KEN HINCKLEY

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Principal Researcher, Microsoft Research (Redmond)
Associate Editor, ACM Transactions on Computer-Human Interaction (TOCHI)
CHI Academy, 2014 Inductee.
Ph.D., Computer Science, University of Virginia (Thesis Advisor: Randy Pausch)

BIOGRAPHY

Ken Hinckley is a Principal Researcher at Microsoft Research, where he has worked since 1997 investigating novel input devices, device form-factors, and modalities of interaction.

He is perhaps best know for his work on sensing techniques, cross-device interaction, and pen computing. He has published over 75 academic papers, and is a named inventor on upwards of 150 patents. His writing has also appeared in professional short fiction markets including the *Nature* journal's *Futures* column.

Ken holds a Ph.D. in Computer Science from the University of Virginia, where he studied with the late Randy Pausch. His thesis work was conducted in close collaboration with the Neurosurgery Department at the University of Virginia, under the auspices of the Neurosurgical Visualization Lab directed by John Goble (now deceased) and Dr. Neal Kassell, Distinguished Professor of the Department of Neurosurgery at the University of Virginia.

Ken is a member of the CHI Academy (2014 inductee), has served as an Associate Editor at ACM TOCHI (Transactions on Computer-Human Interaction) since 2003, and received the UIST 2011 Lasting Impact Award for his work on sensing techniques for mobile interaction.

EDUCATION

Ph.D.   Computer Science, University of Virginia, December 1996.
            Thesis: "Haptic Issues for Virtual Manipulation"
            Advisor: Randy Pausch

M.Sc.   Computer Science, University of Virginia, August 1993.
            Advisor: Randy Pausch

B.S.   Computer Science, Worcester Polytechnic Institute, with High Honors, 1991.
   Major Qualifying Project (senior thesis) Advisor: Matthew Ward

AWARDS & RECOGNITIONS

- **CHI Academy** – 2014 Inductee for career research accomplishments and service to the ACM SIGCHI community (Special Interest Group on Computer-Human Interaction).
- **UIST 2011 Lasting Impact Award** for Sensing Techniques for Mobile Interaction (published in UIST 2000), for its *"scientific exploration of mobile interaction, investigating new interaction techniques for handheld mobile devices supported by hardware sensors, and laying the groundwork for new research and industrial applications."*
- **UIST 2014 Best Paper Award**, for *Sensing Techniques for Stylus + Touch Interaction*.
- **CHI 2009, Technical Program Chair.**
- **MobileHCI 2015, Paper Committee Chair** (North America Subcommittee)
- **UIST 2006, Paper Committee Chair.**
- **CHI 2011 Best Paper Nomination** for *Sensor Synaesthesia: Touch in Motion, and Motion in Touch.*
- **MobileHCI 2013 Honorable Mention Award** for *Writing Messages on a Small Touchscreen*.
- **Graphics Interface 2014 Michael A. J. Sweeney Best Student Paper Award**, for *Experimental Study of Stroke Shortcuts for a Touchscreen Keyboard with Gesture-Redundant Keys Removed.*
- **CHI 2005 Best Paper Nomination**, for *Snap-and-go: Helping Users Align Objects Without the Modality of Traditional Snapping.*
- **Microsoft OfficeLabs *Thought Leadership Award*** awarded to ***InkSeine*** at the OfficeLabs Science Fair, Feb. 13, 2008.
- **Microsoft OfficeLabs *Thought Leadership Award*** awarded to ***Codex*** at the OfficeLabs Science Fair, Aug. 13, 2008.
- **HFES User Centered Consumer Product Design Award** for the ***Microsoft Office Keyboard***, presented by the Human Factors and Ergonomic Society (HFES) Consumer Product Technical Group, Oct. 15, 2001. (Awarded to the *Microsoft Corporation Hardware Design Group*, including myself and 11 colleagues).
- **UIST 2015, 2014—Awards Chair.**
- **UIST 2000 Best Paper Award**, for *Sensing Techniques for Mobile Interaction*.

PUBLICATONS
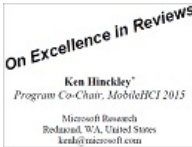
2015

Hinckley, K., **So You're a Program Committee Member Now: On Excellence in Reviews and Meta-Reviews and Championing Submitted Work That Has Merit**. *Published as "The MobileHCI Philosophy" on the MobileHCI 2015 Web Site, Feb 10th, 2015. Available as PDF document at: http://mobilehci.acm.org/2015/ download/ExcellenceInReviewsforHCICommunity.pdf*

Hinckley, K., **WIPTTE 2015** Workshop on the Impact of Pen and Touch Technology on Education. **Invited Talk**, Sensing Techniques for Tablet + Stylus Interaction. April 28th, 2015.
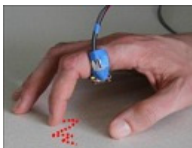
2014

Hinckley, K., CHI Academy. Inducted April 27th, 2014 at CHI 2014 in Toronto, Ontario, Canada, for career research accomplishments and service to the ACM SIGCHI community (Association of Computing Machinery's Special Interest Group on Computer-Human Interaction). [Ken Hinckley CHI Academy Bio]

Hinckley, K., Pahud, M., Benko, H., Irani, P., Gavriliu, M., Guimbretiere, F., Chen, X. 'A.', Matulic, F., Buxton, B., and Wilson, A. D., **Sensing Techniques for Tablet+Stylus Interaction**. *UIST 2014.* **Best paper award.** Named FastCo Design's #2 User Interface Innovation of 2014. Also featured on CNBC Spark, SlashGear, Gizmodo, & Engadget.

Kienzle, W., Hinckley, K., **LightRing: Always-Available 2D Input on any Surface**. *UIST 2014.*

Arif, A. S., Pahud, M., Hinckley, K., and Buxton, B., **Experimental Study of Stroke Shortcuts for a Touchscreen Keyboard with Gesture-Redundant Keys Removed.** In *Proc. Graphics Interface 2014* (GI'14). Canadian Information Processing Society, Toronto, Ont., Canada*.* Montreal, Quebec, Canada, May 7-9, 2014. Received the **Michael A. J. Sweeney Award for Best Student Paper**.

Kienzle, W., Hinckley, K., **The Analog Keyboard Project.** Handwriting keyboard download for Android Wear. Released October 2014. Available at http://research.microsoft.com/en-us/um/redmond/projects/analogkeyboard/index.htm

Nature Futures 2: Science Fiction from the Leading Science Journal, ed. by Henry Gee and Colin Sullivan. Includes "The Ostracons of Europa" by Ken Hinckley (Reprint). Published by Tor Books, electronic edition, Sept. 9, 2014, 320 pp.
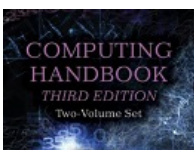
Hinckley, K., Jacob, R., Ware, C. Wobbrock, J., and Wigdor, D., **Input/Output Devices and Interaction Techniques.** Appears as Chapter 21 in *The Computing Handbook, Third Edition: Two-Volume Set*, ed. by Tucker, A., Gonzalez, T., Topi, H., and Diaz-Herrera, J. Published by Chapman and Hall/CRC (Taylor & Francis), May 13, 2014. [PDF – Author's Draft – may contain discrepancies]

2013

Hinckley, K., Chen, X., and Benko, H., **Motion and Context Sensing Techniques for Pen Computing.** In *Proc. Graphics Interface 2013* (GI'13). Canadian Information Processing Society, Toronto, Ont., Canada*.* Regina, Saskatchewan, Canada, May 29-31, 2013. [PDF] [video - MP4].

