
Curriculum Vitae

Scott E. Hudson

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Educational Background

Ph.D., August 1986, University of Colorado, Computer Science.

M.S., August 1983, Arizona State University, Computer Science.

B.S. (Magna Cum Laude), May 1982, Arizona State University, Computer Science.

Academic Positions

Professor, Human-Computer Interaction Institute, Carnegie Mellon University
July 2005 – Present

Associate Professor, Human-Computer Interaction Institute, Carnegie Mellon University
August 1997 – June 2005

Associate Professor, College of Computing, Georgia Institute of Technology
January 1992 - July 1997

Assistant Professor, Department of Computer Science, University of Arizona
August 1986 - December 1991

Other Positions

Visiting Faculty, Disney Research, Pittsburgh, Pennsylvania
June - July 2012, June - July 2013.

Visiting Faculty, Intel Research, Seattle, Washington
September 2006 – February 2007

Visiting Researcher, Microsoft Research, Redmond, Washington
May– August 2006 and June – August 2011

Faculty Associate, US West Advanced Technologies, Boulder, Colorado
January 1995 – June 1995

Research Interests

Area: Technical Human-Computer Interaction

Recent work includes:

Architectural support for inputs with ambiguity, new fabrication techniques for HCI, situationally appropriate interaction, inattentive and inexact interaction, and technology support for aspects of aesthetics, design, and desirability in the user interface.

Previous work includes:

Interaction techniques, user interface toolkits, user interface management systems, constraint systems in user interfaces, computer supported cooperative work, media spaces and support for awareness in distributed work groups, hybrid paper-electronic interfaces, and multimedia systems.

Research

Theses

Ph.D., Computer Science, University of Colorado, August 1986.

Thesis: "A User Interface Management System Which Supports Direct Manipulation".

Thesis advisor: Professor Roger King.

M.S., Computer Science, Arizona State University, August 1983.

Thesis: "Code Space Savings by Automatic Introduction of Procedure Calls".

Thesis advisor: Professor Brian Hansche.

Refereed Publications in Top Venues

Scott Hudson, "Printing Teddy Bears: A Technique for 3D Printing of Soft Interactive Objects", to appear in *Proceedings of the CHI '14 Conference on Human Factors in Computing Systems*, April 2014. (Best Paper Award Honorable Mention)

Chris Harrison, Robert Xiao, Julia Schwarz, Scott Hudson, "TouchTools: Leveraging Familiarity and Skill with Physical Tools to Augment Touch Interaction", to appear in *Proceedings of the CHI '14 Conference on Human Factors in Computing Systems*, April 2014.

Julia Schwarz, Charles Marais, Tommer Leyvand, Scott Hudson, Jennifer Mankoff, "Combining Body Pose, Gaze, and Gesture to Combining Body Pose, Gaze, and Gesture to Determine Intention to Interact in Vision-Based Interfaces", to appear in *Proceedings of the CHI '14 Conference on Human Factors in Computing Systems*, April 2014.

Julia Schwarz, Robert Xiao, Jennifer Mankoff, Scott Hudson, Chris Harrison, "Probabilistic Palm Rejection Using Spatiotemporal Touch Features and Iterative Classification", to appear in *Proceedings of the CHI '14 Conference on Human Factors in Computing Systems*, April 2014.

Marynel Vázquez, Aaron Steinfeld, Scott Hudson, Jodi Forlizzi, "Spatial and Other Social Engagement Cues in a Child-Robot Interaction: Effects of a Sidekick", *Proceedings of the ACM/IEEE international conference on Human-robot interaction*, pp. 391-398, March 2014. Available from: <http://doi.acm.org/10.1145/2559636.2559684>

Amy Hurst, Scott Hudson, Jennifer Mankoff, Shari Trewin, "Distinguishing Users by Pointing Performance in Laboratory and Real World Tasks", *ACM Transactions on Accessible Computing*, v5 n2, 27 pages, October 2013. Available from: <http://doi.acm.org/10.1145/2517039>

Eric Brockmeyer, Ivan Poupyrev, and Scott Hudson, "PAPILLON: Designing Curved Display Surfaces With Printed Optics", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 457-462, October, 2013. (Best Paper Award Honorable Mention) Available from: <http://doi.acm.org/10.1145/2501988.2502027>

Robert Xiao, Chris Harrison, Karl Willis, Ivan Poupyrev and Scott Hudson, "Lumitrack: High Speed, High Precision, Low-Cost Tracking with Projected m-Sequences", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 3-12, October, 2013. Available from: <http://doi.acm.org/10.1145/2501988.2502022>

Robert Xiao, Chris Harrison, and Scott Hudson, "WorldKit: Rapid and Easy Creation of Ad-hoc Interactive Applications on Everyday Surfaces", *Proceedings of the CHI '13 Conference on Human Factors in Computing Systems*, pp. 879-888, April 2013. Available from: <http://doi.acm.org/10.1145/2470654.2466113>

Karl Willis, Eric Brockmeyer, Ivan Poupyrev, and Scott Hudson, "Printed Optics: 3D Printing of Embedded Optical Elements for Interactive Devices", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 589-598, October, 2012. (Best Paper Award Honorable Mention) Available from: <http://doi.acm.org/10.1145/2380116.2380190>

Chris Harrison, Robert Xiao, and Scott Hudson, "Acoustic Barcodes: Passive, Durable and Inexpensive Notched Identification Tags", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 563-568, October, 2012. Available from: <http://doi.acm.org/10.1145/2380116.2380187>

Chris Harrison, and Scott Hudson, "Utilizing Shear as a Supplemental Two – Dimensional Input Channel for Rich Touchscreen Interaction", *Proceedings of the CHI '12 Conference on Human Factors in Computing Systems*, pp. 3149-3152, May 2012. Available from: <http://doi.acm.org/10.1145/2207676.2208730>

Chris Harrison, John Horstman, Gary Hsieh, and Scott Hudson, "Unlocking the Expressivity of Point Lights", *Proceedings of the CHI '12 Conference on Human Factors in Computing Systems*, pp. 1683-1692, May 2012. (Best Paper Award Honorable Mention) Available from: <http://doi.acm.org/10.1145/2207676.2208296>

Karl Willis, Ivan Poupyrev, Scott Hudson, and Moshe Mahler, "SideBySide: Ad-hoc Multi-user Interaction with Handheld Projectors", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 431-440, October, 2011. (Best Paper Award) Available from: <http://doi.acm.org/10.1145/2047196.2047254>

Julia Schwarz, Jennifer Mankoff, and Scott Hudson, "Monte Carlo Methods for Managing Interactive State, Action and Feedback Under Uncertainty", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 235-244, October, 2011. Available from: <http://doi.acm.org/10.1145/2047196.2047227>

Chris Harrison, and Scott Hudson, "A New Angle on Cheap LCDs: Making Positive Use of Optical Distortion", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 537-540, October, 2011. Available from: <http://doi.acm.org/10.1145/2047196.2047266>

Chris Harrison, Julia Schwarz, and Scott Hudson, "TapSense: Enhancing Finger Interaction on Touchscreens", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 627-636, October, 2011. Available from: <http://doi.acm.org/10.1145/2047196.2047279>

Chris Harrison Gary Hsieh, Karl Willis, Jodi Forlizzi, and Scott Hudson, "Kineticons: Using Iconographic Motion in Graphical User Interface Design", *Proceedings of the CHI '11 Conference on Human Factors in Computing Systems*, pp. 1999-2008, May 2011. (Best Paper Award Honorable Mention) Available from: <http://doi.acm.org/10.1145/1978942.1979232>

Gary Hsieh, Scott Hudson , and Robert Kraut "Donate for Credibility: How Contribution Incentives Can Improve Credibility", *Proceedings of the CHI '11 Conference on Human*

Factors in Computing Systems, pp. 305-314, May 2011.

Available from: <http://doi.acm.org/10.1145/1753326.1753373>

Julia Schwarz, Scott Hudson, Jennifer Mankoff, and Andrew Wilson, "A Framework for Robust and Flexible Handling of Inputs with Uncertainty", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 47-56, October, 2010.

Available from: <http://doi.acm.org/10.1145/1866029.1866039>

Gary Hsieh, Robert Kraut, and Scott Hudson, "Why Pay?: Exploring How Financial Incentives are Used for Question & Answer", *Proceedings of the CHI '10 Conference on Human Factors in Computing Systems*, pp. 305-314, April 2010.

Available from: <http://doi.acm.org/10.1145/1753326.1753373>

Chris Harrison Zhiquan Yeo, and Scott Hudson, "Faster Progress Bars: Manipulating Perceived Duration with Visual Augmentations", *Proceedings of the CHI '10 Conference on Human Factors in Computing Systems*, pp. 1545-1548, April 2010. (Best Paper Award Honorable Mention)

Available from: <http://doi.acm.org/10.1145/1753326.1753556>

Chris Harrison Anind Dey, and Scott Hudson, "Evaluation of Progressive Image Loading Schemes", *Proceedings of the CHI '10 Conference on Human Factors in Computing Systems*, pp. 1549-1552, April 2010.

