurt University, Austria*

Based on an analysis of low level GUI interaction models, a cursor warping technique to facilitate selection tasks in cascading-pull-down menus is described. The technique can significantly reduce menu-selection times.

[PAPER] **Zone and Polygon Menus: Using Relative Position to Increase the Breadth of Multi-Stroke Marking Menus**

Shengdong Zhao, *University of Toronto, Canada*
Maneesh Agrawala, *University of California, Berkeley & Microsoft, USA*
Ken Hinckley, *Microsoft, USA*

New multi-stroke marking menu designs that consider relative position of strokes to increase menu breadth by 2x or more. User studies show new techniques outperform purely orientation-based menus.

[PAPER] **Measuring the Difficulty of Steering Through Corners**

Robert Pastel, *Michigan Technological University, USA*

Laboratory experiments extend the steering law to negotiating corners. Analysis and models predict the difficulties and illustrate design improvements for menu hierarchies and gestures.

EXPERIENCE REPORTS

ROOM 511CF

Creative User Experience Methods

[SESSION CHAIR] A.J. Brush, *Microsoft, USA*

Developing User Interface Guidelines for DVD Menus

Karin Kappel, Martin Tomitsch, Thomas Koltringer, Thomas Grechenig, *Vienna University of Technology, Austria*

Watching DVDs can be frustrating because their menus are complex and difficult to navigate. The authors present guidelines for designing usable DVD menus and a general methodology for developing user-interface guidelines.

Understanding Users in Consumer Electronics Experience Design

Joonhwan Kim, Sanghee Lee, SungWoo Kim, *Samsung Electronics, Republic of Korea*

The authors describe user research methodologies Samsung Electronics applies to experience design: ethnographic in-home interviews for understanding user requirements, subjective design preference measurements, and a new approach to stimulated recall in usability testing.

AdWords Help Center

Yelena Nakhimovsky, *Google & Georgia Institute of Technology, USA*
 Rudy Schusteritsch, Kerry Rodden, *Google, USA*

The authors describe adapting card-sorting methodology to redesign the information architecture of the Google AdWords Help Center. The process can be applied to other large information sets where traditional card sorting is impractical.

SIG

ROOM 515C

Tips and Tricks for Better Usability Test Recommendations

[ORGANIZERS]
 Rolf Molich, *DialogDesign, Denmark*
 Kyle Pero, *Usable Interface, USA*
 Neha Modgil, *Human Factors International, India*
 Will Schroeder, *The MathWorks, USA*

This SIG will discuss what are useful and usable recommendations, and why some are less valuable than expected. The examples come from the CUE-5 study, where 13 usability teams independently evaluated the IKEA PAX wardrobe planning tool.

PANEL

ROOM 517AB

The State of Tangible Interfaces: Projects, Studies, and Open Issues

[PANELISTS]

Oren Zuckerman, MIT, USA

Brygg Ullmer, *Louisiana State University*, USA

Lars Erik Holmquist, *Viktorja Institute*, Sweden

Hiroshi Ishii, *MIT*, USA

George Fitzmaurice, *Alias*, Canada

Yvonne Rogers, *Indian University*, USA

Wendy Mackay, *I.N.R.I.A.*, France

Tom Rodden, *University of Nottingham*, UK

Pioneers and active researchers in tangible user interfaces (TUIs) will give an up-to-date picture of TUI-related projects, research findings, and industry adoption case studies. The panel will discuss the merits and drawbacks of TUIs, review the open issues in the field, and hopefully help interested researchers to better direct their future research efforts.

PAPERS

ROOM 511ABDE

Beliefs and Affect

[SESSION CHAIR] Elissa Giaccardi, *University of Colorado*, USA

[PAPER] Can a Virtual Cat Persuade You? The Role of Gender and Realism in Speaker Persuasiveness

Catherine Zambaka, Paula Goolkasian, Larry Hodges,
University of North Carolina, Charlotte, USA

Presents findings revealing how virtual characters are as persuasive as real people and that cross-gender interactions transfer to virtual speakers. Explains how virtual characters can be exploited for persuasive interfaces.