Hinckley, K. **The Fractured Frontier of Reading, Writing, and e-Creation**. Keynote talk delivered at WIPTTE 2013 Workshop on the Impact of Pen and Touch Technology in Education, March 21, 2013.

Kienzle, W., Hinckley, K., **Writing Handwritten Messages on a Small Touchscreen**. In *ACM 15th International Conference on Human-Computer Interaction with Mobile Devices and Services, (MobileHCI 2013)*, Munich, Germany, Aug. 27-30, 2013, pp. 179-182. **Honorable Mention Award** (Awarded to top 5% of all papers). [PDF] [video MP4] [Watch on YouTube - coming soon.]

Pahud, M., Hinckley, K., Iqbal, S., Sellen, A., and Buxton, B., **Toward Compound Navigation Tasks on Mobiles via Spatial Manipulation**. In *ACM 15th International Conference on Human-Computer Interaction with Mobile Devices and Services, (MobileHCI 2013)*, Munich, Germany, Aug. 27-30, 2013, pp. 113-122. [PDF] [video - MP4]
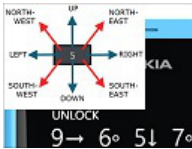
Arif, A., Pahud, M., Hinckley, K., Buxton, W., **A Tap and Gesture Hybrid Method for Authenticating Smartphone Users** (Poster). In *ACM 15th International Conference on Human-Computer Interaction with Mobile Devices and Services(MobileHCI 2013)*, Munich, Germany, Aug. 27-30, 2013, pp. 486-491. [Paper PDF] [Poster Presentation PDF]
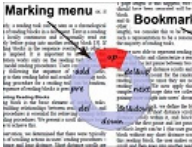
Yu, C., Balakrishnan, R., Hinckley, K., Moscovich, T., and Shia, Y., **Implicit Bookmarking: Improving Support for Revisitation in Within-Document Reading Tasks**, Intl. Journal of Human-Computer Studies, Elsevier publishing, Vol. 71, No. 3 (March 2013), pp. 303-320.

"The Totem of Curtained Minds" by Ken Hinckley (Fiction). In *Fiction River: Time Streams, Vol. 1, No. 3*, August 20th, 2013.

"The Ostracons of Europa" by Ken Hinckley (Fiction). In *Nature, Vol. 499, No. 7456*, p. 120. July 3rd, 2013. *Futures* column. Published by Nature Publishing Group, a division of Macmillan Publishers Limited. All Rights Reserved. DOI: 10.1038/499120a. [Available online] [Also available as a Nature Futures podcast and MP3 Download.]

2012

Hinckley, K., Bi, X., Pahud, M., Buxton, B., **Informal Information Gathering Techniques for Active Reading**. 4pp Note. In *Proc. CHI 2012 Conf. on Human Factors in Computing Systems*, Austin, TX, May 5-10, 2012. [PDF] [video .WMV]
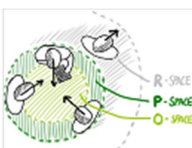
Marquardt, N., Hinckley, K., Greenberg, S., **Cross-Device Interaction via Micro-mobility and F-formations**. *UIST 2012 Symp. on User Interface Software & Technology,* Cambridge, MA, Oct. 7-10, 2012.

Marquardt, N., Ballendat, T., Boring, S., Greenberg, S., Hinckley, K., **Gradual Engagement: Facilitating Information Exchange between Digital Devices as a Function of Proximity**. *ACM ITS 2012 Conf. on Interactive Tabletops & Surfaces,* Cambridge, MA, Nov. 11-14 2012*.*

Knies, R. **In-Place: Interacting with Large Displays**. Reporting on research by Pahud, M., Hinckley, K., and Buxton, B. TechNet Inside Microsoft Research Blog Post, Oct 4th, 2012.
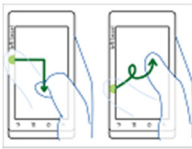
2011

Code Space: Combining Touch, Devices, and Skeletal Tracking to Support Developer Meetings, Bragdon, A., DeLine, R., Hinckley, K., Morris, M.R. ACM ITS 2011 International Conference on Interactive Tabletops and Surfaces.
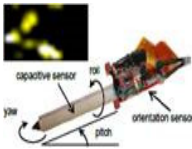
Enhancing Naturalness of Pen-and-Tablet Drawing through Context Sensing, Minghui Sun, Xiang Cao, Hyunyoung Song, Shahram Izadi, Hrvoje Benko, Francois Guimbretiere, Xiangshi Ren, Ken Hinckley. Video. ACM ITS 2011 International Conference on Interactive Tabletops and Surfaces.

Hinckley, K., and Song, H., **Sensor Synaesthesia: Touch in Motion, and Motion in Touch**, In *Proc. CHI 2011 Conf. on Human Factors in Computing Systems*. **CHI 2011 Honorable Mention Award.** [PDF] [video .WMV] [Watch on YouTube].

Bragdon, A., Nelson-Brown, E., Li, Y., Hinckley, K., **Experimental Analysis of Touch-Screen Gesture Designs in Mobile Environments**, In *Proc. CHI 2011 Conf. on Human Factors in Computing Systems*. [PDF]

Song, H., Benko, H., Guimbretiere, F., Izadi, S., Cao, X., Hinckley, K., **Grips and Gestures on a Multi-Touch Pen**, In *Proc. CHI 2011 Conf. on Human Factors in Computing Systems*. [PDF] [video .WMV]

Hinckley, K., Wigdor, D., **Input Technologies and Techniques**. Chapter 9 in *The Human-Computer Interaction Handbook - Fundamentals, Evolving Technologies and Emerging Applications, Third Edition*, ed. by J. Jacko. Published by Taylor & Francis. [PDF of author's manuscript - not final]

2010

Hinckley, K., Yatani, K., Pahud, M., Coddington, N., Rodenhouse, J., Wilson, A., Benko, H., Buxton, B., **Pen + Touch = New Tools**. In *Proc. UIST 2010 Symposium on User interface Software and Technology*, New York, NY, pp. 27-36. [PDF] [video .WMV] [Watch on YouTube]

Benko, H., Izadi, S., Wilson, A. D., Cao, X., Rosenfeld, D., Hinckley, K., **Design and Evaluation of Interaction Models for Multi-touch Mice**. *Proc. Graphics interface 2010*, Ottawa, Ontario, Canada, May 31 - June 02, 2010, pp. 253-260. [PDF] [video .WMV]

Hinckley, K., Yatani, K., Pahud, M., Coddington, N., Rodenhouse, J., Wilson, A., Benko, H., Buxton, B., **Manual Deskterity: An Exploration of Simultaneous Pen + Touch Direct Input**. In *CHI 2010 Extended Abstracts: Proc. CHI 2010 Conf. on Human Factors in Computing Systems*, Atlanta, GA, pp. 2793-2802. [PDF] [video .WMV] [Watch on YouTube]

Hinckley, K., Pahud, M**.,** Buxton, B., **Direct Display Interaction via Simultaneous Pen + Multi-touch Input**. In *Society for Information Display (SID) Symposium Digest of Technical Papers*, May 2010, Volume 41(1), Session 38, pp. 537-540. [PDF] [A video for this work is available on YouTube]

Hinckley, K., **The MindEx Timepiece: It Takes Your Thinking and Keeps on Linking.** *(Non-archival; 5 minute talk only-- no manuscript was published).* **One of five winning entries in the "Demos Optional" UIST 2030 Contest** organized by Ken Perlin for UIST 2010, New York, NY, Oct. 5, 2010.

2009

Hinckley, K., Dixon, M., Sarin, R., Guimbretiere, F., and Balakrishnan, R. 2009. Codex: a Dual-Screen Tablet Computer. In *Proc. CHI 2009 Conf. on Human Factors in Computing Systems,* Boston, MA, pp. 1933-1942. [PDF] [video .MOV] [Watch on YouTube].


