
Curriculum Vitae

Scott E. Hudson

Human-Computer Interaction Institute
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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, Intel Research, Seattle, Washington
September 2006 – February 2007

Visiting Researcher, Microsoft Research, Redmond, Washington
June 2006 – August 2006

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

Research Interests

Area: Technical Human-Computer Interaction

Recent work includes:

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, architectural support for recognition based interfaces, multimedia systems, hypermedia systems, non-speech audio in user interfaces, visual programming, program visualization, end-user programming, and interfaces for information retrieval.

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

Journal Papers

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.

Available from: <http://doi.acm.org/10.1145/1057237.1057243>

Brad Myers, Scott Hudson, Randy Pausch, "Past, Present and Future of User Interface Software Tools", *ACM Transactions on Computer Human Interaction*, v7, n1, pp. 3-28, March 2000.

Available from: <http://doi.acm.org/10.1145/344949.344959>

Scott Hudson, "User Interface Specification Using an Enhanced Spreadsheet Model", *ACM Transactions on Graphics*, v13, n3, pp. 209-239, July 1994.

Available from: <http://doi.acm.org/10.1145/195784.195787>

Scott Hudson, "Adding Shadows to a 3D Cursor", *ACM Transactions on Graphics*, v11, n2, pp. 193-199, July 1992.

Available from: <http://doi.acm.org/10.1145/130881.370599>

Scott Hudson, "Incremental Attribute Evaluation: A Flexible Algorithm for Lazy Update", *ACM Transactions on Programming Languages and Systems*, v13, n3, pp. 315-341, July 1991.

Available from: <http://doi.acm.org/10.1145/117009.117012>

Scott Hudson, Shamim Mohamed, "Interactive Specification of Flexible User Interface Displays", *ACM Transactions on Information Systems*, v8, n3, pp. 269-288, July 1990.

Available from: <http://doi.acm.org/10.1145/98188.98201>

Tyson Henry, Scott Hudson, "Multidimensional Icons", *ACM Transactions on Graphics*, v9, n1, pp. 133-137, January 1990.

Available from: <http://doi.acm.org/10.1145/77635.77641>

Scott Hudson, Roger King, "Cactis: A Self-Adaptive, Concurrent Implementation of an Object-Oriented Database Management System", in *ACM Transactions on Database Systems*, v14, n3, pp. 291-321, September, 1989.

Available from: <http://doi.acm.org/10.1145/68012.68013>

Scott Hudson, Roger King, "A Generator of Direct Manipulation Office Systems", *ACM Transactions on Office Information Systems*, v4, n2, pp. 132-163, April, 1986.
Available from: <http://doi.acm.org/10.1145/6168.6171>

Conference Papers

Chris Harrison and Scott Hudson, "Abracadabra: Wireless, High-Precision, and Unpowered Finger Input for Very Small Mobile Devices", to appear in *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 121-124, October 2009.
Available from: <http://doi.acm.org/10.1145/1622176.1622199>.

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", to appear in *Proceedings of the CHI '09 Conference on Human Factors in Computing Systems*, pp. 261-264, April 2009.
Available from: <http://doi.acm.org/10.1145/1518701.1519047>

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.
Available from: <http://doi.acm.org/10.1145/1449715.1449747>

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*).

Available from: <http://doi.acm.org/10.1145/1357054.1357187>

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.

Available from: <http://doi.acm.org/10.1145/1357054.1357093>

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.

Available from: <http://doi.acm.org/10.1145/1294211.1294222>

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.

Available from: <http://doi.acm.org/10.1145/1240624.1240669>

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.

Available from: <http://doi.acm.org/10.1145/1240624.1240632>

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.

Available from: <http://doi.acm.org/10.1145/1240624.1240645>

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.

Available from: <http://doi.acm.org/10.1145/1180875.1180954>

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.

Available from: <http://doi.acm.org/10.1145/1166253.1166299>

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.

Available from: <http://doi.acm.org/10.1145/1166253.1166269>

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.

Available from: <http://doi.acm.org/10.1145/1142405.1142414>

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.

Available from: <http://doi.acm.org/10.1145/1095034.1095045>

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*).

Available from: <http://doi.acm.org/10.1145/1054972.1055018>.

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.

Available from: <http://doi.acm.org/10.1145/1054972.1055025>.

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.

Available from: <http://doi.acm.org/10.1145/1054972.1055051>.

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.

Available from: <http://doi.acm.org/10.1145/1031607.1031692>

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.