[PAPER] The Sensual Evaluation Instrument: Developing an Affective Evaluation Tool

Katherine Isbister, *Rensselaer Polytechnic Institute*, USA
Kristina Höök, *Swedish Institute for Computer Science*,
Sweden

Michael Sharp, *Rensselaer Polytechnic Institute*, USA
Jarmo Laaksolahti, *Swedish Institute for Computer Science*,
Sweden

Describes an instrument for collecting real-time self-assessment of affect. Portable, may work across cultures, offers consistency and flexibility. Can help elicit emotional feedback quickly and easily during the design process.

[CHI NOTE] Listening to Your Inner Voices: Investigating Means for Voice Notifications

Saurabh Bhatia, Scott McCrickard, *Virginia Tech*, USA

Reports on an user study of the notification qualities of voice and the development and deployment of a system exploiting the results. Suggests that voice familiarity is a useful property for notification.

PAPERS

ROOM 516AB

Gestures and Visualizations

[SESSION CHAIR] Deborah Tatar, *Virginia Polytechnic Institute and State University*, USA

[PAPER] Collaborative Coupling Over Tabletop Displays

Anthony Tang, Melanie Tory, Barry Po, *University of British Columbia*, Canada

Petra Neumann, Sheelagh Carpendale, *University of Calgary*,
Canada

Describes two observational studies investigating group cohesion for visualization tasks on an interactive tabletop display. Presents design guidelines based on six identified styles of group cohesion.

[PAPER] Comparing Remote Gesture Technologies for Supporting Collaborative Physical Tasks

David Kirk, *University of Nottingham*, UK
Danae Stanton-Fraser, *University of Bath*, UK

A study comparing performance in a collaborative assembly task using remote gesture systems constructed with combinations of three different gesture formats. Results are of benefit to those developing gesture systems.

[PAPER] Cooperative Gestures: Multi-User Gestural Interactions for Co-Located Groupware

Meredith Ringel Morris, *Stanford University*, USA
Anqi Huang, *Harvard University*, USA
Andreas Paepcke, Terry Winograd, *Stanford University*, USA

We define cooperative gesturing and discuss appropriate application scenarios for this multi-user interaction technique. We present an implementation of cooperative gestures and discuss lessons learned from observations of system use.

alt.chi

ROOM 510ABCD

Loving Me Loving You

[SESSION CHAIR] Michael Lyons, *Advanced Telecommunications Research Labs, Japan*

I Just Clicked To Say I Love You: Rich Evaluations of Minimal Communication

Joseph 'Jofish' Kaye, *Cornell University, USA*

Describes a method for developing an in-depth understanding of a subject's technology use. Studies five couples in long-distance relationships and their use of a simple technology design to transmit intimacy.

ComSlipper: An Expressive Design to Support Awareness and Availability

Chun-Yi Chen, Jodi Forlizzi, Pamela Jennings, *Carnegie Mellon University, USA*

An emotionally rich communication device that supports showing presence and availability. Can help the user to initiate a socially appropriate conversation, and ultimately, enhance the quality of computer-mediated relationships.

Lover's Cups: Drinking Interfaces as New Communication Channels

Hyemin Chung, Chia-Hsun Jackie Lee, Ted Selker, *MIT, USA*

We suggest a new kind of communication channel, social drinking interactions, and test its potential in remote communications.

AuraOrb: Social Notification Appliance

Mark Altosaar, Roel Vertegaal, Changuk Sohn, Daniel Cheng, *Queen's University, Canada*

Discusses the design of a ambient notification appliance that implements progressive notification techniques through the use of eye contact sensing.

Dance Your Work Away: Exploring Step User Interfaces

Brian Meyers, A.J. Bernheim Brush, Steve Drucker, Marc A. Smith, Mary Czerwinski, *Microsoft, USA*

Formative evaluation of novel step user interfaces to encourage physical movement and promote enjoyment while completing real world tasks. Provides design considerations for step user interfaces.

The Affective Remixer: Personalized Music Arranging

Jae-woo Chung, G. Scott Vercore, *MIT, USA*

Describes a mechanism for using affect data in real time to modify the experience of playing of music. Such systems have the potential to modify users' affective state.