Available from: <http://doi.acm.org/10.1145/1753326.1753557>

Chris Harrison and Scott Hudson, "Minput: Enabling Interaction on Small Mobile Devices with High-Precision, Low-Cost, Multipoint Optical Tracking", *Proceedings of the CHI '10 Conference on Human Factors in Computing Systems*, pp. 1661-1664, April 2010. (Best Paper Award Honorable Mention)

Available from: <http://doi.acm.org/10.1145/1753326.1753574>

Julia Schwarz, Chris Harrison, Scott Hudson, and Jennifer Mankoff, "Cord Input: An Intuitive, High-Accuracy, Multi-Degree-of-Freedom Input Method for Mobile Devices", *Proceedings of the CHI '10 Conference on Human Factors in Computing Systems*, pp. 1657-1660, April 2010.

Available from: <http://doi.acm.org/10.1145/1753326.1753573>

Chris Harrison and Scott Hudson, "Abracadabra: Wireless, High-Precision, and Unpowered Finger Input for Very Small Mobile Devices", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 121-124, October 2009.

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Chris Harrison and Scott Hudson, "Providing Dynamically Changeable Physical Buttons on a Visual Display", *Proceedings of the CHI '09 Conference on Human Factors in Computing Systems*, pp. 299-308, April 2009.

Available from: <http://doi.acm.org/10.1145/1518701.1518749>

Chris Harrison and Scott Hudson, "Texture Displays: A Passive Approach to Tactile Presentation", *Proceedings of the CHI '09 Conference on Human Factors in Computing Systems*, pp. 261-264, April 2009.

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Chris Harrison, Brian Lim, Aubrey Shick and Scott Hudson, "Where to Locate Wearable Displays? Reaction Time Performance of Visual Alerts from Tip to Toe", *Proceedings of the*

CHI '09 Conference on Human Factors in Computing Systems, pp. 941-944, April 2009.
Available from: <http://doi.acm.org/10.1145/1518701.1518845>

Daniel Avrahami, Susan Fussell and Scott Hudson, "IM Waiting: Timing and Responsiveness in Semi-Synchronous Communication", *Proceedings of the ACM Conference on Computer Supported Cooperative Work*, pp. 285-294, November 2008.
Available from: <http://doi.acm.org/10.1145/1460563.1460610>

Gary Hsieh, Robert Kraut, Scott Hudson, and Roberto Weber, "Can Markets Help?: Applying Market Mechanisms to Improve Synchronous Communication", in *Proceedings of the ACM Conference on Computer Supported Cooperative Work*, pp. 535-544, November 2008.
Available from: <http://doi.acm.org/10.1145/1460563.1460648>

Johnny Lee and Scott Hudson, "Foldable Interactive Displays", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 287-290, October 2008.
Available from: <http://doi.acm.org/10.1145/1449715.1449763>

Chris Harrison and Scott Hudson, "Scratch Input: Creating Large, Inexpensive, Unpowered and Mobile Finger Input Surfaces", in *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 205-208, October 2008.
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Chris Harrison and Scott Hudson, "Lightweight Material Detection for Placement-Aware Mobile Computing", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 279-282, October 2008.
Available from: <http://doi.acm.org/10.1145/1449715.1449761>

Predrag Klasnja, Beverly Harrison, Louis LeGrand, Anthony LaMarca, Jon Froehlich, and Scott Hudson, "Using Wearable Sensors and Real Time Inference to Understand Human Recall of Routine Activities", *International Conference on Ubiquitous Computing*, pp. 154-163, September 2008.
Available from: <http://doi.acm.org/10.1145/1409635.1409656>

Ian Li, Gary Hsieh, Anind Dey, Jodi Forlizzi, and Scott Hudson, "Using Visualizations to Increase Compliance in Experience Sampling", *International Conference on Ubiquitous Computing*, pp. 164-167, September 2008.
Available from: <http://doi.acm.org/10.1145/1409635.1409657>

David Grimes, Desney Tan, Scott Hudson, Pradeep Shenoy, and Rajesh Rao, "Feasibility and Pragmatics of Classifying Working Memory Load with an Electroencephalograph", *Proceedings of the CHI '08 Conference on Human Factors in Computing Systems*, pp. 835-844, April 2008. (Best Paper Award Honorable Mention).
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Gary Hsieh, Jennifer Lai, Scott Hudson, and Robert Kraut, "Using Tags to Assist Near-Synchronous Communication", *Proceedings of the CHI '08 Conference on Human Factors in Computing Systems*, pp. 223-226, April 2008.
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Amy Hurst, Jennifer Mankoff, Anind Dey, and Scott Hudson, "Dirty Desktops: Using a Patina of Magnetic Mouse Dust to Make Common Interactor Targets Easier to Select", in *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 183-186, October 2007.

Available from: <http://doi.acm.org/10.1145/1294211.1294242>

Johnny Lee, Scott Hudson, and Paul Dietz "Hybrid Infrared and Visible Light Projection for Location Tracking", in *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 57-60, October 2007.

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Amy Hurst, Scott Hudson, Jennifer Mankoff, "Dynamic Detection of Novice vs. Expert User Without a Task Model", *Proceedings of the CHI '07 Conference on Human Factors in Computing Systems*, pp. 271-280, April 2007.

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Daniel Avrahami, James Fogarty, and Scott Hudson, "Biases in Human Estimation of Interruptibility: Effects and Implications for Practice", *Proceedings of the CHI '07 Conference on Human Factors in Computing Systems*, pp. 50-60, April 2007.

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James Fogarty and Scott Hudson, "Toolkit Support for Developing and Deploying Sensor-Based Statistical Models of Human Situations", *Proceedings of the CHI '07 Conference on Human Factors in Computing Systems*, pp. 135-144, April 2007.

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Daniel Avrahami and Scott Hudson, "Communication Characteristics of Instant Messaging: Effects and Predictions of Interpersonal Relationship", *Proceedings of the ACM Conference on Computer Supported Cooperative Work*, pp. 505-514, November 2006.

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Scott Hudson and Jennifer Mankoff, "Rapid Construction of Functioning Physical Interfaces from Cardboard, Thumbtacks, Tin Foil and Masking Tape", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 289-297, October 2006.

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James Fogarty, Carolyn Au, Scott Hudson, "Sensing from the Basement: A Feasibility Study of Unobtrusive and Low Cost Home Activity Recognition", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 91-100, October 2006.

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Joonhwan Lee, Soojin Jun, Jodi Forlizzi, and Scott Hudson, "Using Kinetic Typography to Convey Emotion in Text-Based Interpersonal Communication. in *Proceedings of the ACM Conference on Designing Interactive Systems (DIS '06)*, pp. 41-69, June 2006.

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Daniel Avrahami and Scott Hudson, "Responsiveness in Instant Messaging: Predictive Models Supporting Inter-Personal Communication", *Proceedings of the CHI '06 Conference on Human Factors in Computing Systems*, pp. 731-740, April 2006.

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Johnny Lee, Scott Hudson, Jay Summet, Paul Dietz, "Moveable interactive projected displays using projector based tracking", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp.63-72, October 2005.

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James Fogarty, Andrew Ko, Htet Htet Aung, Elspeth Golden, Karen Tang, and Scott Hudson,

"Examining Task Engagement in Sensor-Based Statistical Models of Human Interruptibility", *Proceedings of the CHI '05 Conference on Human Factors in Computing Systems*, pp. 331-340, April 2005. (Best Paper Award).

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Scott Hudson, Jennifer Mankoff, Ian Smith, "Extensible Input Handling in the subArctic Toolkit", *Proceedings of the CHI '05 Conference on Human Factors in Computing Systems*, pp. 381-390, April 2005.

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Joonhwan Lee, Jodi Forlizzi, Scott Hudson, "Studying the Effectiveness of MOVE: A Contextually Optimized In-Vehicle Navigation System" *Proceedings of the CHI '05 Conference on Human Factors in Computing Systems*, pp. 571-580, April 2005.

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James Fogarty, Scott Hudson, Chris Atkeson, Daniel Avrahami, Jodi Forlizzi, Sara Kiesler, Johnny Lee, and Jie Yang, "Predicting Human Interruptibility with Sensors", *ACM Transactions on Computer Human Interaction*, v12, n1, pp. 119-146, March 2005.

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Daniel Avrahami, Scott Hudson, "QnA: Augmenting an Instant Messaging Client to Balance User Responsiveness and Performance" in *Proceedings of the ACM Conference on Computer Supported Cooperative Work*, pp. 515-518, November 2004.

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Scott Hudson "Using Light Emitting Diode Arrays as Touch-Sensitive Input and Output Devices", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 287-290, October 2004.

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Johnny Lee, Paul Dietz, Dan Aminzade, Ramesh Raskar, Scott Hudson, "Automatic Projector Calibration with Embedded Light Sensors", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 123-126, October 2004.