Available from: <http://doi.acm.org/10.1145/1029632.1029681>

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.
Available from: <http://doi.acm.org/10.1145/1013115.1013139>

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.)
Available from: <http://doi.acm.org/10.1145/1015706.1015789>

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.
Available from: <http://doi.acm.org/10.1145/985692.985719>

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.
Available from: <http://doi.acm.org/10.1145/964696.964710>

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.
Available from: <http://doi.acm.org/10.1145/642611.642657>

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.
Available from: <http://doi.acm.org/10.1145/642611.642677>

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.
Available from: <http://doi.acm.org/10.1145/571985.572014>

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.
Available from: <http://doi.acm.org/10.1145/571985.571995>

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.

Available from: <http://doi.acm.org/10.1145/571985.571997>

Daniel Avrahami, Scott Hudson, "Forming Interactivity: A Tool for Rapid Prototyping of Physical Interactive Products", *Proceedings of the ACM Symposium on Designing Interactive Systems*, pp. 141-146, June 2002.

Available from: <http://doi.acm.org/10.1145/778712.778735>

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.

Available from: <http://doi.acm.org/10.1145/502348.502385>

James Fogarty, Jodi Forlizzi, and Scott Hudson, "Aesthetic Information Collages: Generating Decorative Displays that Contain Information", *Proceedings of the ACM Symposium on User Interface Software and Technology*, v3, n2, pp. 141-150, November 2001.

Available from: <http://doi.acm.org/10.1145/502348.502369>

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.

Available from: <http://doi.acm.org/10.1145/354401.354783>

Jennifer Mankoff, Scott Hudson, and Gregory Abowd, "Interaction Techniques for Ambiguity Resolution in Recognition-Based Interfaces", *Proceedings of the ACM Symposium on User Interface Software and Technology*, v2, n2, pp.11-20, November 2000.

Available from: <http://doi.acm.org/10.1145/354401.354407>

Jennifer Mankoff, Scott Hudson, Gregory Abowd, "Providing Integrated Toolkit-Level Support for Ambiguity in Recognition-Based Interfaces", *Proceedings of the 2000 SIGCHI Conference*, v2, n1, pp. 368-375, April 2000.

Available from: <http://doi.acm.org/10.1145/332040.332459>

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.

Available from: <http://doi.acm.org/10.1145/320719.322590>

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.

Available from: <http://doi.acm.org/10.1145/320719.322595>

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.

Available from: <http://doi.acm.org/10.1145/320719.322600>

Dan Olsen, Scott Hudson, Thom Verratti, Jeremy Heiner, and Matt Phelps, "Implementing interface attachments based on surface representations", In *Proceedings of the SIGCHI Conference on Human Factors in Computing System*, Pittsburgh, May 1999, pp. 191-198.

Available from: <http://doi.acm.org/10.1145/302979.303038>

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.
Available from: <http://doi.acm.org/10.1145/289444.289487>

Scott Hudson, Roy Rodenstein, Ian Smith, "Debugging Lenses: A New Class of Transparent Tools for User Interface Debugging", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 179-187, October 1997.
Available from: <http://doi.acm.org/10.1145/263407.263542>

W. Keith Edwards, Scott Hudson, Roy Rodenstein, Ian Smith, Thomas Rodrigues, "Systematic Output Modification in a 2D UI Toolkit", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 151-158, October 1997.
Available from: <http://doi.acm.org/10.1145/263407.263537>

Scott Hudson, Ian Smith, "Supporting Dynamic Downloadable Appearances in an Extensible User Interface Toolkit", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 159-168, October 1997.
Available from: <http://doi.acm.org/10.1145/263407.263539>

Aileen Worden, Neff Walker, Krishna Bharat, Scott Hudson, "Making Computers Easier for Older Adults to Use: Area Cursors and Sticky Icons", *Proceedings of the 1997 SIGCHI Conference*, pp. 266-271, March 1997.
Available from: <http://doi.acm.org/10.1145/258549.258724>

Toshifumi Arai, Dietmar Aust, Scott Hudson, "PaperLink: A Technique for Hyperlinking from Real Paper to Electronic Content", *Proceedings of the 1997 SIGCHI Conference*, pp. 327-334, March 1997.
Available from: <http://doi.acm.org/10.1145/258549.258782>

Scott Hudson, Ian Smith, "Techniques for Addressing Fundamental Privacy and Disruption Tradeoffs in Awareness Support Systems", *Proceedings of the ACM Conference on Computer Supported Cooperative Work*, pp. 248-257, November 1996.
Available from: <http://doi.acm.org/10.1145/240080.240295>

Scott Hudson, Ian Smith, "Ultra-Lightweight Constraints" *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 147-155, November 1996.
Available from: <http://doi.acm.org/10.1145/237091.237112>

David Koller, Mark Mine, Scott Hudson, "Head-Trackled 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.
Available from: <http://doi.acm.org/10.1145/237091.237103>