PAPERS

ROOM 516DE

Disabilities

[SESSION CHAIR] Gilbert Cockton, *University of Sunderland, UK*

[PAPER] Feeling What You Hear: Tactile Feedback for Navigation of Audio Graphs

Steven Wall, Stephen Brewster, *University of Glasgow, Scotland*

Presents guidelines and a prototype evaluation using tactile feedback to support point-and-click interaction for data access by sight impaired users. Can assist in developing accessible multimodal interfaces.

[PAPER] Remote Usability Evaluations with Disabled People

Helen Petrie, *University of York, UK*
Fraser Hamilton, Neil King, Pete Pavan, *Designed for All, UK*

Two case studies describing the use of remote evaluation techniques with disabled participants. Can assist in understanding the advantages and disadvantages of using remote techniques with disabled users.

[PAPER] Desperately Seeking Simplicity: How Young Adults with Cognitive Disabilities and Their Families Adopt Assistive Technologies

Melissa Dawe, *University of Colorado, Boulder, USA*

Case studies describing how families with individuals with cognitive disabilities adopt and incorporate assistive technologies. Illuminates the complexity of the adoption process and presents clear recommendations for assistive technology designers.

[CHI NOTE] **Adaptive Language Behavior in HCI: How Expectations and Beliefs About a System Affect Users' Word Choice**

Jamie Pearson, *University of Edinburgh*, Scotland
 Jiang Hu, *Stanford University*, USA
 Holly P. Branigan, Martin J. Pickering, *University of Edinburgh*, Scotland
 Cliff I. Nass, *Stanford University*, USA

Experimentally demonstrates that users adapt language behaviors depending on beliefs about the sophistication of a system. Suggests that designers should attend to relevant 'non-functional' system characteristics.

SIG

ROOM 515C

Usability Community: Past, Present, and Future

[ORGANIZERS]
 Janice Rohn, *World Savings Bank*, USA
 Stephanie Rosenbaum, *Tec-Ed, Inc.*, USA

This SIG is sponsored by the CHI 2006 and CHI 2007 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.

EXPERIENCE REPORTS

ROOM 511CF

User-Centered Design for Learning and Education

[SESSION CHAIR] Gregory Abowd, *Georgia Institute of Technology*, USA

Evaluating Web Lectures as an Alternative Approach to Education: A Case Study from HCI

Jason A. Day, James D. Foley, *Georgia Institute of Technology*, USA

Presents a novel use of educational technology, and a longitudinal study demonstrating its effectiveness for HCI education. Illustrates use of HCI methodology for educational technology design and evaluation.

Practical Service Learning Issues in HCI

Jennifer Mankoff, *Carnegie Mellon University*, USA

Presents an approach to incorporating service learning into undergraduate human-computer interaction teaching. Provides practical guidance for using service learning in regularly-taught, large courses.

HCI Techniques from Idea to Deployment: A Case Study for a Dynamic Learning Environment

John C. Thomas, Robert Farrell, *IBM*, USA

The authors describe HCI techniques employed for iterative design and evaluation of a 'Dynamic Learning Environment' now in use at IBM, that extends XML standards for digital content (the IEEE Learning Object Metadata Standard).

PANEL

ROOM 517C

“It’s About the Information, Stupid!”, Why We Need a Separate Field of Human- Information Interaction

[PANELISTS]

William Jones, *University of Washington*, USA
 Peter Pirulli, Stuart Card, *PARC*, USA
 Rava Fidel, *University of Washington*, USA
 Nahum Gershon, *The Mitre Corporation*, USA
 Peter Morville, *Semantic Studios*, USA
 Bonnie Nardi, *University of California, Irvine*, USA
 Daniel M. Russell, *Google*, USA

The past few years have seen increasing discussion of the need for—even the inevitability of—a field of human-information interaction (HII). The ‘I’ in HII implies a focus on information and not computing technology. The panel is structured to encourage an exploration of both pros and cons in favor of a separate field of HII. Panelists provide a diversity of perspectives from several different disciplines and research traditions including cognitive modeling and the study of human cognition, information science, information architecture, personal information management, ethnography, and anthropology.