Available from: <http://doi.acm.org/10.1145/1029632.1029653>

Johnny Lee, Paul Dietz, Darren Leigh, William Yerazunis, Scott Hudson, "Haptic Pen: A Tactile Feedback Stylus for Touch Displays", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 291-294, October 2004.

Available from: <http://doi.acm.org/10.1145/1029632.1029682>

Johnny Lee, Daniel Avrahami, Scott Hudson, Jodi Forlizzi, Paul Dietz, Darren Leigh, "The Calder Toolkit: Wired and Wireless Components for Rapidly Prototyping Interactive Devices", *Proceedings of the ACM Symposium on Designing Interactive Systems*, pp. 167-175, August 2004.

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James Fogarty, Scott Hudson, "GADGET: a Toolkit for Optimization-Based Approaches to Interface and Display Generation", *ACM Transactions on Graphics (Proceedings of the 2004 SIGGRAPH Conference)*, v23, n3, p. 730, August 2004. (This paper was selected for presentation at a "Best of UIST and VRST" session at the SIGGRAPH conference and is a summary of a paper by the same name appearing in *Proceedings of the ACM Symposium on User Interface Software and Technology*, November 2003.)

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James Fogarty, Scott Hudson, and Jennifer Lai, "Examining the Robustness of Sensor-Based Statistical Models of Human Interruptibility", *Proceedings of the CHI '04 Conference on Human Factors in Computing Systems*, pp. 207-214, April 2004.

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James Fogarty, and Scott Hudson, "GADGET: A Toolkit for Optimization-Based Approaches to Interface and Display Generation", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp.125-134, November 2003.

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Scott Hudson, James Fogarty, Christopher Atkeson, Daniel Avrahami, Jodi Forlizzi, Sara Kiesler, Johnny Lee and Jie Yang "Predicting Human Interruptibility with Sensors: A Wizard of Oz Feasibility Study", *Proceedings of the CHI '03 Conference on Human Factors in Computing Systems*, pp. 257-264, April 2003.

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Jodi Forlizzi, Johnny Lee, and Scott Hudson, "The Kinedit System: Affective Messages Using Dynamic Texts" *Proceedings of the CHI '03 Conference on Human Factors in Computing Systems*, pp. 377-384, April 2003.

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Jacob Wobbrock, Jodi Forlizzi, Scott Hudson, and Brad Myers, "WebThumb: Interaction Techniques for Small-Screen Browsers", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 205-208, October 2002.

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James Fogarty, Jodi Forlizzi, and Scott Hudson, "Specifying Behavior and Semantic Meaning in an Unmodified Layered Drawing Package", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 61-70, October 2002.

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Johnny Lee, Jodi Forlizzi, and Scott Hudson, "The Kinetic Typography Engine: An Extensible System for Animating Expressive Text", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 81-90, October 2002.

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Daniel Avrahami, Scott Hudson, Thomas Moran, and Brian Williams, "Guided Gesture Support in the Paper PDA", *Proceedings of the ACM Symposium on User Interface Software and Technology*, v3, n2, pp. 197-198, November 2001.

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Scott Hudson, Kenichiro Tanaka, "Providing Visually Rich Resizable Images for User Interface Components", *Proceedings of the ACM Symposium on User Interface Software and Technology*, v2, n2, pp. 227-235, November 2000.

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Scott Hudson, Bonnie John, Keith Knudsen, Michael Byrne, "A Tool for Creating Predictive Performance Models from User Interface Demonstrations", *Proceedings of the ACM Symposium on User Interface Software and Technology*, v1, n1, pp. 93-102, November 1999.

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Jeremy Heiner, Scott Hudson, Kenichiro Tanaka, "The Information Percolator: Ambient Information Display in a Decorative Object", *Proceedings of the ACM Symposium on User Interface Software and Technology*, v1, n1, pp. 141-148, November 1999.

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Jeremy Heiner, Scott Hudson, Kenichiro Tanaka, "Linking and Messaging from Real Paper in the Paper PDA", *Proceedings of the ACM Symposium on User Interface Software and Technology*, v1, n1, pp. 179-186, November 1999.

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Dan Olsen, Scott Hudson, Matt Phelps, Jeremy Heiner, and Thom Verratti, "Ubiquitous Collaboration via Surface Representations", *Proceedings of the ACM Conference on Computer Supported Cooperative Work*, pp. 129-138, November 1998.

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David Koller, Mark Mine, Scott Hudson, "Head-Trackd Orbital Viewing: An Interaction Technique for Immersive Virtual Environments" *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 81-82, November 1996.
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Refereed Publications in Other Venues

Stacey Kuznetsov, Scott Hudson, Eric Paulos. "A Low-Tech Sensing System for Particulate Pollution", *Proceedings of the International Conference on Tangible, Embedded and Embodied Interaction*, February 2014.

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Nesra Yannier, Kenneth Koedinger, Scott Hudson, "Tangible Collaborative Learning with a Mixed-Reality Game: EarthShake", *Proceedings of the International Conference on Artificial Intelligence in Education*, pp. 131-140, July 2013.

Stacey Kuznetsov, Will Harrigan-Anderson, Haakon Faste, Scott E. Hudson, Eric Paulos, "Community Engagements with Living Sensing Systems", *Proceedings of the ACM Conference on Creativity and Cognition*, pp. 213-222, June 2013

Chris Harrison, Shilpa Ramamurthy, and Scott Hudson, "On-Body Interaction: Armed and Dangerous", *Proceedings of the International Conference on Tangible, Embedded and Embodied Interaction*, pp. 69-76, February 2012. (Best Student Paper Award)

Brian Lim, Aubrey Schick, Chris Harrison, and Scott Hudson, "Pediluma: Motivating Physical Activity Through Contextual Information and Social Influence" *Proceedings of the International Conference on Tangible, Embedded and Embodied Interaction*, pp. 173-180, January 2011.

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Tom Bartindale, Chris Harrison, Patrick Olivier, and Scott Hudson, "SurfaceMouse: Supplementing Multi-Touch Interaction with a Virtual Mouse" *Proceedings of the*

International Conference on Tangible, Embedded and Embodied Interaction, pp. 293-296, January 2011.

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Stacey Kuznetsov, Scott Hudson and Anind Dey, "The Effectiveness of Haptic Cues as an Assistive Technology for Human Memory", *Proceedings of the International Conference on Pervasive Computing*, pp. 168-175, May 2009.

Chris Harrison and Scott Hudson, "Pseudo-3D Video Conferencing with a Generic Webcam", *Proceedings of the IEEE International Symposium on Multimedia*, pp. 236-241, December 2008.

Amy Hurst, Jennifer Mankoff, and Scott Hudson, "Understanding Pointing Problems in Real World Computing Environments", *Proceedings of the ACM Conference on Computers and Accessibility*, pp. 43-50, October 2008.

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Amy Hurst, Scott Hudson, Jennifer Mankoff, and Shari Trewin, "Automatically Detecting Pointing Performance", in *Proceedings of the International Conference on Intelligent User Interfaces*, pp. 11-19, January 2008.

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Joonhwan Lee, Jodi Forlizzi, Scott Hudson, "Iterative Design of MOVE: A Situationally Appropriate Vehicle Navigation System", *International Journal of Human-Computer Studies*, v66, n3, pp. 189-215, 2008.

Laura Dabbish, Gary Hsieh, Robert Kraut, and Scott Hudson, "Prioritization in Computer-Mediated Communication: Influences of Urgency, Notification, and Identity", *Academy of Management Best Paper Proceedings*, August 2007. (Best Paper Award)

Daniel Avrahami, Darren Gergle, Scott E. Hudson and Sara Kiesler, "Improving the match between callers and receivers: A study on the effect of contextual information on cell phone interruptions". *Behaviour & Information Technology*, v26, n3, pp. 247-259, 2007.

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Albert Badre, Mark Guzdial, Scott Hudson, Paulo Santos, "A User Interface Evaluation Environment Using Synchronized Video, Visualizations, and Event Trace Data", *Journal for Software Quality*, v4, pp. 101-113, 1995.

Sougata Mukherjea, James Foley, Scott Hudson, "Interactive Clustering for Navigating in Hypermedia Systems", *Proceedings of the ACM European Conference on Hypermedia Technology*, pp. 136-145, September 1994.

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Dan Olsen, James Foley, Scott Hudson, James Miller, and Brad Myers, "Research Directions for User Interface Software Tools", *Behaviour and Information Technology*, v12, n2, pp. 80-97, March-April 1993.

Robert Neches, Jim Foley, Pedro Szekely, Piyawadee Sukaviriya, Ping Luo, Srdjan Kovacevic, Scott Hudson, "Knowledgeable Development Environments Using Shared Design Models", *Proceedings of the International Workshop on Intelligent User Interfaces*, pp. 63-70. January 1993.

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Scott Hudson, Shamim Mohamed, "A Graphical User Interface Server for UNIX", *Software — Practice and Experience*, v20, n12, pp. 1227-1239, December 1990.