Krishna Bharat, Scott Hudson, "Supporting Distributed, Concurrent, One-Way Constraints in User Interface Applications", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 121-132, November 1995.
Available from: <http://doi.acm.org/10.1145/215585.215708>

Ian Smith, Scott Hudson, "Low Disturbance Audio for Awareness and Privacy in Media Space Applications", *Proceedings of ACM Multimedia '95*, pp. 91-97. November 1995.
Available from: <http://doi.acm.org/10.1145/217279.215253>

Sougata Mukherjea, James Foley, Scott Hudson, "Visualizing Complex Hypermedia Networks through Multiple Hierarchical Views", *Proceedings of the 1995 SIGCHI Conference*, pp. 331-337, May 1995.

Available from: <http://doi.acm.org/10.1145/223904.223947>

Scott Hudson, Chen-Ning Hsi, "The Walk-Through Approach to Authoring Multimedia Documents", *Proceedings of ACM Multimedia '94*, pp. 173-180, October 1994.

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Scott Hudson, John Stasko, "Animation Support in a User Interface Toolkit: Flexible, Robust, and Reusable Abstractions", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 57-67, November 1993.

Available from: <http://doi.acm.org/10.1145/168642.168648>

Scott Hudson, Chen-Ning Hsi, "A Synergistic Approach to Specifying Simple Number Independent Layouts by Example", *Proceedings of InterCHI' 93*, pp. 285-292, April 1993.

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Scott Hudson, Gary Newell, "Probabilistic State Machines: Dialog Management for Inputs with Uncertainty", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 199-208, November 1992.

Available from: <http://doi.acm.org/10.1145/142621.142650>

Tyson Henry, Scott Hudson, "Interactive Graph Layout", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 55-64, November 1991.

Available from: <http://doi.acm.org/10.1145/120782.120788>

Scott Hudson, Andrey Yeatts, "Smoothly Integrating Rule-Based Techniques Into a Direct Manipulation Interface Builder", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 145-153, November 1991.

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Tyson Henry, Scott Hudson, Gary Newell, "Integrating Snapping and Gesture in a User Interface Toolkit", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 112-122, October 1990.

Available from: <http://doi.acm.org/10.1145/97924.97938>

Pamela Drew, Roger King, Scott Hudson, "The Performance and Utility of the Cactus Implementation Algorithms", *Proceedings of the 16th International Conference on Very Large Data Bases*, Brisbane, Australia, pp. 135-147, August 1990.

Scott Hudson, "Semantic Snapping: A Technique for Semantic Feedback at the Lexical Level", *Proceedings of the 1990 SIGCHI Conference*, pp. 65-70, April 1990.

Available from: <http://doi.acm.org/10.1145/97243.97253>

Scott Hudson, "Graphical Specification of Flexible User Interface Displays", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 105-114, November, 1989.

Available from: <http://doi.acm.org/10.1145/73660.73673>

Tyson Henry, Scott Hudson, "Using Active Data in a UIMS", *Proceedings of the ACM Symposium on User Interface Software and Technology*, pp. 167-178, October, 1988.

Available from: <http://doi.acm.org/10.1145/62402.62429>

Scott Hudson, Roger King, "Object-Oriented Database Support for Software Environments", *Proceedings of SIGMOD '87*, pp. 491-503, May 1987.
Available from: <http://doi.acm.org/10.1145/38713.38763>

Refereed Publications in Other Venues

Journal Papers

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.

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.

Jennifer Mankoff, Gregory Abowd, Scott Hudson, "Providing Toolkit-Level Support for Ambiguity in Recognition-Based Input", *Computers and Graphics*, v24, n6, pp. 819-834, December 2000.

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.

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.

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, "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.

Conference Papers

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.

Available from: <http://doi.acm.org/10.1145/1414471.1414481>

Xiang Cao, Andrew Wilson, Ravin Balakrishnan, Ken Hinckley, and Scott Hudson, "ShapeTouch: Leveraging Contact Shape on Interactive Surfaces", *Proceedings of the IEEE Conference on Tabletops and Interactive Surfaces*, pp. 129-136, October 2008.

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.

Available from: <http://doi.acm.org/10.1145/1378773.1378776>

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)

James Foley, Michel Beaudouin-Lafon, Jonathan Grudin, James Hollan, Scott Hudson, Judy Olson, Bill Verplank, "Graduate Education in Human-Computer Interaction", in Extended Abstracts of The ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 2113-2114, April 2005.

Available from: <http://doi.acm.org/10.1145/1056808.1057112>

James Fogarty, Ryan Baker, Scott Hudson, "Case Studies in the use of ROC Curve Analysis for Sensor-Based Estimates in Human Computer Interaction", *Proceedings of Graphics Interface '05*, pp. 129-136, May 2005.