PAPERS

ROOM 511ABDE

Social Computing 3

[SESSION CHAIR] Jeremy Birnholtz, *University of Toronto*, Canada

[PAPER] Collective Creation and Sense-Making of Mobile Media

Antti Salovaara, Giulio Jacucci, Antti Oulasvirta, Timo Saari, Pekka Kanerva, Esko Kurvinen, Sauli Titta, *Helsinki Institute for Information Technology*, Finland

Analyzing a field trial of a prototype we show the importance of collective use of mobile group media and its connections to social achievements, presence, and shared experience between people.

[CHI NOTE] Watching the Cars Go Round and Round: Designing for Active Speaking

Mattias Esbjörnsson, *Interactive Institute*, Sweden
 Barry Brown, *University of Glasgow*, Scotland
 Oskar Juhlin, Daniel Normark, Mattias Östergren, *Interactive Institute*, Sweden

Eric Laurier, *University of Edinburgh*, Scotland

Presents a study of audiences in car rally events and a prototype to support active spectating. Draws implications for the design of technology for sport audiences.

[CHI NOTE] Ethnography in the Kindergarten: Examining Children’s Play Experiences

Peta Wyeth, *University of Queensland*, Australia

Explores the effectiveness of an ethnographic study in supporting the design of playful technology for young children. Provides designers with useful guidelines for developing technology for kindergarten environments.

[CHI NOTE] Robot-Human Interaction with an Anthropomorphic Percussionist

Gil Weinberg, Scott Driscoll, *Georgia Institute of Technology*, USA

Describes a perceptual robotic percussionist that combines the power of computational modeling with the richness, visual interactivity, and expression of acoustic playing. Can provide novel expressive interactive musical experiences.

PAPERS

ROOM 516C

Usability Methods

[SESSION CHAIR] Alistair Sutcliffe, *University of Nottingham*, UK

[PAPER] Breaking the Fidelity Barrier: An Examination of our Current Characterization of Prototypes and an Example of a Mixed-Fidelity Success

Michael McCurdy, *NASA*, USA
 Christopher Connors, *Apple*, USA
 Guy Pyrzak, *San Jose State University Foundation*, USA
 Bob Kanefsky, *University of California, Santa Cruz*, USA
 Alonso Vera, *Carnegie Mellon University*, USA

This paper presents a method for characterizing prototypes and an example prototype constructed using this method. Applying this method can yield more focused prototype development and better return on investment.

[PAPER] Getting the Right Design and the Design Right: Testing Many is Better Than One

Maryam Tohidi, *University of Toronto*, Canada
 William Buxton, *Microsoft*, Canada
 Ronald Baecker, *University of Toronto*, Canada
 Abigail Sellen, *Microsoft*, UK

Experiment demonstrates the impact of evaluating three meaningfully distinct designs in one usability session, rather than just one. Brings process in line with design practice and provides more accurate results.

[PAPER] The Validity of the Stimulated Retrospective Think-Aloud Method as Measured by Eye Tracking

Zhiwei Guan, Shirley Lee, Elisabeth Cuddihy, Judith Ramey, *University of Washington*, Seattle, USA

Provides evidence that retrospective think aloud (RTA) method provides valid and reliable information about users' performance. Supports the use of RTA to assess and identify usability issues.

PAPERS

ROOM 516AB

Interacting with Large Surfaces

[SESSION CHAIR] Scott Klemmer, *Stanford University*, USA

[PAPER] Precise Selection Techniques for Multi-Touch Screens

Hrvoje Benko, *Columbia University*, USA
 Andrew Wilson, Patrick Baudisch, *Microsoft*, USA

Our novel interaction techniques, called Dual Finger Selections, enable pixel-accurate selections on multi-touch screens. Our user study confirmed their low error rate performance and resilience to varying input noise.

[PAPER] TeamTag: Exploring Centralized versus Replicated Controls for Co-Located Tabletop Groupware

Meredith Ringel Morris, Andreas Paepcke, Terry Winograd, Jeannie Stamberger, *Stanford University*, USA

We describe an experiment comparing two alternative widget layout schemes for a collaborative tabletop interface. We discuss the benefits and drawbacks of each design based on our experimental results.

[PAPER] Keepin' It Real: Pushing the Desktop Metaphor with Physics, Piles, and the Pen

Anand Agarawala, Ravin Balakrishnan, *University of Toronto*, Canada

Contributes interaction and visualization techniques for a new physically realistic pen-based desktop using piles and casual object organization. Benefits to designers of pen-centric interfaces.

