

Shaun K. Kane

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Faculty Position

Assistant Professor, Department of Information Systems (2011–present)

University of Maryland, Baltimore County; Baltimore, MD

Research areas: Input and interaction techniques for human-computer interaction, adaptive user interfaces for people with disabilities and for mobile device users on the go.

Education

Ph.D. in Information Science, University of Washington (2005–2011)

Thesis Title: Understanding and Creating Usable Touch Screen Interactions for Blind People
Committee: Jacob O. Wobbrock, Richard E. Ladner, Batya Friedman, Kurt L. Johnson, Beverly Harrison

M.S. in Information Science, University of Washington (2011)

Advisors: Jacob O. Wobbrock and Richard E. Ladner

M.S. in Computer Science, University of Massachusetts (2003–2005)

Concentration in Artificial Intelligence. Advisor: Robert Moll

B.S. in Computer Science, University of Massachusetts (1999–2003)

Departmental honors, summa cum laude.

Publications

Journal Articles

1. Wobbrock, J.O., **Kane, S.K.**, Gajos, K.Z., Harada, S., Froehlich, J. (2011). Ability-Based Design: Concept, principles, examples. *ACM Transactions on Accessible Computing* 3 (3), pp. 9:1-9:27.
2. **Kane, S.K.** (2007). Everyday inclusive web design: an activity perspective. *Information Research*, 12 (1).

Full Conference Papers (acceptance rate in parentheses where available)

3. **Kane, S.K.**, Morris, M.R., Perkins, A.Z., Wigdor, D., Ladner, R.E., and Wobbrock, J.O. (2011). Access Overlays: Improving non-visual access to large touch screens for blind users. *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST '11)*. New York: ACM Press. To appear.
4. **Kane, S.K.**, Wobbrock, J.O., and Ladner, R.E. (2011). Usable gestures for blind people: Understanding preference and performance. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '11)*. **Winner of Best Paper Award.** (acceptance rate 26%, best paper top 1%)
5. Rosenthal, S., **Kane, S.K.**, Wobbrock, J.O. and Avrahami, D. Augmenting on-screen instructions with micro-projected guides: When it works, and when it fails. *Proceedings of the ACM International Conference on Ubiquitous Computing (Ubicomp '10)*. New York: ACM Press, 203-212. (19%)
6. **Kane, S.K.**, Avrahami, D., Wobbrock, J.O., Harrison, B., Rea, A.D., Philipose, M. and LaMarca, A. (2009). Bonfire: A nomadic system for hybrid laptop-tabletop interaction. *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST '09)*. New York: ACM Press, 129-138. (19%)

7. **Kane, S.K.**, Jayant, C., Wobbrock, J.O. and Ladner, R.E. (2009). Freedom to roam: A study of mobile device adoption and accessibility for people with visual and motor disabilities. *Proceedings of the ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '09)*. New York: ACM Press, 115-122. (31%)
8. **Kane, S.K.**, Karlson, A.K., Meyers, B.R., Johns, P., Jacobs, A. and Smith, G. (2009). Exploring cross-device web use on PCs and mobile devices. *Proceedings of the IFIP Conference on Human-Computer Interaction (INTERACT '09)*. Berlin: Springer, 722-735. (29%)
9. **Kane, S.K.**, Bigham, J.P. and Wobbrock, J.O. (2008). Slide Rule: Making mobile touch screens accessible to blind people using multi-touch interaction techniques. *Proceedings of the ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '08)*. New York: ACM Press, 73-80. (37%)
10. **Kane, S.K.**, Wobbrock, J.O. and Smith, I.E. (2008). Getting off the treadmill: Evaluating walking user interfaces for mobile devices in public spaces. *Proceedings of MobileHCI '08*. New York: ACM Press, 109-118. **Winner of Best Paper Award.** (32%, best paper top 2%)
11. Kahn, P.H., Jr., Freier, N.G., Kanda, T., Ishiguro, H., Ruckert, J.H., Severson, R.L. and **Kane, S.K.** (2008). Design patterns for sociality in human-robot interaction. *Proceedings of the ACM/IEEE International Conference on Human Robot Interaction (HRI '08)*. New York: ACM Press, 97-104. (18%)
12. Nathan, L.P., Friedman, B., Klasnja, P., **Kane, S.K.** and Miller, J.K. (2008). Envisioning systemic effects on persons and society throughout interactive system design. *Proceedings of the Designing Interactive Systems Conference (DIS '08)*. Cape Town, South Africa. New York: ACM Press, 1-10. (34%)
13. Froehlich, J., Wobbrock, J.O. and **Kane, S.K.** (2007). Barrier Pointing: Using physical edges to assist target acquisition on mobile device touch screens. *Proceedings of the ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '07)*. Tempe, Arizona. New York: ACM Press, 19-26. (31%)
14. **Kane, S.K.**, Shulman, J.A., Shockley, T.J. and Ladner, R. E. (2007). A web accessibility report card for top university web sites. *Proceedings of the International Cross-Disciplinary Conference on Web Accessibility (W4A '07)*. Banff, Canada. New York: ACM Press, 148-156. (40%)