Scott Hudson, Roger King, "An Adaptive Derived Data Manager for Distributed Databases", *Proceedings of the Second International Workshop on Object-Oriented Database Systems*, (Published as *Lecture Notes in Computer Science No. 334: Advances in Object-Oriented Database Systems*, K. Dittrich (ed), Springer-Verlag), pp. 193-203, September, 1988.

Scott Hudson, Roger King, "Semantic Feedback in the Higgens UIMS", *IEEE Transactions on Software Engineering*, v14, n8, pp. 1188-1206, August, 1988.

Scott Hudson, Roger King, "The Cactis Project: Database Support for Software Environments", *IEEE Transactions on Software Engineering*, v14, n6, pp. 707-719, June, 1988.

Tyson Henry, Scott Hudson, "SQUISH: A Graphical Shell for UNIX", *Proceedings of the Graphics Interface '88 Conference*, pp. 43-49, June 1988.

Scott Hudson, "UIMS Support for Direct Manipulation Interfaces", *ACM Computer Graphics*, v21, n2, pp. 120-124, April 1987.

Scott Hudson, Roger King, "Implementing a User Interface as a System of Attributes", *Proceedings of the Second Symposium on Practical Software Development Environments*, pp. 143-149, December 1986.

Available from: <http://doi.acm.org/10.1145/24208.24225>

Scott Hudson, Roger King, "Cactis: A Database Which Supports Functionally-Defined Data", *Proceedings of the First International Workshop on Object-Oriented Database Systems*, pp. 26-37, September 1986, also reprinted in *Readings in Object-Oriented Database Systems*, Stanley B. Zdonik and David Maier (eds), pp. 432-443, Morgan Kaufmann Publishers, Inc., 1990.

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Scott Hudson, Roger King, "Efficient User Recovery and Reversal in User Interfaces Using the Active Semantics Data Model", *Proceedings of the Graphics Interface '85 Conference*, Montreal, pp. 151-158, May 1985.

Invited Papers

Tyson Henry, Scott Hudson, Andrey Yeatts, Brad Myers, Steven Feiner, "A Nose Gesture Interface Device: Extending Virtual Realities" (Satirical Paper), *Presence*, April 1992. (Also appears in *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 65-68, November 1991.)

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Book Chapters

Chris Harrison, Zhiquan Yeo, Brian Amento, and Scott Hudson, "Designing "Faster" Progress Bars: Manipulating Perceived Duration", in *Cognitively Informed Intelligent Interfaces: Systems Design and Development.*, pp. 280-294, edited by Eshaa M. Alkhalifa and Khulood Gaid, IGI Global Publishing, 2012.

Brad Myers, Scott Hudson, Randy Pausch, "Past, Present and Future of User Interface Software Tools", in *Human-Computer Interaction in the New Millennium*, pp. 213-230, edited by John M. Carroll, Addison-Wesley, NY, 2001. This paper is a revision of a paper with the same title appearing in *ACM Transactions on Computer Human Interaction* (see above).

J. R. Dance, T. E. Granor, R. D. Hill, S. E. Hudson, J. Meads, B. A. Myers, and A. Schulert, "The Run-Time Structure of UIMS-Supported Applications", in *The Separable User Interface*, pp. 213-225, edited by Ernest Edmonds, Academic Press, 1992.

Scott Hudson, "How Programming Languages Might Better Support User Interface Tools", in *Languages for Developing User Interfaces*, pp. 111-120, edited by Brad A. Myers, 1992.

Scott Hudson, Roger King, "The Efficient Support of Functionally Defined Data in Cactis", in *Object-Oriented Database Systems*, edited by K. Dittrich, Springer-Verlag, 1988. This paper is a revision of "Cactis: A Database System which Supports Functionally-Defined Data" (see above).

Scott Hudson, Roger King, "The Higgins UIMS and its Efficient Implementation of Undo", in *Computer Generated Images: the State of the Art*, pp. 278-290, edited by N. Thalman, Springer-Verlag, 1985. This paper is a revision of "Efficient User Recovery and Reversal in User Interfaces Using the Active Semantics Data Model" (see above).

Grants

"A Spreadsheet Model for End-User Programming with Probabilistic Data", Co-principal Investigator, Microsoft Research Software Engineering Innovation Foundation, 2014, \$40,000 (with Jennifer Mankoff).

"New Infrastructure Concepts for Robust Handling of Inputs with Uncertainty", Principal Investigator, National Science Foundation Grant IIS1217929, 2012-2014, \$499,919 (with Jennifer Mankoff).

"II-EN: Laboratory for Research on Deep Structures of Collaboration", Co-principal Investigator, National Science Foundation Grant CRS-1205539, 2012-2014, \$500,000 (with Laura Dabbish).

"Managing Human Attention in Future Technologically Augmented Workspaces", Principal Investigator, Grant from the Future of Work Center at Heinz College, Carnegie Mellon University, 2010-2011, \$78,491.

"Enabling Creativity Using Kinetic Typography", Co-principal Investigator, National Science Foundation Grant IIS-0840766, 2008-2010, \$199,941 (with Jodi Forlizzi).

"Lightweight and Just-in-Time Interaction for Active and Pro-Active Messaging", Principal Investigator, IBM Faculty Fellowship, 2008-2009, \$20,000.

"Enhancing the Value of Mobile Computing Platforms with Techniques for Inattentive and Inexact Interaction", Principal Investigator, Intel Corporation Research Grant, 2007-2010, \$284,665 (with Jodi Forlizzi).

"Aesthetics of Dashboard Display Designs", Co-principal Investigator, General Motors, 2007-2008, \$125,000 (with Jodi Forlizzi).

"Enabling Practical Human Activity Modeling for Interactive Applications", Principal Investigator, National Science Foundation Grant IIS-0713509, 2007-2010, \$449,504 (with Beverly Harrison).

"ITR: Managing Human Attention", Co-principal Investigator, National Science Foundation Grant 0325351, 2003-2007, \$2,000,000 (with Robert Kraut and Jodi Forlizzi).

"Evolutionary Development of Self-Aware Learning Agents", Participating Investigator, DARPA, 2003-2008 (with Dan Siewiorek, et al.).

"Physiological Body Monitors to Prevent Falls in the Aging Population", Co-Principal Investigator, Pennsylvania Infrastructure Technology Alliance, 2002-2003, \$34,685, (with Jodi Forlizzi).

"ITR: Situationally Appropriate Interaction", Principal Investigator, National Science Foundation Grant IIS-0121560, 2001-2006, \$1,050,000 (with Jodi Forlizzi, Sara Kiesler, Chris Atkeson, and Jie Yang).

"Situational Modeling for Attention-Graded Information Displays", Principal Investigator, DARPA, 2001, \$174,857 (with Jodi Forlizzi).

"An Instrumented Study of In-Home Use of Technology", Co-Principal Investigator, Panasonic Research Labs, 1999-2001, \$120,000 (with Robert Kraut and Sara Kiesler).

"Adding Interactivity to Paper: Techniques for Hybrid Paper Electronic Interfaces", Principal Investigator, National Science Foundation Grant IIS-9800597, 1998-2001, \$612,597.

"Hybrid Paper Electronic Interfaces", Principal Investigator, Hitachi Research Laboratory, 1995-1996, \$30,000.

"Beyond Video Teleconferencing: Media Space Techniques for Awareness in Distributed Work Groups", Principal Investigator, Intel Corp., 1995-1996, \$42,712.

"Advanced Constraint Techniques for User Interface Implementation", Principal Investigator, National Science Foundation Grant IRI-9500942, 1995-1998, \$321,169.

"Distributed Laboratories", Co-Principal Investigator, National Science Foundation Research Infrastructure Grant CDA-9501637, 1995-1998, \$1,405,960 (with R. Fujimoto, K. Schwan, M. Ahmad, and J. Limb).

"Interactive Computing on Cluster Computers", Co-Principal Investigator, National Science Foundation (CISE Equipment Grant), 1995-1997, \$155,000 (with K. Schwan, M. Ahamad, M. Ammar, R. Fujimoto).

"Knowledgeable Development Environments for High Performance Computer User Interfaces", Co-Principal Investigator, ARPA, 1994-1997 (with J. Foley et al.).

"A User Interface Evaluation Support Environment", Co-Principal Investigator, Intel Corp., 1994-1995, \$64,000 (with A. Badre, and M. Guzdial).

"Multiparticipant Engagement through Desk-top Unimedia Systems and Applications", Co-Principal Investigator, Intel Corp., 1993-1995, \$561,123 (with N. Ezquerra, J. Foley, and M. Sinclair).

"An Environment for Educational Delivery and Development for Computing", Participating Investigator, National Science Foundation grant DCA-9214947, 1992-1994, \$200,000 (with M. McCracken, et al.).

"Techniques for End-User Specification and Customization of User Interfaces", Principal Investigator, AT&T Foundation Technical Special Purpose Grant, 1991, \$15,000.

"Systems Technology for Building a National Collaboratory", Co-Principal Investigator, National Science Foundation grant IRI-9015407, 1990-1993, \$1,246,301 (with L. Peterson, B. Schatz, and S. Ward).