Grossman, T., Baudisch, P., and Hinckley, K. **Handle Flags: Efficient and Flexible Selections for Inking Applications.** In *Proc. Graphics Interface 2009*, Kelowna, British Columbia, Canada, May 25 - 27, 2009. Canadian Information Processing Society, Toronto, Ont., Canada, pp. 167-174. [PDF] [video .AVI] [Watch on YouTube]

CHI 2009. *Proceedings of the 27th International Conference on Human Factors in Computing Systems*. ACM, New York, NY, USA. **Technical Program Chair: Ken Hinckley**. [Proceedings in the ACM Digital Library]

Microsoft Courier Project. I was a contributing member of the Microsoft Courier project team in the ~2009 timeframe. *The project is only known through leaked materials and was ultimately canceled; details of the effort remain confidential to Microsoft. I worked closely with Georg Petschnigg (now CEO of 53 Design, the creators of Paper) and others on developing some of the interaction concepts behind Courier's unique dual-screen design and pen-and-touch user experience.*
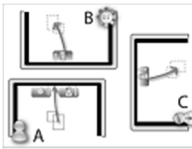
Ramos, G., Hinckley, K., Wilson, A., and Sarin, R., **Synchronous Gestures in Multi-Display Environments**, In *Human–Computer Interaction, Special Issue: Ubiquitous Multi-Display Environments*, Volume 24, Issue 1-2, 2009, pp. 117-169. [Author's Manuscript PDF - not final proof]

Hinckley, K., **Input Technologies and Techniques**, Chapter 9 in *Human-Computer Interaction Fundamentals (Human Factors and Ergonomics)*, ed. by Sears, A., and Jacko, J., CRC Press, Boca Raton, FL. (Also appears as Chapter 9 in The Human-Computer Interaction Handbook, 2nd Edition.) Published March 02, 2009. [PDF of author's manuscript - not final]

2008
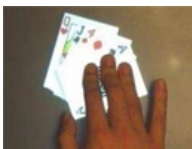
Cao, X., Wilson, A.D., Balakrishnan, R., Hinckley, K., Hudson, S.E. **ShapeTouch: Leveraging Contact Shape on Interactive Surfaces**. *TABLETOP 2008, 3rd IEEE International Workshop on Horizontal Interactive Human Computer Systems*, Oct 1-3, 2008, Amsterdam, pp. 129 - 136. [PDF] [video .WMV]

Bi, X., Moscovich, T., Ramos, G., Balakrishnan, R., and Hinckley, K. **An Exploration of Pen Rolling for Pen-Based Interaction**. In *Proc. UIST 2008 Symp. on User Interface Software and Technology,* Monterey, CA, October 19 - 22, 2008, pp. 191-200. [PDF] [video .WMV]

Baudisch, P., Zotov, A., Cutrell, E., and Hinckley, K. **Starburst: A Target Expansion Algorithm for Non-Uniform Target Distributions**. In *Proc. AVI 2008 Working Conference on Advanced Visual Interfaces*, Napoli, Italy, May 28 - 30, 2008, pp. 129-137. [PDF] [video .WMV] [Watch on YouTube]

Li, K. A., Baudisch, P., and Hinckley, K. **Blindsight: Eyes-Free Access to Mobile Phones**. In *Proc. CHI 2008 Conf. on Human Factors in Computing Systems*, Florence, Italy, April 05 - 10, 2008, pp. 1389-1398. [PDF] [Video .WMV]


Liao, C., Guimbretière, F., Hinckley, K., and Hollan, J., **Papiercraft: A Gesture-Based Command System for Interactive Paper**. In *ACM Transactions on Computer-Human. Interaction,* 14, 4 (Jan. 2008), pp. 1-27. [PDF] [video .MOV from UIST 2005 Paper]

2007

Hinckley, K., Zhao, S., Sarin, R., Baudisch, P., Cutrell, E., Shilman, M., and Tan, D. 2007. **InkSeine: *In Situ* search for active note taking**. In *Proc. CHI 2007 Conf. on Human Factors in Computing Systems*, San Jose, CA, pp. 251-260. [PDF] [video .MOV] [Watch on YouTube] [**Install**]. See also: [Demo reel from public download on YouTube].
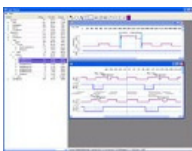
Guimbretiére, F., Dixon, M., and Hinckley, K., **ExperiScope: An Analysis Tool for Interaction Data**. In *Proc. CHI 2007 Conference on Human Factors in Computing Systems*, San Jose, CA, April 28 - May 03, 2007, pp. 1333-1342. [PDF] [video .MOV]


Hinckley, K., Input Technologies and Techniques. Chapter 9 in The Human-Computer Interaction Handbook, 2nd Edition, ed. by Sears, A., and Jacko, J., CRC Press, Boca Raton, FL. Written in 2006. Published Sept 19, 2007. [PDF of author's manuscript - not final]
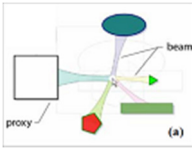
2006

Baudisch, P., Tan, D., Collomb, M., Robbins, D., Hinckley, K., Agrawala, M., Zhao, S., and Ramos, G, **Phosphor: Explaining Transitions in the User Interface Using Afterglow Effects**. In *Proc. UIST 2006 Symposium on User interface Software and Technology*, Montreux, Switzerland, October 15 - 18, 2006, pp. 169-178. [PDF] [video .WMV].
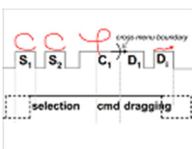
Hinckley, K., Guimbretiere, F., Agrawala, M., Apitz, G., and Chen, N. **Phrasing Techniques for Multi-Stroke Selection Gestures**. In *Proceedings of Graphics interface 2006*, Quebec, Canada, June 07 - 09, 2006). Published by Canadian Information Processing Society, Toronto, Ont., Canada, pp. 147-154. [PDF] [video .WMV] [Watch on YouTube]

Ramos, G., Robertson, G., Czerwinski, M., Tan, D., Baudisch, P., Hinckley, K., and Agrawala, M. **Tumble! Splat! Helping Users Access and Manipulate Occluded Content in 2D Drawings**. In *Proc. AVI 2006 Working Conf. on Advanced Visual Interfaces*, Venezia, Italy, May 23 - 26, 2006, pp. 428-435. [PDF] [Splatter technique .AVI] [Tumbler technique .AVI].