Available from: <http://portal.acm.org/citation.cfm?id=1089530>

James Fogarty, Jodi Forlizzi, Scott Hudson, "Portrait: Generating Personal Presentations", *Proceedings of Graphics Interface '03*, pp. 209-216, May 2003.

Available from: <http://www.graphicsinterface.org/proceedings/2003/127/index.html>

Dan Olsen, Scott Hudson, Chung Man Tam, Genevieve Conaty, Matthew Phelps, Jeremy Heiner, "Speech Interaction with Graphical User Interfaces" , in *Proceedings of Interact 2001*, Tokyo Japan.

Scott Hudson, Ian Smith, "Electronic Mail Previews Using Non-Speech Audio", *CHI '96 Conference Companion*, pp. 237-238, April 1996.

Available from: <http://doi.acm.org/10.1145/257089.257299>

Ian Smith, Scott Hudson, Beth Mynatt, John Selbie, "Applying Cryptographic Techniques to Problems in Media Space Security", *Proceedings of the 1995 ACM Conference on Organizational Computing Systems*, pp. 190-196. August 1995.

Available from: <http://doi.acm.org/10.1145/224019.224038>

Scott Hudson, Ian Smith, "Automatic Generation of Starfield Displays Using Constraints", *CHI '95 Conference Companion*, pp. 202-203 May 1995.

Available from: <http://doi.acm.org/10.1145/223355.223517>

Aravindan Veerasamy, Scott Hudson, Sham Navathe, "Visual Interfaces for Textual Information Retrieval Systems", in *Proceedings of the Third IFIP 2.6 Working Conference on Visual Database Systems*, pp. 333-345, March 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.

Available from: <http://doi.acm.org/10.1145/192757.192787>

Albert Badre, Scott Hudson, Paulo Santos, "Synchronizing Video and Event Logs for Usability Studies", *Proceedings of the International Workshop on Advanced Visual Interfaces*, pp. 222-224, Bari Italy, June 1994.

Available from: <http://doi.acm.org/10.1145/192309.192354>

Scott Hudson, Chen-Ning Hsi, "A Framework for Low Level Analysis and Synthesis to Support High Level Authoring of Multimedia Documents", *Proceedings of the 5th COMSOC International Workshop on Multimedia Communications*, Kyoto Japan, pp. 1-3-1,1-3-5, May 1994.

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.

Available from: <http://doi.acm.org/10.1145/169891.169901>

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.

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.

Available from: <http://doi.acm.org/10.1145/318826.318836>

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.)

Available from: <http://doi.acm.org/10.1145/120782.120789>

Book Chapters

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 Higgens 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

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

"Lightweight and Just-in-Time Interaction for Active and Pro-Active Messaging", Principle 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

"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 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.)

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-present.

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)

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 2006	HCI 897	"Special Topics: Electr. Proto. for HCI" (with J. Lee)	(7 students)	*
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(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	CS6751	"Human Computer Interaction"	(55 students)	*

Spring 1994	CS3430	"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"

Graduate Seminars Organized and Supervised

User Interface Technology Reading Group (CMU, 2001 - 2006)
 User Interface Software Reading Group (Georgia Tech, 1993 - 1994)
 Graphical User Interface Seminar (University of Arizona, 1986 - 1991)

Individual Student Guidance

Ph.D. Students (Graduated)

Johnny Lee, Thesis: "Projector-Based Location Discovery and Tracking", (Carnegie Mellon University) May 2008, Microsoft Applied Sciences / Microsoft Research.

Joonhwan Lee, Thesis: "Designing Automatically Generated Perceptually Optimized Displays", (Carnegie Mellon University) May 2008.

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

James Fogarty, Thesis: "Constructing and Evaluating Sensor-Based Statistical Models of Human Interruptibility", (Carnegie Mellon) February 2006, Assistant 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), Assistant 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, Intel Research Seattle, 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.

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

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, Assistant 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)

Gary Hsieh (Carnegie Mellon) (co-advisor with Bob Kraut).
Amy Hurst (Carnegie Mellon) (co-advisor with Jennifer Mankoff).
Christopher Harrison (Carnegie Mellon).
Julia Schwarz (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)

Zhiqian Yeo (MHCI)	Spring 2009	"Kinetic Typography"
Zhiqian Yeo (BS, CS)	Fall 2008	"Kinetic Typography"
Zhiqian 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).

Associate Papers Chair (Technical papers committee member) for the annual ACM SIGCHI Conference (1989, 1991-92, 1996, 2000, 2002-05, 2006-07).

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

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

Program committee member for the ACM 2000 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).

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-present).

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, referee 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.