"A Laboratory for Programming Languages and Software Systems", Contributing Investigator, National Science Foundation Institutional Infrastructure grant CDA-8822652, 1989-94, \$1,925,908 (with G. Andrews et al.).

"A General Purpose Program Visualization Support Tool", Principal Investigator, National Science Foundation grant IRI-8702784, 1987-1990, \$171,086.

"Faculty Development Award", Principal Investigator, Hewlett-Packard / American Electronics Association, 1987, \$50,000.

Invited Presentations

"The Future is not What it Used to be: Some Ways we Might Want to Think Differently About Technological HCI Research", University of Washington, Seattle, WA, July 2011.

"Handling User Inputs with Uncertainty: Research Directions at CMU", Ubuntu Developer's Symposium, Orlando, FL, October 2010.

"Harnessing Moore's Explosion for UI Progress", NSF/CCC Research Roadmap Workshop on Interactive Systems and Infrastructure, Jackson Hole, WY, August 2010.

"Natural Interaction Research: Uncertainty is our Future" (Panel Presentation), Microsoft Faculty Summit, Redmond, WA, July 2010.

"Conservation of Human Attention as an Approach to New HCI Research", University of Illinois at Urbana-Champaign, Urbana, IL, November 2009, Parisian Seminar on Information

Visualization and Human-Computer Interaction, Université Paris-Sud, Orsay, France, June 2010, Disney Research, Pittsburgh, March 2012.

"Conservation of Human Attention: Approaches and Prospects", Intel Research, Seattle, June 2009.

"Human Attention as an Organizing Paradigm for New Interactive Computing Research", presented at the University of North Carolina at Charlotte, Distinguished Lecture Series, January 2008.

"Conservation of Human Attention: Approaches and Prospects" Keynote address presented at IBM Human Computer Interaction Symposium, IBM T.J. Watson Research Center, November, 2008.

"Viewing Ubiquitous Computing Through the Lens of Human Attention" MIT Computer Science and Artificial Intelligence Laboratory, HCI Seminar, Cambridge, MA, February 2008.

"Paying Attention to Attention: An Organizing Principle for Research in Ubiquitous Computing", Keynote address presented at Graphics Interface 2007 Conference, Montreal, Quebec, Canada, May 2007.

"Using Human Attention as a Lens for Research Challenges in Ambient, Invisible, and/or Pervasive Interaction", Keynote address, AISB 2007 Conference on Artificial and Ambient Intelligence, Newcastle UK, March 2007.

"Managing Human Attention Through Situationally Appropriate Interaction", Keynote address presented at IBM Human Computer Interaction Professional Interest Community Symposium, IBM T.J. Watson Research Center, September, 2004.

"Parsimonious Information Displays", Presented at Xerox PARC, Palo Alto, CA, August 1999, and Microsoft Research November 2000, IBM T.J. Watson Research Center, January 2001, Mitsubishi Electric Research Laboratories, April 2002.

"Providing Toolkit Level Support for Handling Ambiguity in Recognition-Based Input", Presented at the Human Computer Interaction Consortium, Frasier Colorado, February 2000.

"Parsimonious Interfaces", Presented at the Center for Human Computer Communications Distinguished Lecture Series, Oregon Graduate Institute, Portland Oregon, February 1998.

"Awareness Lenses: New Interaction Techniques for Collaboration", Presented at Intel Corp., Hillsboro, OR, March 1996.

"Beyond Video Teleconferencing: Media Space Techniques for Awareness in Distributed Work Groups", Presented at Intel Corp., Hillsboro, OR, December 1995.

"Pictures and Programming Technical Session Discussant", Presented at CHI '95, Denver, CO, May 1995.

"Simple Cryptographic Techniques for Secured Broadcast in a Media Space", Presented at Intel Corporation, Hillsboro, OR, and US West Advanced Technologies, Boulder, CO, November 1994.

"Making One-Way Constraints a Practical Tool for User Interface Implementation", Presented at Microsoft Research, Redmond, WA, May 1993.

"Supporting End-User Development of User Interfaces", Presented at The IBM T. J. Watson Research Center, Yorktown Heights, NY, August 1991.

"Towards End-User Specification of User Interfaces", Presented at the University of Maryland, College Park, Maryland, June 1991.

"User Interface Specification by Non-Programmers: The Use of an Enhanced Spreadsheet Model in the Penguins UIMS", Presented at Brigham Young University, Provo, Utah, January 1991.

"A New Lazy Incremental Attribute Evaluation Algorithm and Its Application to the Generation of Graphical User Interfaces", Presented at Carnegie-Mellon University, Pittsburgh, December 1989.

"Direct Manipulation or Programming: How Should We Design Interfaces", Panel Presentation, Summary appears in *Proceedings of the ACM SIGGRAPH Symposium on User Interface Software and Technology*, November 1989.

"UIMS Support for Direct Manipulation Interfaces", Presented at the ACM SIGGRAPH Workshop on Software Tools for User Interface Development, Seattle, November 1986.

"Semantic Feedback in Generated Graphical Human Interfaces", Presented at CHI '85 Doctoral Consortium, CHI '85 Conference on Human Factors in Computing Systems, San Francisco, April 1985.

Keynote Addresses and Distinguished Lectures

Distinguished Lecturer: University of North Carolina at Charlotte, Distinguished Lecture Series, January 2008.

Keynote address, IBM Human Computer Interaction Symposium, IBM T.J. Watson Research Center, November 2008.

Keynote address, Graphics Interface 2007 Conference, Montreal, Quebec, Canada, May 2007.

Keynote address, AISB 2007 Conference, Newcastle UK, March 2007.

Keynote address, IBM Human Computer Interaction Professional Interest Community Symposium, IBM T.J. Watson Research Center, September, 2004.

Distinguished Lecturer, Human Computer Communications Center Distinguished Lecture Series, Oregon Graduate Institute, Portland Oregon, February 1998.

Research Honors and Awards

Elected to the CHI Academy. The CHI Academy, selected by the ACM Special Interest Group on Computer-Human Interaction (SIGCHI) is "*an honorary group of individuals who have made substantial contributions to the field of human-computer interaction. These are the principal leaders of the field, whose efforts have shaped the disciplines and led the*

research in human-computer interaction", April 2006.

ACM SIGCHI Conference on Human Factors in Computing Systems Best Paper Award (for James Fogarty, Andrew Ko, Htet Htet Aung, Elspeth Golden, Karen Tang, and Scott Hudson, "Examining Task Engagement in Sensor-Based Statistical Models of Human Interruptibility", *Proceedings of the CHI '05 Conference on Human Factors in Computing Systems*, pp. 331-340, April 2005.)

ACM Symposium on User Interface Software and Technology Best Paper Award (for Karl Willis, Ivan Poupyrev, Scott Hudson, and Moshe Mahler, "SideBySide: Ad-hoc Multi-user Interaction with Handheld Projectors", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 431-440, October, 2011.)

ACM SIGCHI Conference on Human Factors in Computing Systems Best Paper Award Honorable Mention (for Chris Harrison, John Horstman, Gary Hsieh, and Scott Hudson, "Unlocking the Expressivity of Point Lights", *Proceedings of the CHI '12 Conference on Human Factors in Computing Systems*, pp. 1683-1692, May 2012.)

ACM SIGCHI Conference on Human Factors in Computing Systems Best Paper Award Honorable Mention (for Chris Harrison, Gary Hsieh, Karl Willis, Jodi Forlizzi, and Scott Hudson, "Kineticons: Using Iconographic Motion in Graphical User Interface Design", *Proceedings of the CHI '11 Conference on Human Factors in Computing Systems*, May 2011.)

ACM SIGCHI Conference on Human Factors in Computing Systems Best Paper Award Honorable Mention (for Chris Harrison Zhiquan Yeo, and Scott Hudson, "Faster Progress Bars: Manipulating Perceived Duration with Visual Augmentations", *Proceedings of the CHI '10 Conference on Human Factors in Computing Systems*, April 2010.)

ACM SIGCHI Conference on Human Factors in Computing Systems Best Paper Award Honorable Mention (for Chris Harrison and Scott Hudson, "Minput: Enabling Interaction on Small Mobile Devices with High-Precision, Low-Cost, Multipoint Optical Tracking", *Proceedings of the CHI '10 Conference on Human Factors in Computing Systems*, April 2010.)

ACM SIGCHI Conference on Human Factors in Computing Systems Best Paper Award Honorable Mention (for David Grimes, Desney Tan, Scott Hudson, Pradeep Shenoy, and Rajesh Rao, "Feasibility and Pragmatics of Classifying Working Memory Load with an Electroencephalograph", *Proceedings of the CHI '08 Conference on Human Factors in Computing Systems*, April 2008.)

ACM Symposium on User Interface Software and Technology Best Paper Award Honorable Mention (for Eric Brockmeyer, Ivan Poupyrev, and Scott Hudson, "PAPILLON: Designing Curved Display Surfaces With Printed Optics", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 457-462, October, 2013.)