Hinckley, K., Guimbretiere, F., Baudisch, P., Sarin, R., Agrawala, M., and Cutrell, E., **The Springboard: Multiple Modes in One Spring-Loaded Control**. In *Proc. CHI 2006 Conf. on Human Factors in Computing Systems*, Montréal, Québec, Canada, April 22 - 27, 2006, pp. 181-190. [PDF] [video .MOV] [Watch on YouTube]

Grossman, T., Hinckley, K., Baudisch, P., Agrawala, M., and Balakrishnan, R., **Hover Widgets: Using the Tracking State to Extend the Capabilities of Pen-Operated Devices**. In *Proc. CHI 2006 Conf. Human Factors in Computing Systems*, Montréal, Québec, Canada, April 22 - 27, 2006, pp. 861-870. [PDF] [video .MOV] [Watch on YouTube]

Zhao, S., Agrawala, M., and Hinckley, K., **Zone and Polygon Menus: Using Relative Position to Increase the Breadth of Multi-Stroke Marking Menus**. In *Proc. CHI 2006 Conf. on Human Factors in Computing Systems*, Montréal, Québec, Canada, April 22 - 27, 2006, pp. 1077-1086. [PDF] [video .WMV]

UIST 2006. *Proceedings of the 19th Annual ACM Symposium on User Interface Software and Technology*. ACM, New York, NY, USA. **Paper Committee Chair: Ken Hinckley**. [Proceedings in the ACM Digital Library]
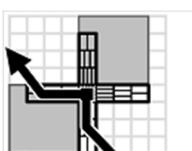
2005

Liao, C., Guimbretière, F., and Hinckley, K., **PapierCraft: A Command System for Interactive Paper**. In *ACM UIST 2005 Symp. on User interface Software and Technology*, Seattle, WA, pp. 241-244. [PDF] [video .MOV]

Li, Y., Hinckley, K., Guan, Z., and Landay, J. A., **Experimental Analysis of Mode Switching Techniques in Pen-Based User Interfaces**. In *Proc. CHI 2005 Conf. on Human Factors in Computing Systems*, Portland, OR, April 02 - 07, 2005, pp. 461-470. [PDF] [animated .GIF showing experimental task]

Baudisch, P., Cutrell, E., Hinckley, K., and Eversole, A. **Snap-And-Go: Helping Users Align Objects without the Modality of Traditional Snapping**. In *Proc. CHI 2005 Conf. on Human Factors in Computing Systems*, Portland, OR, April 02 - 07, 2005,

pp. 301-310. **CHI 2005 Best Paper Nomination Award.** [PDF] [demo on Patrick Baudisch's Flash web page]

Hinckley, K., Baudisch, P., Ramos, G., and Guimbretiere, F., **Design and Analysis of Delimiters for Selection-Action Pen Gesture Phrases in Scriboli**. In *Proc. CHI 2005 Conf. on Human Factors in Computing Systems*, Portland, OR, April 02 - 07, 2005, pp. 451-460. [PDF] [video .WMV] [Watch on YouTube]

Hinckley, K., Pierce, J., Horvitz, E., and Sinclair, M. **Foreground and Background Interaction with Sensor-Enhanced Mobile Devices**. *ACM Transactions on Computer-Human Interaction*, Vol. 12, No. 1 (Mar. 2005), pp. 31-52. [PDF] [video mpeg from UIST 2000 paper] [Watch on YouTube]
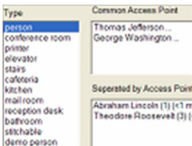
2004

Hinckley, K., **Ramos**, G., Guimbretiere, F., Baudisch, P., and Smith, M. **Stitching: pen gestures that span multiple displays.** In *Proc. AVI 2004 Working Conference on Advanced Visual Interfaces*, Gallipoli, Italy, pp. 23-31. [PDF] [video mpeg] [**bonus video:** stitching for mobiles] [Watch main video on YouTube]

Baudisch, P., Cutrell, E., Hinckley, K., and Gruen, R., **Mouse Ether: Accelerating the Acquisition of Targets across Multi-Monitor Displays**. In *Proc. CHI 2004 Extended Abstracts on Human Factors in Computing Systems*, Vienna, Austria, April 24 - 29, 2004, pp. 1379-1382. [PDF] [video .AVI]

Krumm, J., Hinckley, K., **The NearMe Wireless Proximity Server**. In *Proceedings of Ubicomp 2004: Ubiquitous Computing*, September 7-10, 2004, Nottingham, England, pp. 283-300. Published by Springer. [PDF] [John Krumm's NearMe Project Page].

Hinckley, K., Ramos, G., Guimbretiere, F., Baudisch, P., Smith, M., **Stitching: Connecting Wireless Mobile Devices with Pen Gestures**, Video Abstract: ACM 2004 Conf. on Computer Supported Cooperative Work (CSCW 2004 formal video program), Chicago, IL, Nov. 6-10, 2004. [PDF] [video .MOV]

Hinckley, K., Jacob, R., Ware, C., **Input/Output Devices and Interaction Techniques**. Chapter 20 in *The Computer Science Handbook, Second Edition*, ed. by A.B. Tucker, Chapman and Hall / CRC Press, Boca Raton, FL, Nov. 29, 2004, pp. 20.1-20.32. [PDF of author's manuscript - not final]
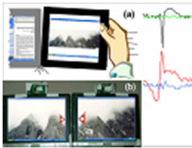
2003
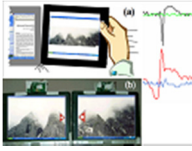
Hinckley, K., Ramos, G., Guimbretiere, F., Baudisch, P., and Smith, M. **Synchronous Gestures for Multiple Persons and Computers.** In *Proc. UIST 2003 Symp. on User interface Software and Technology*, Vancouver, Canada, pp. 149-158. [PDF] [video mpeg] [Watch on YouTube]

*Hinckley, K., **Distributed and Local Sensing Techniques for Face-to-face Collaboration,** In ICMI/PUI'03 Fifth International Conference on Multimodal Interfaces, Vancouver, British Columbia, Canada, Nov. 05 - 07, 2003, pp. 81-84.* [PDF] [Footage of the techniques included in this video .MPEG] [Watch on YouTube]

Hinckley, K., **Bumping Objects Together as a Semantically Rich Way of Forming Connections between Ubiquitous Devices.** UbiComp 2003 Formal Video Program, Seattle, WA, Oct 12-15, 2003. [Abstract - PDF] [video .MPEG] [Watch on YouTube]

McLoone, H., Hinckley, K., Cutrell, E., **Bimanual Interaction on the Microsoft Office Keyboard**. In *Proceedings of IFIP INTERACT03: Human-Computer Interaction*, Zurich, Switzerland, Sept 01-05, 2003, IOS Press: Amsterdam, Netherlands, pp. 49-56. **Note: This product won an HFES Consumer Product Design Award.** [PDF].

McLoone, H., Hinckley, K., Cutrell, E., **Ergonomic Principles Applied to the Design of the Microsoft Office Computer Keyboard**. Proc. IEA 2003 XVth Triennial Congress of the International Ergonomics Association, Seoul, South Korea, Aug. 24-29, 2003. [PDF].

2002
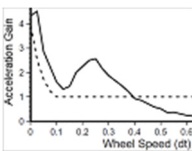
Hinckley, K., Cutrell, E., Bathiche, S., and Muss, T., **Quantitative Analysis of Scrolling Techniques**. In *Proc. CHI 2002 Conf. on Human Factors in Computing Systems,* Minneapolis, MN, April 20 - 25, 2002, pp. 65-72. [PDF]

Hinckley, K., Input Technologies and Techniques. Chapter 7 in The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies and Emerging Applications (Human Factors and Ergonomics), 1st Edition, ed. by Sears, A., and Jacko, J. Written in 2001. Published by Lawrence Erlbaum, Hillsdale, NJ, Sept 1, 2002, pp. 151-168. [PDF of author's manuscript - not final]

2001

Hinckley, K. and Horvitz, E., **Toward More Sensitive Mobile Phones**. In *Proc. UIST 2001 Symp. on User interface Software and Technology*, Orlando, FL, Nov. 11 - 14, 2001, pp. 191-192. [PDF]

2000

Hinckley, K., Pierce, J., Sinclair, M., and Horvitz, E. **Sensing techniques for mobile interaction**. In *ACM UIST 2000 Symp. on User interface Software and Technology*, San Diego, California, pp. 91-100. **UIST 2000 Best Paper Award.** [PDF] [video mpeg] [Watch on YouTube]

Igarashi, T. and Hinckley, K, **Speed-Dependent Automatic Zooming for Browsing Large Documents**. In *Proc. UIST 2000 Symp. on User Interface Software and Technology*, San Diego, CA, Nov. 5, 2000, pp. 139-148. [PDF] [video .MOV] [Takeo's Java Applet Demo] [Watch on YouTube]. Note: This technique is now widely referred to by the acronym "SDAZ."