Short Conference Papers

15. **Kane, S.K.** and Klasnja, P.V. (2009). Supporting volunteer activities with mobile social software. *Extended Abstracts of the ACM Conference on Human Factors in Computing Systems*. New York: ACM Press, 4567-4572.
16. Cheung, G.C., Chilana, P.K., **Kane, S.K.** and Pellett, B. (2009). Designing for discovery: Opening the hood for open-source end user tinkering. *Extended Abstracts of the ACM Conference on Human Factors in Computing Systems*. New York: ACM Press. 4321-4326.
17. Karlson, A.K., Meyers, B.R., Jacobs, A., Johns, P. and **Kane, S.K.** (2009). Working overtime: Patterns of smartphone and PC usage in the day of an information worker. *Proceedings of the International Conference on Pervasive Computing (Pervasive '09)*. Berlin: Springer, 398-405. (21%)
18. **Kane, S.K.**, Wobbrock, J.O., Harniss, M. and Johnson, K.L. (2008). TrueKeys: Identifying and correcting typing errors for people with motor impairments. *Proceedings of the Intelligent User Interfaces Conference (IUI '08)*. New York: ACM Press, 349-352. (31%)

Book Chapter

19. **Kane, S.K.**, Hannah, J., Edwards, P.M., and Dorman, J. (2007). Teaching in computer classrooms. In C. Ross and J. Dunphy (Eds.), *Strategies for Teaching Assistant and International Teaching Assistant Development: Beyond Micro Teaching*. Bolton, MA: Anker, 48-52.

Posters and Extended Abstracts

20. **Kane, S.K.** (2009). Context-enhanced interaction techniques for more accessible mobile phones. *SIGACCESS Newsletter*. New York: ACM Press.
21. **Kane, S.K.** (2009). Improving mobile phone accessibility with adaptive user interfaces. Presented at iConference 2009. Chapel Hill, North Carolina. **Winner of Best Poster Award.**
22. **Kane, S.K.** (2008). Context-enhanced interaction techniques for more accessible mobile phones. Presented at the ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '08). Halifax, Nova Scotia. New York: ACM Press.
23. **Kane, S.K.** and Wobbrock, J.O. (2007). Automatically correcting typing errors for people with motor impairments. Companion to the ACM Symposium on User Interface Software and Technology (UIST '07). Newport, Rhode Island. New York: ACM Press.
24. **Kane, S.K.** (2007). Engaging student web programmers as inclusive designers. Presented at the 12th Annual Conference on Innovation and Technology in Computer Science Education (ITICSE '07). Dundee, Scotland, UK. **Winner of Outstanding Poster Award.**
25. **Kane, S.K.**, Lehman, A. and Partridge, E. (2002). Indexing George Washington's handwritten manuscripts: A study of word matching techniques. Presented at ACM SIGCSE '02 Undergraduate Research Competition. Cincinnati, Ohio.