ACM Symposium on User Interface Software and Technology Best Paper Award Honorable Mention (for Karl Willis, Eric Brockmeyer, Ivan Poupyrev, and Scott Hudson, "Printed Optics: 3D Printing of Embedded Optical Elements for Interactive Devices", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 589-598, October, 2012.)

Conference on Tangible, Embedded, and Embodied Interaction Best Student Paper Award (for Chris Harrison, Shilpa Ramamurthy, and Scott Hudson, "On-Body Interaction:

Armed and Dangerous", Proceedings of the International Conference on Tangible, Embedded and Embodied Interaction, pp. 69-76, February 2012.)

ACM Symposium on User Interface Software and Technology Best Demonstration Award (for Karl Willis, Ivan Poupyrev, Scott Hudson, and Moshe Mahler, "SideBySide: Ad-hoc Multi-user Interaction with Handheld Projectors", 2011.)

ACM Symposium on User Interface Software and Technology Best Demonstration Award (for Karl Willis, Eric Brockmeyer, Ivan Poupyrev, and Scott Hudson, "Printed Optics: 3D Printing of Embedded Optical Elements for Interactive Devices", 2012.)

The ACM Symposium on User Interface Software and Technology (UIST) "Scott Hudson 500 Gram Award" *named and awarded for the first researcher to publish 25 papers (equivalent to one full proceedings, weighing approximately ½ kilogram) at the highly selective UIST conference, November 2003.*

IBM Faculty Fellowship Award, 2008.

Hewlett-Packard / American Electronics Association Faculty Development Award, 1986.

Teaching

Program Administration

Founding Director of the CMU HCII Ph.D. Program, 1998-2009.

Organized, formed, and gained approval for the first Ph.D. program in the United States dedicated to Human-Computer Interaction, and administered the program through its formative years.

National Service Activities Supporting Education

Founding Chair for the ACM Symposium on User Interface Software and Technology Doctoral Symposium, 2003-2005.

Organized, formed, and acquired NSF funding for the first UIST Doctoral Symposium (now a regular feature of the conference).

Georgia Institute of Technology Human Centered Computing Ph.D. program advisory board member, 2003-2010.

This program is the second Ph.D. program in the United States dedicated to Human-Computer Interaction.

University of Colorado Computer Science Department advisory board member, 2002-present.

Georgia Institute of Technology Master of Science in Human-Computer Interaction, External Review Committee Chair, 2005

Workshop co-organizer: "Graduate Education in Human-Computer Interaction", held at the *CHI '05 Conference on Human Factors in Computing Systems* (with Michel Beaudouin-Lafon, James Foley, Jonathan Grudin, James Hollan, Judy Olson, Bill Verplank), April 2005.

Grants Supporting Teaching and Education

"Workshop: UIST 2005 Doctoral Symposium", Principal Investigator, National Science Foundation Grant IIS-0549354, 2005, \$14,602.

"Workshop: UIST 2004 Doctoral Symposium", Principal Investigator, National Science Foundation Grant IIS-0455274, 2004, \$17,9200.

"Workshop: UIST 2003 Doctoral Symposium", Principal Investigator, National Science Foundation Grant IIS-0334392, 2003, \$12,600.

"Tools to Support Cognitive Modelers", NASA Ames Research, MHCI Capstone Project Course Sponsorship, 2001, \$60,000 (with Bonnie John and Ken Koedinger).

"Concepts for Satellite Delivered Content in Business Settings", EchoStar, MHCI Capstone Project Course Sponsorship, 2001, \$60,000 (with Ken Koedinger).

"Development of Interaction Metaphors for Handheld Devices in Education", Texas Instruments, MHCI Capstone Project Course Sponsorship, 2001, \$60,000 (with Ken Koedinger).

"Techniques to Support On-Line Real Estate Sales", Trilogy, MHCI Capstone Project Course

Sponsorship, 2000, \$50,000 (with Chris Neuwirth).

"Cooperative Work with Calculators in the Classroom", Texas Instruments, MHCI Capstone Project Course Sponsorship, 2000, \$40,000 (with Chris Neuwirth).

"Using Wireless Technologies to Support Teens", Interval Research, MHCI Capstone Project Course Sponsorship, 1999, \$50,000 (with Chris Neuwirth).

"Innovative use of Graphing Calculators in Non-Math and Science Classes", Texas Instruments, MHCI Capstone Project Course Sponsorship, 1999, \$40,000 (with Chris Neuwirth).

"Techniques for Wireless Networking in the Home" MHCI Capstone Project Course Sponsorship, Panasonic Research Labs, 1998, \$40,000 (with Dan Olsen).

"Story Telling with Pictures on the Web", MHCI Capstone Project Course Sponsorship, Kodak, 1998, \$50,000 (with Dan Olsen).

Courses Taught

(Carnegie Mellon, semesters)

Spring 2014	HCI 833	"Applied Gadgets, Sensors, and Act. Reco. in HCI"	(82 students)	
Fall 2013	HCI 631	"Software Structures for User Interfaces"	(55 students)	
Fall 2013	HCI 633C	"Soft. Struct. UI Lab – L3 (Mobile)" (w/ K. Chang)	(35 students)	
Fall 2013	HCI 633D	"Soft. Struct. UI Lab – L3 (Web)" (w/ S. Das)	(24 students)	
Spring 2013	HCI 833	"Applied Gadgets, Sensors, and Act. Reco. in HCI"	(70 students)	
Fall 2012	HCI 631	"Software Structures for User Interfaces"	(47 students)	
Fall 2012	HCI 633C	"Soft. Struct. UI Lab – L3 (Mobile)" (w/ S. Oney)	(22 students)	
Fall 2012	HCI 633D	"Soft. Struct. UI Lab – L3 (Web)" (w/ S. Das)	(26 students)	
Spring 2012	HCI 833	"Applied Gadgets, Sensors, and Act. Reco. in HCI"	(48 students)	
Fall 2011	HCI 631	"Software Structures for User Interfaces"	(48 students)	
Fall 2011	HCI 633C	"Soft. Struct. UI Lab – L3 (Mobile)" (w/ J. Wiese)	(38 students)	
Fall 2011	HCI 633D	"Soft. Struct. UI Lab – L3 (Web)" (w/ J. Schwarz)	(22 students)	
Spring 2011	HCI 773	"Computer Science Perspectives in HCI"	(17 students)	*
Fall 2010	HCI 631	"Software Structures for User Interfaces"	(39 students)	
Fall 2010	HCI 633B	"Prog. Usable Int. Lab – Level 2: GUI"(w/ S. Oney)	(8 students)	*
Fall 2010	HCI 633D	"Soft. Struct. UI Lab – L3 (Web)" (w/ B. Pendelton)	(9 students)	*
Spring 2010	HCI 833	"Applied Gadgets, Sensors, and Act. Reco. in HCI"	(33 students)	
Fall 2009	HCI 631	"Software Architectures for User Interface"	(42 students)	
Spring 2009	HCI 630	"Programming Usable Interfaces"	(72 students)	
Fall 2008	HCI 631	"Software Architectures for User Interface"	(32 students)	
Spring 2008	HCI 833	"Applied Gadgets, Sensors, and Act. Reco. in HCI"	(20 students)	*
Fall 2007	HCI 631	"Software Architectures for User Interface"	(25 students)	
Spring 2006	HCI 630	"Programming Usable Interfaces"	(26 students)	
Fall 2005	HCI 771	"HCI Process and Theory"	(7 students)	
Fall 2004	HCI 771	"HCI Process and Theory" (with Jennifer Mankoff)	(11 students)	
Fall 2004	HCI 631	"Software Architectures of User Interface"	(39 students)	
Spring 2004	HCI 833	"Advanced Topics in User Interface Technology"	(17 students)	
Fall 2003	HCI 771	"HCI Process and Theory" (coordinator)	(17 students)	
Fall 2003	HCI 631	"Software Architectures for User Interface"	(25 students)	
Fall 2002	HCI 631	"Software Architecture for User Interface"	(20 students)	
Spring 2002	HCI 833	"Advanced Topics in User Interface Technology"	(9 students)	*
Fall 2001	HCI 771	"HCI Process and Theory" (with Ken Koedinger)	(25 students)	*
Summer 2001	HCI 672	"HCI Project Course II"	(30 students)	
Spring 2001	HCI 671	"HCI Project Course"	(30 students)	
Fall 2000	HCI 631	"Software Architectures for User Interface"	(30 students)	
Summer 2000	HCI 672	"HCI Project Course II"	(25 students)	

Spring 2000	HCI 671	"HCI Project Course"	(25 students)	
Fall 1999	HCI 631	"Software Architecture for User Interface"	(30 students)	
Summer 1999	HCI 672	"HCI Project Course II"	(25 students)	
Spring 1998	HCI 671	"HCI Project Course"	(25 students)	
Fall 1998	HCI 631	"Software Architectures for User Interface"	(40 students)	*
Summer 1998	HCI 672	"HCI Project Course II"	(10 students)	
Spring 1998	HCI 671	"HCI Project Course"	(10 students)	*
Fall 1997	HCI 630	"Programming Usable Interfaces"	(13 students)	*