Balakrishnan, R. and Hinckley, K., **Symmetric Bimanual Interaction**. In *Proc. CHI 2000 Conf. on Human Factors in Computing Systems*, The Hague, The Netherlands, April 01 - 06, 2000, pp. 33-40. [PDF]

Robertson, G., van Dantzich, M., Robbins, D., Czerwinski, M., Hinckley, K., Risden, K., Thiel, D., and Gorokhovsky, V., **The Task Gallery: A 3D Window Manager**. In *Proc. CHI 2000 Conf. on Human Factors in Computing Systems*, The Hague, The Netherlands, April 01 - 06, 2000, pp. 494-501. [PDF] [video - .mp4] [Watch on YouTube]

1999
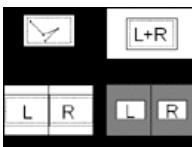
Balakrishnan, R. and Hinckley, K., **The Role of Kinesthetic Reference Frames in Two-Handed Input Performance**. In *Proc. UIST 1999 Symp. on User interface Software and Technology*, Asheville, NC, November 07 - 10, 1999, pp. 171-178. [PDF]

Hinckley, K., Sinclair, M., Hanson, E., Szeliski, R., and Conway, M., **The VideoMouse: A Camera-Based Multi-Degree-of-Freedom Input Device**. In *Proc. UIST 1999 Symp. on User interface Software and Technology*, Asheville, NC, November 07 - 10, 1999, pp. 103-112. [PDF] [video - currently not available in digital format]

Hinckley, K. and Sinclair, M., **Touch-Sensing Input Devices**. In *Proc. CHI 1999 Conf. on Human Factors in Computing Systems*, Pittsburgh, PA, May 15 - 20, 1999, pp. 223-230. [PDF] [video - MPEG]

Hinckley, K., Pausch, R., Proffitt, D., Kassell, N. **Two-Handed Virtual Manipulation (Research alert for TOCHI paper)**. ACM *interactions* Magazine, Vol. VI.2, March+April 1999, pp. 10-11. [PDF]

1998

Hinckley, K., Czerwinski, M., and Sinclair, M., **Interaction And Modeling Techniques For Desktop Two-Handed Input**. In *Proc. UIST 1998 Symp. on User interface Software and Technology*, San Francisco, CA, November 01 - 04, 1998, pp. 49-58. [PDF] [video - currently not available in digital format]

Hinckley, K., Pausch, R., Proffitt, D., and Kassell, N. F., Two-handed Virtual Manipulation. *ACM Transactions on Computer-Human Interaction*, Vol. 5, No. 3 (Sep. 1998), pp. 260-302. [PDF]

1997

Hinckley, K., Tullio, J., Pausch, R., Proffitt, D., and Kassell, N., **Usability Analysis of 3D Rotation Techniques**. In *Proc. UIST 1997 Symp. on User interface Software and Technology*, Banff, Alberta, Canada, October 14 - 17, 1997, pp. 1-10. [PDF] [video - currently not available in digital format]
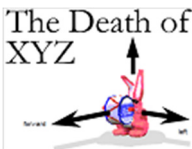
Pierce, J. S., Audia, S., Burnette, T., Christiansen, K., Cosgrove, D., Conway, M., Hinckley, K., Monkaitis, K., Patten, J., Shochet, J., Staack, D., Stearns, B., Sturgill, C., Williams, G., and Pausch, R., **Alice: Easy to Use Interactive 3D Graphics**. In *Proc. UIST 1997 Symp. on User interface Software and Technology*, Banff, Alberta, Canada, October 14 - 17, 1997, pp. 77-78. [PDF] [More about Alice]

Hinckley, K., Pausch, R., and Proffitt, D., **Attention and Visual Feedback: The Bimanual Frame of Reference**. In *Proc. I3D 1997 Symp. on interactive 3D Graphics*, Providence, RI, April 27 - 30, 1997, pp. 121-126. [PDF] [video - currently not available in digital format]
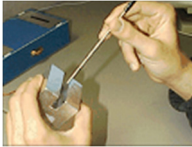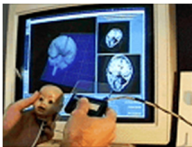

Hinckley, K., Pausch, R., Proffitt, D., Patten, J., and Kassell, N., **Cooperative Bimanual Action**. In *Proc. CHI 1997 Conf. on Human Factors in Computing Systems*, Atlanta, GA, April 22 - 27, 1997, pp. 27-34. [PDF] [video - currently not available in digital format]

Hinckley, K., **Haptic Issues for Virtual Manipulation**. Doctoral Thesis. UMI Order Number: GAX97-24701, University of Virginia, Charlottesville, VA, January 1997. Advisor: Randy Pausch. [PDF] [Postscript] [videos - currently not available in digital format]
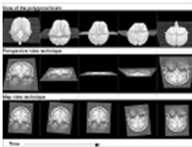
Hinckley, K., Pausch, R., Downs, J. H., Proffitt, D., Kassell, N., **The Props-Based Interface For Neurosurgical Visualization,** In *MMVR5: Medicine Meets Virtual Reality 5*, Global Healthcare Grid, San Diego, CA, Jan. 22-25, 1997, IOS Press (Studies In Health Technology And Informatics, Vol. 39), Amsterdam, Netherlands, pp.552-62. [PDF]

1996

Hinckley, K., Conway, M., Pausch, R., Proffitt, D., Stoakley, R., Kassell, N. F., **Revisiting Haptic Issues for Virtual Manipulation.** Position statement for *CHI'96 Workshop on Manipulation in Virtual Environments*, Vancouver, British Columbia, Canada, April 13-14, 1996. [PDF]

Hinckley, K., **140.3: Issues in bimanual coordination: The props-based interface for neurosurgical visualization.** appeared in *Symposium 140: Human bimanual specialization: New perspectives on basic research and application*, convened by Guiard, Y., Montréal, Quebec, Canada, Aug. 17, 1996. Abstract published in *International Journal of Psychology*, Volume 31, Issue 3-4, *Special Issue: Abstracts of the XXVI INTERNATIONAL CONGRESS OF PSYCHOLOGY,* 1996.

1995

Goble, J. C., Hinckley, K., Pausch, R., Snell, J. W., and Kassell, N. F., **Two-Handed Spatial Interface Tools for Neurosurgical Planning**. *IEEE Computer*, Vol. 28, No. 7 (Jul. 1995), pp. 20-26. **Featured article on cover.** [PDF - poor quality, sorry] [high quality scan forthcoming]
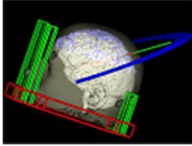
Snell, J. W., Jackson, T. R., Katz, W. T., Hinckley, K., Goble, J. C., Kassell N. F., **A Three-Dimensional Stereotactic Neurosurgical Planner/Simulator,** In *Proc. 1995 SPIE Conference on Medical Imaging: Image Display*, SPIE Proceedings Vol. 2431, April 27, 1995, pp. 110-118. [PDF]

Hinckley, K, Goble, J., Pausch, R., Kassell, N. F., **New Applications for the Touchscreen in 2D and 3D Medical Imaging Workstations,** In *Proc. 1995 SPIE Conference on Medical Imaging: Image Display*, SPIE Proceedings Vol. 2431, April 27, 1995, pp.561-570. [PDF]