PAPERS

ROOM 510ABCD

Computer-Mediated Communication

[SESSION CHAIR] Bo Begole, *PARC*, USA

[PAPER] Synchronous Broadcast Messaging: The Use of ICT

Justin D. Weisz, *Carnegie Mellon University*, USA
 Thomas Erickson, Wendy A. Kelloff, *IBM*, USA

An empirical characterization of the use of a novel broadcast messaging system in a large organization. Such characterizations are an essential part of the research base for CMC and CSCW.

[PAPER] The Impact of Delayed Visual Feedback on Collaborative Performance

Darren Gergle, Robert Kraut, Susan Fussell, *Carnegie Mellon University*, USA

This work provides a detailed description of how pairs deal with visual delay in collaborative environments. The results inform the future development and deployment of such technologies.

[PAPER] Collocation Blindness in Partially Distributed Groups: Is There a Downside to Being Collocated?

Nathan Bos, Judith S. Olson, Ning Nan, *University of Michigan*, USA
 N. Sadat Shami, *Cornell University*, USA
 Susannah Hoch, *Draper Laboratory*, USA
 Erik Johnston, *University of Michigan*, USA

Collocation, or working in one location, usually benefits work teams. But our recent experiments shows circumstances where 'collocation blindness' makes people ignore the outside world, to their detriment.

EXPERIENCE REPORTS

ROOM 511 CF

Mobile Design Experiences

[SESSION CHAIR] Aaron Marcus, *Aaron Marcus Associates, USA*

Combining Multiple Gaming Interfaces in Epidemic Menace

Irma Lindt, Jan Ohlenburg, Uta Pankoke-Babatz, Wolfgang Prinz, *Fraunhofer FIT, Germany*
Shiha Ghellal, *Sony NetServices, Germany*

A crossmedia game, Epidemic Menace, including a game board station, a mobile assistant and a mobile Augmented Reality (AR) system is described. Early results of an ethnographic observation are described, showing how the different gaming interfaces were used by the players to observe, collaborate and interact within the game.

Discovering Design Drivers for Mobile Media Solutions

Akseli Anttila, Younghye Jung, *Nokia, Finland*

By comparing the results of studies separated both by geographical and chronological space a set of constant design drivers was discovered. These were applied to a number of different design projects in the domain of mobile media.

Mobile Blogging: Experiences of Technologically Inspired Design

Russell Beale, *University of Birmingham, UK*

A technologically led design approach towards creating new artefacts is discussed, and the details of the architecture, design, and acceptability of the resulting system to support mobile blogging, called SmartBlog.

SIG

ROOM 515C

Online Health Communities

[ORGANIZERS]

Lisa Neal, *eLearn Magazine, USA*
Gitte Lindgaard, Kate Oakley, *Carleton University, Canada*
Derek Hansen, *University of Michigan, USA*
Sandra Kogan, *IBM, USA*

The importance of on-line health communities is evidenced by their popularity, as well as the significant impact they have on the lives of their members. This Special Interest Group (SIG) will explore current trends in online health communities, as well as discuss the socio-technical design challenges and opportunities that they afford.

CLOSING PLENARY SESSION

ROOM 517AB

Digital Comics: An Art Form in Transition

Scott McCloud, *scottmccloud.com*, USA

In the last 20 years, comics in its printed incarnation has struggled toward maturity through 'graphic novels'. Now, that same art form is entering a new infancy on the web and other digital venues, raising fundamental questions about the reading experience, the functions of storytelling media in society, how art forms adapt to dominant technologies, and the role of space in information design. Cartoonist and author Scott McCloud explores these and other questions in a fast-moving visual presentation.

[PRESENTER BIO] Scott McCloud has been writing and drawing independent comic books since 1984. His book "Understanding Comics" was a New York Times Notable book for 1994, is available in 15 languages. McCloud has lectured on comics and digital media at Harvard University, Pixar Animation Studios, Microsoft, and The Smithsonian Institution. His 5-Day Seminar in making comics was most recently held at MIT. McCloud's online comics can be found at scottmccloud.com