(Carnegie Mellon, "Minis" – ½ semester courses)

Spring 2011	HCI 733	"Computer Science Perspectives in HCI"	(18 students)	*
Spring 2006	HCI 897	"Special Topics: Electr. Proto. for HCI" (with J. Lee)	(7 students)	*

(Georgia Tech, quarters)

Spring 1997	CS 3411	"Programming Language Concepts"	(65 students)	*
Winter 1997	CS 6395	"Principles of User Interface Software"	(15 students)	
Winter 1996	CS 6395	"Principles of User Interface Software"	(14 students)	
Fall 1994	CS 6751	"Human Computer Interaction"	(55 students)	*
Spring 1994	CS 3430	"System Software"	(66 students)	*
Winter 1994	CS 6395	"Principles of User Interface Software"	(19 students)	
Winter 1993	CS 4753	"Human Factors in Software Development"	(45 students)	*
Fall 1992	CS 8113H	[Pilot for CS 6395] "Princ. of User Interface Soft."	(~15 students)	*
Spring 1992	CS 4430	"Principles of Operating Systems"	(~45 students)	*

(University of Arizona, semesters)

Fall 1991	CSc 534	"Adv. Computer Graphics and User Interface Des."	(~25 students)	*
Spring 1991	CSc 4/533	"Introduction to Interactive Computer Graphics"	(~35 students)	
Fall 1990	CSc 453	"Introduction to Compilers"	(~20 students)	*
Spring 1990	CSc 520	"Principles of Programming Languages"	(~30 students)	*
Fall 1989	CSc 630	"Special Topics :Adv. User Interface Software"	(~15 students)	*
Spring 1989	CSc 452	"Principles of Operating Systems"	(~60 students)	*
Fall 1988	CSc 533	"Introduction to Interactive Computer Graphics"	(~35 students)	
Spring 1988	CSc 555	"Advanced Compilers"	(~20 students)	*
Fall 1987	CSc 533	"Introduction to Interactive Computer Graphics"	(~35 students)	
Spring 1987	CSc 553	"Translators and System Software"	(~35 students)	*
Fall 1986	CSc 533	"Introduction to Interactive Computer Graphics"	(~25 students)	*

* indicates new course taught

Curriculum Development

Courses Developed or Substantially Revised

(Carnegie Mellon)

HCI 833 "Applied Gadgets, Sensors, and Activity Recognition in HCI"
 HCI 897 "Special Topics: Electronic Prototyping for HCI" (with Johnny Lee)
 HCI 833 "Advanced Topics in User Interface Technology"
 HCI 771 "HCI Process and Theory" (with Ken Koedinger, Jennifer Mankoff, and others)
 HCI 630 "Programming Usable Interfaces"

(Georgia Tech)

CS 6395 "Principles of User Interface Software" (with John Stasko)

(University of Arizona)

CSc 534 "Advanced Computer Graphics and User Interface Design"
 CSc 433/533 "Introduction to Interactive Computer Graphics"
 CSc 630 "Special Topics: Advanced User Interface Software"

CSc 555 "Advanced Compilers"

CSc 533 "Introduction to Interactive Computer Graphics"

Individual Student Guidance

Ph.D. Students (Graduated)

Chris Harrison, Thesis: "The Human Body as an Interactive Computing Platform" (Carnegie Mellon University) January 2014, Assistant Professor of Human-Computer Interaction, CMU.

Gary Hsieh, Thesis: "Applying Market Mechanisms to Facilitate Interpersonal Information Exchange", (Carnegie Mellon University) August 2010 (co-advisor with Robert Kraut), Assistant Professor, Department of Human Centered Design & Engineering, University of Washington, formerly, Assistant Professor, Department of Telecommunication, Information Studies and Media, Michigan State University.

Amy Hurst, Thesis: "Using Data About Real World Pointing Performance to Improve Computer Access with Automatic Assessment", (Carnegie Mellon University) August 2010 (co-advisor with Jennifer Mankoff), Assistant Professor of Information Systems, University of Maryland, Baltimore County.

Johnny Lee, Thesis: "Projector-Based Location Discovery and Tracking", (Carnegie Mellon University) May 2008, Google X.

Joonhwan Lee, Thesis: "Designing Automatically Generated Perceptually Optimized Displays", (Carnegie Mellon University) May 2008 (co-advisor with Jodi Forlizzi), Assistant Professor, Dept. of Communications, Seoul National University.

Daniel Avrahami, Thesis: "Enhancing Technology-Mediated Communication: Tools, Analyses, and Predictive Models", (Carnegie Mellon) October 2007, Intel Research.

James Fogarty, Thesis: "Constructing and Evaluating Sensor-Based Statistical Models of Human Interruptibility", (Carnegie Mellon) February 2006, Associate Professor of Computer Science and Engineering, University of Washington.

Jennifer Mankoff, Thesis: "An Architecture and Interaction Techniques for Handling Ambiguity in Recognition-based Input", (Georgia Tech) May 2001, (unofficial co-advisor with Gregory Abowd), Associate Professor of Human-Computer Interaction, CMU, formerly Assistant Professor of Computer Science at University of California, Berkeley.

Ian Smith, Thesis: "Support For Multi-Viewed Interfaces" (Georgia Tech) June 1998, Chief of Technical Staff, Captricity, formerly Xerox Palo Alto Research Center.

Andrey K. Yeatts, Thesis: "A Visual Notation for Specification of Rule-Based Graphical User Interfaces", (University of Arizona) December 1996, National Optical Astronomy Observatories.

Aravindan Veerasamy, Thesis: "Visualization and User Interface Techniques for Interactive Information Retrieval Systems" (Georgia Tech) March 1997 (co-advisor with Sham Navathe).

Krishna Bharat, "Supporting the Construction of Distributed, Interoperative, User Interface Applications", (Georgia Tech) June 1996, Google Research (Originator of *Google News*), formerly DEC Systems Research Center, Palo Alto.

Chen-Ning Hsi, Thesis: "High Level Techniques for Authoring, Analysis, and Synthesis of Multimedia Documents", (University of Arizona — in residence at Georgia Tech), August 1994, Phillips Research, Taiwan, formerly Associate Professor of Computer Science at Providence University, Taiwan.

Shamim P. Mohamed, Thesis: "End-User Specification of Interactive Displays", (University of Arizona) August 1993, formerly Assistant Professor of Mathematics at Idaho State University.

Gary L. Newell, Thesis: "A Probabilistic Approach to Gestural Interface Design", (University of Arizona), August 1993, Associate Professor and Department Head, Computer Science, Northern Kentucky University, formerly Chair of the Computer Science Department at McKendree College.

Tyson R. Henry, Thesis: "Techniques for Interacting with Large Graphs", (University of Arizona), May 1992, Associate Professor of Computer Science at the California State University, Chico

Bruce R. Schatz, Thesis: "Interactive Retrieval in Information Spaces Distributed Across Wide-Area Networks", (University of Arizona), December 1990, Recipient of NSF National Young Investigator Award, 1992. Professor and Head, Department of Medical Information Systems, College of Medicine, Professor of Library and Information Sciences and Computer Science at the University of Illinois.

Ph.D. Students (Current)

Julia Schwarz (co-advisor with Jennifer Mankoff)
Robert Xiao (co-advisor with Chris Harrison)
Nesra Yannier (co-advisor with Ken Koedinger)
Xiang "Anthony" Chen (co-advisor with Jennifer Mankoff)

M.S. Student Major Advisor

(University of Arizona)
Srinivasa Gollapudi, Clifford Hathaway, Paul Kwan, Ya-Jyun Wang, Limin Xiao, Carlos Blanco, Ming-Horng Chen, Katherine Cox, Chen-Ning Hsi, Yi-Cheng Liu, Sean Purcell, Ronald Watkins.

M.S. Student Thesis Advisor

(Georgia Tech)
Santosa (advisor in residence for exchange student) Thesis: "The Semantic Flashlight Interaction Technique", January 1997 (Technical University of Delft, the Netherlands).

Deitmar Aust (advisor in residence for exchange student) Thesis: "Augmenting Paper Documents With Digital Information in a Mobile Environment", August 1996 (University of Dortmund, Germany).

B.S. Student Thesis Advisor

(CMU)

Yik Lin Khoo, Honors Thesis: "Composable Visualization: A Tool for Creating Custom Selection-Visualization Techniques from a Set Taxonomy", May 2000.