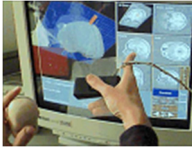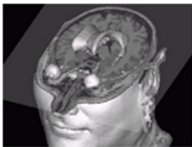Katz, W. T., Snell, J. W., Hinckley, K., **Interactive Visualization of Three-Dimensional Segmented Images for Neurosurgery.** Technical Report, University of Virginia, Dept. of Neurosurgery, June 1995. [PDF] [Bill Katz's project page]

1994

Hinckley, K., Pausch, R., Goble, J. C., and Kassell, N. F., **A Survey of Design Issues in Spatial Input**. In *Proc. UIST 1994 Symp. on User interface Software and Technology*, Marina del Rey, CA, November 02 - 04, 1994, pp. 213-222. [PDF]

Durbin, J., Jacob, R., and Hinckley, K., **Laying the Foundation for the Information Super Highway: Human-Computer Interaction Research**. *SIGCHI Bulletin.* 26, 4 (Oct. 1994), pp. 56-58. [PDF]

Hinckley, K., Pausch, R., Goble, J. C., and Kassell, N. F., **Passive Real-World Interface Props For Neurosurgical Visualization**. In *Proc. CHI 1994 Conf. on Human Factors in Computing Systems*, Boston, MA, April 24 - 28, 1994, pp. 452-458. [PDF] [video - currently not available in digital format]
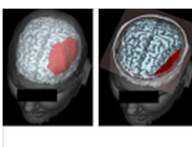
Goble, J. C., Snell, J., Hinckley, K., Kassell, N., **A Real-Time System for 3D Neurosurgical Planning,** In *Proc. VBC'94: Visualization in Biomedical Computing*, Sept. 9, 1994, SPIE Proceedings Vol. 2359, pp. 552-563. [PDF - One page abstract of the paper] [PDF - full text - not yet available]
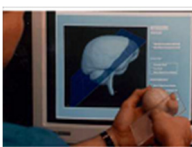
Hinckley, K., Pausch, R., Goble, J. C., Kassell, N. F., **A Three-Dimensional User Interface for Neurosurgical Visualization**, In *Proc. SPIE Conf. on Medical Imaging: Image Capture, Formatting, and Display*, May 1, 1994, SPIE Proceedings Vol. 2164, pp. 126-136. [PDF]

1991

Hinckley, K. P. and Ward, M. O., **The Visual Comparison of Three Sequences**. In *Proc. IEEE Visualization 1991*, San Diego, CA, October 22 - 25, 1991, pp. 179-186. [[PDF](#)]

PATENTS

As of 4/28/2015, I have **over 150 patents** either granted, filed, or in-progress (only patents filed more than 18 months ago have been published by the USPTO). These are currently divided across 120 unique titles (some disclosures end up getting split into multiple filings for various reasons).

Many of my published patents are available online. Due to variations on my listed name and address some of them only come up on Google patent search here and many are still scattered elsewhere.)

1. Accelerated data navigation. US Patents #7277084, 7268768, 6989819, filed 3/31/2004.
2. Accessing 2D graphic content using axonometric layer views. US Patent #7,663,620, filed 12/5/2005.
3. ACTIVE USE LOOKUP VIA MOBILE DEVICE, US Patent Application #20090094283, filed 6/27/2008.
4. AUTOMATIC ANSWERING OF A MOBILE PHONE, US Patent Application #20120214542, filed 8/23/2012. US Patents # 13/031,076 and 13/962,854, Aug 13, 2013.
5. Automatic scrolling. US Patents #7,061,474, 6,975,306, 6,690,365, filed 1/12/2004.
6. BIMODAL TOUCH SENSITIVE DIGITAL NOTEBOOK, US Patent Application #20100251112, filed 3/24/2009.
7. BRUSH, CARBON-COPY, AND FILL GESTURES , US Patent Applications #20110185300, filed 1/28/2010, and #20120236026, filed 5/30/2012.
8. Capacitance touch slider, US Patents #7,812,825, 7,158,125, 7,050,927, 6,879,930, filed 3/30/2001.
9. Causing Specific Location of an Object Provided to a Device, US Patent Application #20140247207, filed 3/14/2013.
10. CHANGING INPUT TOLERANCES BASED ON DEVICE MOVEMENT, US Patent Application #20110267263, filed 11/3/2011.
11. CHANGING POWER MODE BASED ON SENSORS IN A DEVICE, US Patent Application #20110264298, filed 10/27/2011.
12. COMMAND AUTHENTICATION, US Patent Application #20150106739, published 4/16/2015.
13. COMPOSITION OF HANDWRITTEN MESSAGES ON MOBILE COMPUTING DEVICES, US Patent Application # 20140171153, published 6/19/2014.
14. COMPUTING DEVICE HAVING PLURAL DISPLAY PARTS FOR PRESENTING PLURAL SPACES, US Patent Application #20120154255, filed 6/21/2012.
15. CONNECTING MOBILE DEVICES VIA INTERACTIVE INPUT MEDIUM, US Patent Application #20080214233, filed 8/15/2007. US Patents # 11/839,279 and 13/730,582. Feb 19, 2013.
16. Context-Aware Interaction System Using a Semantic Model. US Patent Application #20130138424, published 2013-05-30.
17. CONTEXTUAL MULTIPLEXING GESTURES, US Patent Application #20110191704, filed 2/4/2010.
18. Cooperative federation of digital devices via proxemics and device micro-mobility, US Patent Application #20140280748, 3/14/2013.

19. COOPERATIVE USE OF PLURAL INPUT MECHANISMS TO CONVEY GESTURES, US Patent Application #20120154295, filed 6/21/2012.
20. Copy and Staple Gestures, US Patent Applications #20110181524, filed 1/28/2010, and #2011020412, filed 4/8/2011.
21. Cross-reference Gestures, US Patent Applications #20110185320, filed 1/28/2010, and 2011020417, filed 4/8/2011.
22. Cut, Punch-Out, and Rip Gestures, US Patent Application #20110191719, filed 2/4/2010.
23. Delimiters for selection-action pen gesture phrases, US Patent #7454717, filed 10/20/2004.
24. DETECTING AND RESPONDING TO UNINTENTIONAL CONTACT WITH A COMPUTING DEVICE, US Patent Application #20120158629, filed 6/21/2012.
25. DETECTING GESTURES INVOLVING INTENTIONAL MOVEMENT OF A COMPUTING DEVICE, US Patent Applications #20120154293, filed 6/21/2012, and 2011065579, filed 6/21/2012.
26. Displaying 2D graphic content using depth wells, US Patent #7523405, filed 11/16/2005.
27. Displaying visually correct pointer movements on a multi-monitor display system, US Patent #7557774, filed 8/13/2004.
28. Distance-based accelerated scrolling, US Patent #7173637, 4/2/2002.
29. Distributed sensing techniques for mobile devices, US Patents #7532196, 7636794, filed 10/30/2003.
30. Dynamic interconnection of mobile devices, US Patent #7817991, filed 8/29/2006.
31. EDGE GESTURES, US Patent #8239785, 8/7/2012, as well as US Patent Applications #20110185318, filed 1/27/2010, and #2011020410, filed 4/8/2011.
32. Enhanced scrolling, US Patent #7408538   , 8/17/2005.
33. Establishing communication between computing-based devices through motion detection, US Patent #7427926, 1/26/2006.
34. Extending digital artifacts through an interactive surface, US Patent #7,970,870, 6/24/2005, as well as US Patent Application # 20110273368, filed 11/10/2011.
35. EYE TRACKING, US Patent Application # 20150102981, published 4/16/2015.
36. FLICK-BASED IN SITU SEARCH FROM INK, TEXT, OR AN EMPTY SELECTION REGION, US Patent Application #20090058820, filed 9/4/2007
37. GENERATING AUDIO SIGNALS BASED ON INPUT DEVICE POSITION, US Patent #8063882, 11/22/2011, as well as US Patent Application #20090160771, 3/2/2009.
38. GESTURE-BASED SEARCHING, US Patent Application #20150106399, published 4/16/2015.
39. GESTURE COMBINING MULTI-TOUCH AND MOVEMENT. US Patent Application #20130154952, published 2013-06-20.
40. GESTURE IDENTIFICATION USING AN AD-HOC MULTIDEVICE NETWORK. US Patent Application #20130182892, published 2013-07-18.
41. GESTURES, INTERACTIONS, AND COMMON GROUND IN A SURFACE COMPUTING ENVIRONMENT, US Patent Application #20100149090, filed 12/15/2008.
42. Graphical Mashup, US Patent Application #20100180254, 1/15/2009. US Patent # 12/354,653, Jul 16, 2013.
43. Grip-Based Device Adaptations. US Patent Application # 20130300668, filed May 20, 2013.
44. GROUP EXPERIENCE USER INTERFACE. US Patent Application # 20150106740, filed Feb 7, 2014.

45. HANDLE FLAGS, US Patent # 8171431, 5/1/2012, as well as Application #20090094560, 10/5/2007.
46. Hover widgets: using the tracking state to extend capabilities of pen-operated devices, US Patent Application #20060267966, 10/7/2005.
47. In situ search for active note taking, US Patent #7693842, 4/9/2007.
48. INFORMATION TRIAGE USING SCREEN-CONTACTING GESTURES. US Patent Application # 20130328786, published 2013-12-12.
49. INFORMATION SHARING DEMOCRATIZATION FOR CO-LOCATED GROUP MEETINGS. US Patent Application # 20130103446, published 2013-04-25.
50. Keyboard with gesture-redundant keys removed, US Patent Application #20140123049, filed 12/19/2012.
51. Link Gestures, US Patent Application #20110191718, 2/4/2010.
52. Manual controlled scrolling, US Patents #7202857 and #6707449, 8/29/2001.
53. Method and apparatus for computer input using six degrees of freedom   US Patents #7554528, #7518596, #7460106, #7355587, #7245287, #6844871, 4/28/2000.
54. Method and apparatus for handling dismissed dialogue boxes, US Patent #6590593, 3/31/2000.
55. Method and apparatus for providing a three-dimensional task gallery computer interface, US Patents #7921376, #7512902, #6909443, 3/31/2000, and US Patent Application # 20110167379, filed 7/7/2011.
56. Method and apparatus for supporting two-dimensional windows in a three-dimensional environment, US Patent #7119819, 3/31/2000.
57. Method and apparatus using multiple sensors in a device with a display, US Patents #7289102 and #8120625, 6/6/2001, as well as US Patent Application #20030085870, 11/14/2002..
58. Method and system for accelerated data navigation, US Patent #6738045, 2/26/2001.
59. Method for displaying information responsive to sensing a physical presence proximate to a computer input device US Patents #7602382 and #7256770, 3/13/2001.
60. Method for providing feedback responsive to sensing a physical presence proximate to a control of an electronic device,   US Patent #7358956, 3/13/2001.
61. Method of interacting with a computer using a proximity sensor in a computer input device, US Patents #6559830 and #6396477, 9/14/1998.
62. Mobile phone operation based upon context sensing, US Patent #7302280, 6/3/2002.
63. Modifying Functionality Based on Distances Between Devices, US Patent # 20140250245, 3/14/2014.
64. Motion and context sharing for pen-based computing inputs, US Patent Application # 20130257777, filed May 28, 2013.
65. Motion Detection Notification, US Patent Application #20070188323, filed 1/26/2006.
66. Multi-Finger Gestures, US Patent Application #20110209088, 2/19/2010.
67. Multimode Stylus, US Patent Application #20140267184, 3/14/2013.
68. MULTIPLE DISPLAY COMPUTING DEVICE WITH POSITION-BASED OPERATING MODES, US Patent Application #20100321275, filed 6/18/2009.
69. MULTI-SCREEN BOOKMARK HOLD GESTURE, US Patent Application #20110209039, 2/25/2010.

70. MULTI-SCREEN DUAL TAP GESTURE, US Patent Applications #20110209102 and #2011025972, 2/25/2010.
71. MULTI-SCREEN HOLD AND DRAG GESTURE, US Patent Application #20110209103, 2/25/2010. US Patent # US 12/713,130, Jun 25, 2013.
72. MULTI-SCREEN HOLD AND PAGE-FLIP GESTURE,   US Patent Application #20110209057, 2/25/2010.
73. MULTI-SCREEN HOLD AND TAP GESTURE, US Patent Applications #20110209058 and #2011025973, 2/25/2010.
74. MULTI-SCREEN OBJECT-HOLD AND PAGE-CHANGE GESTURE, US Patent Application #20110209089, 2/25/2010.
75. MULTI-SCREEN PINCH AND EXPAND GESTURES, US Patent Application #20110209100, 2/25/2010. US Patent # 12/713,053, Sep 17, 2013.
76. MULTI-SCREEN PINCH-TO-POCKET GESTURE, US Patent Applications #20110209101 and # 2011025971, 2/25/2010.
77. MULTI-SCREEN SYNCHRONOUS SLIDE GESTURE,   US Patent Application #20110209104, 2/25/2010.
78. MULTI-TOUCH INPUT DEVICE WITH ORIENTATION SENSING, US Patent Application # 20120206330, 8/16/2012.
79. MULTI-TOUCH-MOVEMENT GESTURES FOR TABLET COMPUTING DEVICES. US Patent Application #20130201113, published 2013-08-08.
80. Multi-Touch User Interface Interaction. US Patent Application #20110227947, published 2011-09-22.
81. NETWORKED DEVICE AUTHENTICATION, PAIRING AND RESOURCE SHARING, US Patent Application #20110314153, published 12/22/2011.
82. Off-Screen Gestures to Create On-Screen Input, US Patent Applications #20110205163 and #2011025131, 2/19/2010.
83. OMNI-SPATIAL GESTURE INPUT. US Patent Application #20130082978, published 2013-04-04.
84. On and Off-Screen Gesture Combinations, US Patent Applications #20110209098 and #2011025132, 2/19/2010.
85. Operating touch screen interfaces, US Patent #7692629, 12/7/2006.
86. Optimized Telepresence Using Mobile Device Gestures, US Patent Application # 20120092436, 4/19/2012.
87. Page Manipulations Using On and Off-Screen Gestures, US Patent Application #20110209099, 2/19/2010.
88. Phrasing extensions and multiple modes in one spring-loaded control, US Patent Application #20060267967, 11/18/2005.
89. PHYSICALLY MODULATING FRICTION IN A STYLUS. US Patent Application #20140043242, published 2014-02-13.
90. Positional scrolling, US Patents #7,714,840, #7564446, #7071919, 2/26/2001.
91. Position-based multi-stroke marking menus, US Patent #7603633, 1/13/2006.
92. PRESENTATION TECHNIQUES. US Patent Application #20130201095, published 2013-08-08.