Independent Studies and Special Problems Supervised

(CMU)

Jonas Gebhardt (MHCI)	Summer 2013	"Touch Sensing on Real-World Surfaces"
Kevin Scott (MHCI)	Summer 2013	"Touch Sensing on Real-World Surfaces"
Jonas Gebhardt (MHCI)	Spring 2013	"Touch Sensing on Real-World Surfaces"
Kevin Scott (MHCI)	Spring 2013	"Touch Sensing on Real-World Surfaces"
Rajat Agrawal (MHCI)	Summer 2012	"Depth Camera Based Privacy Preserving Video"
Kartikeya Dubey (MHCI)	Spring 2012	"Remote Interaction Using the Kinect Depth Camera"
Asim Mittal (MHCI)	Spring 2012	"Tabletop Interaction Using the Kinect Depth Camera"
Brendan Kiu (MHCI)	Fall 2011	"Using the Kinect Depth Camera as a Touch Sensor"
Shilpa Ramamurthy (BS,CS)	Spring 2011	"Door-based Interaction" (CMU SRC-URO program)
John Horstman (MHCI)	Spring 2011	"Light Sequence Messaging Design and Evaluation"
S. Ramasubramanian (MHCI)	Spring 2011	"Automated Accessibility Assessment" (with Mankoff)
Shilpa Ramamurthy (BS,CS)	Fall 2010	"On-Body Interaction" (CMU SRC-URO program)
Shilpa Ramamurthy (BS,CS)	Summer 2010	"On-Body Interaction" (CMU SRC-URO program)
Shilpa Ramamurthy (BS,CS)	Spring 2010	"Walk-Through Interfaces" (CMU SRC-URO program)
Amer Obeidah (MHCI)	Spring 2010	"Geometry Capture with Structured Light"
Jennifer Olsen (BHCI)	Spring 2010	"A Kinetic Typography Editor" (with Jodi Forlizzi)
Kyle Rector (BS CS, U Wash)	Summer 2009	"Hardware Prototyping Tools" (with Jen Mankoff)
Zhiquan Yeo (MHCI)	Spring 2009	"Kinetic Typography" (with Jodi Forlizzi)
Zhiquan Yeo (BS, CS)	Fall 2008	"Kinetic Typography" (with Jodi Forlizzi)
Zhiquan Yeo (BS, CS)	Spring 2008	"Perception of Progress Indicators"
Maria Emerson (BS, CS)	Fall 2007	"Displays for Reverse Telecommuting"
Carolyn Au (MHCI)	Spring 2005	"Sensing Through Home Infrastructure"
Scott Davidoff (MHCI)	Summer 2004	"A Menu Design for Beating Fitts' Law"
Bilge Mutlu (MDes)	Spring 2003	"Highlighting Using Background Manipulation"
Ruchi Sanghvi (BS, ECE)	Fall 2002	"An Active Badge Prototype Sensor"
Dan Yocum (MHCI)	Fall 2000	"Resizable Image Techniques"
Brian Williams (MHCI)	Summer 2000	"Interactive Artistic Displays"
Leong Teo (MHCI)	Summer 1999	"Interface Techniques Using RF Tags"
Keith Knudsen (MHCI)	Spring 1999	"User Interface Evaluation Tools"
Leo Lie (MHCI)	Spring 1999	"Visualization Techniques for Event Logs"
Ken Tanaka (MHCI)	Spring 1998	"A UI Style Tool for Visual Designers"
Marie Hwang (MHCI)	Spring 1998	"3D Magic Lens Interaction Techniques"
Tom Cezeaux (MHCI)	Spring 1998	"3D Magic Lens Interaction Techniques"

(Georgia Tech)

Jen Mankoff (PhD)	Spring 1997	"Audio Interface Techniques"
Alex Zhao (PhD)	Spring 1997	"Video Techniques for Awareness"
Roy Rodenstein (UGrad)	Fall 1996	"Debugging Lenses"
Hamish Caldwell (MS)	Fall 1996	"Techniques in Audio-Only Interfaces"
Jeremy Heiner (PhD)	Spring 1996	"Interaction Techniques for Collaborative Work"
Jen Mankoff (PhD)	Spring 1996	"Hybrid Paper Electronic Interfaces"
Dave Koller (PhD)	Winter 1996	"Object Examination in Virtual Environments"
Jeremy Heiner (PhD)	Fall 1995	"3D Interaction Techniques for Rotation"
Song Liang (PhD)	Spring 1994	"Animation and Concurrency in UI Toolkits"
Ammo Geotts (PhD)	Spring 1994	"Human Models for Motion Tracking"

Sougata Mukherjea (PhD)	Winter 1994	"Visualization of Large Scale Information"
Krishna Bharat (PhD)	Fall 1993	"Distributed Systems Issues in User Interface"
Ian Smith (PhD)	Fall 1993	"Media Spaces"
Aravindan Veerasamy (PhD)	Fall 1993	"Visualization of Large Scale Information"
Terry Kane (MS)	Summer 1993	"Hypermedia Systems"
Todd Griffith (PhD)	Winter 1993	"A Unified 3D Interaction Technique"

(University of Arizona)		
Chen-Ning Hsi (PhD)	Fall 1991	"User Interface Management Systems"
Shamim Mohamed (PhD)	Fall 1990	"UI Layout Specification Systems"
Bruce Schatz (PhD)	Fall 1989	"Information Retrieval Systems"
Roger Kline (PhD)	Fall 1989	"Graphical Search and Replace"
Gary Newell (PhD)	Spring 1989	"Scientific Visualization"
Bob Simms (PhD)	Spring 1989	"Scientific Visualization"
Limin Xiao (MS)	Spring 1989	"3D Input Techniques"
Chaochia Liu (MS)	Spring 1989	"User Interface Toolkits"
Bob Simms (PhD)	Fall 1988	"Computational Geometry"
Tyson Henry (PhD)	Spring 1988	"User Interface Management Systems"
Andrey Yeatts (PhD)	Spring 1988	"Semantic Snapping Techniques"
Allan Spiegel (MS)	Spring 1988	"Program Visualization"
Ron MacDonald (MS)	Fall 1987	"3D Input Techniques"
Herman Rao(PhD)	Spring 1987	"Interactive Computer Graphics"
Kenneth Anderson (MS)	Spring 1987	"Program Visualization"
Andrew Martin (MS)	Spring 1987	"Program Visualization"
Kevin McNeill (MS)	Spring 1987	"Program Visualization"
Lisa Lark (MS)	Spring 1987	"Image Compositing"
Wen-Jeng Ko (MS)	Fall 1986	"Realistic Rendering Techniques"
Sandra Wightman (MS)	Fall 1986	"Realistic Rendering Techniques"

Teaching Honors and Awards

University of Arizona Faculty of Science Distinguished Teaching Award, 1991.

Service Activities

Technical Conference Leadership and Committee Activities

General chairman for the ACM Symposium on User Interface Software and Technology (1993).

Papers committee co-chairman for the annual ACM SIGCHI Conference (2009, 2010).

Program committee chairman for the ACM Symposium on User Interface Software and Technology (1990, 2000).

Community Chair for the ACM Symposium on User Interface Software and Technology (2012-present).

Best Papers Selection committee chair for the annual ACM SIGCHI Conference (2013).

Associate Papers Chair (Technical papers committee member) for the annual ACM SIGCHI Conference (1989, 1991-92, 1996, 2000, 2002-07, 2011, 2013).

Program committee member for the ACM Symposium on User Interface Software and Technology (1989-92, 1996, 1998-2000, 2002-03, 2006-07, 2012-13).

Program committee member for the International Conference on Ubiquitous Computing (UbiComp) (2004-05).

Program committee member for the ACM Conference on Computer Supported Cooperative Work (2000).

Program committee member for the International Conference on Intelligent User Interfaces (2002).

Program committee member for the International World Wide Web Conference (2002).

Program committee member for the ACM SIGCHI Workshop on Computer Languages for Programming User Interface Software (1991).

Best Papers Selection committee member for the annual ACM SIGCHI Conference (2011).

Advisory Boards

University of Colorado Dept. of Computer Science Advisory Board Member (2002-present).

Georgia Institute of Technology Human Centered Computing Ph.D. program Advisory Board Member (2003-2010).

Georgia Institute of Technology Master of Science Program in Human-Computer Interaction External Review Board Chair (2005).

Editorial and Reviewer Work for Technical Journals and Conferences

Associate Editor, ACM Transactions on Computer Human Interaction (1992-2003) (*a founding member of the editorial board*).

Associate Editor, International Journal of Human Computer Studies (2004-2006).

Guest Editor, Special Issue on Rapid Prototyping for Ubiquitous Computing, *IEEE Pervasive Computing* (2005).

Referee and site visitor for the National Science Foundation, and the Natural Sciences and Engineering Research Council of Canada, reviewer for ACM Transactions on Computer Human Interaction, ACM Transactions on Graphics, ACM Transactions on Programming Languages and Systems, ACM Transactions on Information Systems, ACM Transactions on Software Engineering and Methodology, ACM Transactions on Computer Systems, Journal of the ACM, IEEE Computer Graphics and Applications, IEEE Computer, IEEE Software, IEEE Transactions on Knowledge and Data Engineering, Software—Practice and Experience, Information Processing Letters, ACM SIGGRAPH Annual Conference, ACM Symposium on User Interface Software and Technology, ACM SIGCHI Annual Conference, ACM Conference on Computer Supported Cooperative Work, Ubicomp conference, ACM Symposium on Principles of Programming Languages, and others.