93. PROXIMITY AND CONNECTION BASED PHOTO SHARING. US Patent Application #20130286223, published 2013-10-31.
94. Proximity detection using wireless signal strengths, US Patent #7509131, 6/29/2004.
95. PROXIMITY NETWORK. US Patent Application #20110307599, published 2011-12-15.
96. Proximity sensor in a computer input device, US Patent #6456275, 9/14/1998.
97. RADIAL MENUS WITH BEZEL GESTURES,   US Patent Application #20110209093, 2/19/2010.
98. Recognizing gestures and using gestures for interacting with software applications, US Patent #7519223, 6/28/2004.
99. Representing animation as a static image on a graphical user interface, US Patent Application #20070153006, 1/4/2006. US Patent # 11/325,912, Jul 16, 2013.
100. Scrolling apparatus providing multi-directional movement of an image, US Patent #7193612, 6/28/2002.
101. SELF-REVELATION AIDS FOR INTERFACES, US Patent #8196042, 6/5/2012, as well as US Patent Applications #20090187824 and #20120240043, 1/21/2008.
102. Speed-dependent automatic zooming interface, US Patent #6747680, 12/13/1999.
103. SKINNABLE TOUCH DEVICE GRIP PATTERNS. US Patent Application #20130181902, published 2013-07-18
104. Stamp Gestures, US Patent Application #20110185299, 1/28/2010.
105. STYLUS COMPUTING ENVIRONMENT. US Patent Application #20130181953, published 2013-07-18.
106. SUPPLEMENTING A TOUCH INPUT MECHANISM WITH FINGERPRINT DETECTION, US Patent Application # 20120154296, filed 6/21/2012.
107. Systems and methods for interfacing with computer devices, US Patent Application #20040217988, 1/30/2004.
108. SYSTEMS AND METHODS FOR PARALLAX COMPENSATION, US Patent Applications #20140267179, #20140267178, #20140267177, #20140267176, filed 5/15/2014.
109. System for Interaction of Paired Devices, US Patent Application # 20110314168, published 12/22/2011.
110. Technique for implementing an on-demand display widget through controlled fading initiated by user contact with a touch sensitive input device, US Patent #6333753, 11/25/1998.
111. THREE-DIMENSIONAL PRINTING. US Patent Application #20130215454, published 2013-08-22.
112. TOUCH AND STYLUS DISCRIMINATION AND REJECTION FOR CONTACT SENSITIVE COMPUTING DEVICES, US Patent Application # 20120262407, published 10/18/2012.
113. THROWING GESTURES FOR MOBILE DEVICES, US Patent Application #20110265046, 7/1/2011.
114. TOUCH DISCRIMINATION, US Patent Application #20100225595, 3/3/2009. US Patents #12/396,701 and US 13/867,369, Apr 30, 2013.
115. Touch Screen Control, US Patent Application #20120162093, 6/28/2012.
116. Touch-sensitive device for scrolling a document on a display, US Patents #7742042, #7688312, #6972749, 8/29/2001, as well as US Patent Application #20100207908, 8/19/2010.
117. TRACKING INPUT IN A SCREEN-REFLECTIVE INTERFACE ENVIRONMENT, US Patent Application #20100013777, 7/18/2008.

118. Use of Bezel as an Input Mechanism, US Patent Application #20110209097, 2/19/2010.

119. USING MOVEMENT OF A COMPUTING DEVICE TO ENHANCE INTERPRETATION OF INPUT EVENTS PRODUCED WHEN INTERACTING WITH THE COMPUTING DEVICE, US Patent Application #2011065680 and #20120154294, 6/21/2012.

120. Workspace Manipulation Using Mobile Device Gestures, US Patent Application #20120159401, 6/21/2012.

DOCTORAL COMMITTES AND STUDENTS SUPERVISED

PhD committees served on as external examiner / reader:

- Michelle Annett, University of Alberta (Canada), 2014.
- Fabrice Matulic, ETH Zurich (Switzerland), 2014.
- Shahzad Malik, University of Toronto (Canada), 2007.
- Anastasia Bezerianos, University of Toronto (Canada), 2007.
- I also served on the **UIST 2004 Doctoral Symposium** (a forum in which Ph.D. students can meet, present, and discuss their work with each other and a panel of experienced researchers).

Graduate Students Advised during Microsoft Research Internships:

Microsoft Research recruits many top-caliber graduate students to work with researchers on research projects, typically during 12-week internships. This requires direct supervision and mentorship of the student's research during this period, as well as helping the student prepare the work for publication (which often takes place after the internship).

- **Jeff Pierce**, Georgia Tech, 1998-2000 (MSR Fellowship). Sensing techniques for mobile interaction.
- **Takeo Igarashi**, University of Tokyo, 2000. Speed-dependent automatic zooming (SDAZ) for rapid scrolling through large content spaces without losing orientation.
- **Gonzalo Ramos**, University of Toronto, 2003. Multiple-device interaction for co-located users using pen or touch gestures that span displays (Stitching system).
- **Tovi Grossman**, University of Toronto (2005 & 2006). Interaction using hover sensing on tablets (HoverWidgets system), natural techniques for interacting with groups of ink strokes, authoring highly expressive animations with pen and ink.
- **Shendong Zhao**, University of Toronto, 2006. Content creation, searching, and gathering information using ink (InkSeine system).
- **Morgan Dixon**, University of Maryland, 2008. Dual-screen interaction (Codex system)
- **Koji Yatani**, University of Toronto, 2009. Combined pen and touch interaction.
- **Hyunyoung Song**, University of Maryland, 2010. Combined touch and motion interaction for mobiles and tablets.
- **Xiaojun Bi**, University of Toronto, 2010. Active reading and low-barrier collection of encountered content using pen and touch interaction.
- **Nicolai Marquardt**, University of Calgary, 2011-2012. Sensing co-located groups and subtle device orientation cues for facile cross-device information sharing (GroupTogether system).
- **Anthony Chen**, University of Calgary, 2012. Motion-sensing techniques for pens.
- **Fabrice Matulic**, ETH Zurich, 2013. Sensor-augmented pen and tablet interaction.
- **Dongwook Yoon**, Cornell University, 2014. Grip sensing techniques for individual and collaborative use of tablet computers.

- **Anthony Chen**, Carnegie Mellon University, 2014. Sensing techniques for multiple wearable devices used in conjunction with a large display.
- **Seongkook Heo**, Korea Advanced Institute of Science and Technology (KAIST), 2015. Mobile sensing. Project TBA.

I also co-mentored or worked closely with the following students during their MSR Internships:

- **Joseph Tullio**, Georgia Tech, 1999-2000. *Touch-sensing input devices, interruptions, and use of transparency in user interfaces.*
- **Ahmed Sabbir Arif**, 2012. *Text entry and editing on graphical touchscreens and mobile authentication.*
- **Andrew Bragdon**, 2010-2011. *Multi-device sensing environments in support of developer activities (CodeSpace system).*
- **Fraser Anderson**, 2013. *Single and multi-user large-screen interaction using phones, pens, and two hands.*
- **Andrew Webb**, Texas A&M University, 2015. Pen and touch interaction. Project TBA.

VISITING PROFESSORS HOSTED

I also occasionally host established faculty at Microsoft Research during sabbaticals, summer breaks, or other leaves from their host institutions.

Some of the faculty I have worked with closely include the following.

- **Ravin Balakrishnan**, University of Toronto, Canada, 2007-2008 (and other scattered collaborations).
  Pen and touch input, dual-screen devices, mode switching, bimanual interaction, and a wide variety of other topics.

- **Pourang Irani**, University of Manitoba, 2014 (with ongoing collaborations).
  Sensing techniques for tablets, pen and touch interaction, grip sensing, human grasp, and other topics.

- **Francois Guimbretiere**, Cornell University (and previously as faculty of the University of Maryland), multiple Visiting Professor and Visiting Consultant stints between 2004-2014 (with ongoing collaborations).
  Cross-device interaction, paper-computer inteaction, pen gestures, active reading, dual-screen devices, sensing devices and techniques, and various other topics.

I also frequently collaborate with other professors, Ph.D. students, or researchers from industry in less formal arrangements, as reflected by co-authorship on many of my published papers.