Theses

26. **Kane, S.K.** (2005). Sketch-based input and evaluation in an online web-based learning environment. Unpublished master's thesis, University of Massachusetts.
27. **Kane, S.K.** (2003). Developing modular multi-user environments with Carnival. Unpublished undergraduate thesis, University of Massachusetts.

Technical Reports

28. Rath, T.M., **Kane, S.K.**, Lehman, A., Partridge, E. and Manmatha, R. (2002). Indexing for a digital library of George Washington's manuscripts: A study of word matching techniques. CIIR technical report, University of Massachusetts.
29. **Kane, S.K.**, Lehman, A. and Partridge, E. (2001). Indexing George Washington's handwritten manuscripts. CIIR technical report, University of Massachusetts.

Invited Presentations

30. **Kane, S.K.** and Shinohara, K. (2010) OneView: Enabling collaboration between blind and sighted students using tablet computers. Microsoft Research Faculty Summit. July 13, 2010.
31. **Kane, S.K.** (2009). Supporting independent navigation using commodity mobile phones. Technology and Disability in the Developing World Conference, University of Washington. October 2, 2009.
32. **Kane, S.K.** and Eisenberg, M.B. (2007). New tools for web credibility. Presented at Microsoft Research. January 12, 2007.
33. Interviewed on *The Talk Show*, Evergreen Radio Reading Service, Seattle, WA. January 28, 2009 and June 9, 2010. With Shiri Azenkot, Jeffrey P. Bigham and Kristen Shinohara.

Press Coverage

1. Staff. "Success by design." iNews, Fall 2010, 3-5.
2. Colin Gorenstein. "Imagine Cup: one group's cup of tea." The Daily of the University of Washington. July 14, 2010.
3. Sharon Pian Chan. "Imagine Cup student winners named; UW takes 2nd." Seattle Times. July 8, 2010.
4. Nick Eaton. "Asia rules Imagine Cup; three U.S. teams bring home awards." Seattle Post-Intelligencer Blogs. July 8, 2010.
5. Sharon Pian Chan. "Microsoft's Imagine Cup aims to inspire creativity." Seattle Times. June 30, 2010.
6. Mike Szczys. "Bonfire – interactivity using pico projectors and cameras." Hack A Day. April 28, 2010.
7. Staff. "Bonfire interface creates an amazing tabletop-laptop interaction." Gizmo Watch. April 15, 2010.
8. Staff. "Hardware: Demo of laptop/tabletop hybrid UI." Slashdot. April 14, 2010.
9. Nick Eaton. "Tabletop UI, wireless power and more from Intel Labs Seattle." Seattle Post-Intelligencer Blogs. September 30, 2009.
10. Gregory T. Huang. "Intel Labs Seattle Shows Off New Sensing Interfaces, Self-Charging Robot, Wireless Power." Xconomy. September 29, 2009.
11. Brier Dudley. "Intel robot's new trick, wireless music and other research goodies." Seattle Times Blogs. September 28, 2009.
12. Staff. "Kane, Wobbrock win Best Paper at ACM MobileHCI 2008 conference." Information School News. September 10, 2008.

Honors and Awards

Imagine Cup Touch and Tablet Accessibility Award, 2nd Place (2010)

Received 2nd place for the Touch and Tablet Accessibility Award for the project *OneView: Enabling Collaboration between Blind and Sighted Students Using Tablet Computers*. Received \$2,000 cash prize and laptop.

Google Lime Scholarship (2010)

Received \$10,000 Google Lime Scholarship, awarded to promising students in computer science and related disciplines who have a disability.

Foundation for Science and Disability Grant (2010)

Received \$1,000 award from the Foundation for Science and Disability for the research project *Accessible Touch Screen-Based User Interfaces for Mobile Devices*.

Best Poster Award: iConference (2009)

Received Best Poster Award at iConference 2009 for the poster *Improving Mobile Phone Accessibility with Adaptive User Interfaces*.

Honorable Mention: NISH National Scholar Award for Workplace Innovation and Design (2009)

Received honorable mention for the NISH National Scholar Award for the submission *Fully Accessible Touch Screens for the Blind and Visually Impaired*.

Best Paper Award: MobileHCI Conference (2008)

Received Best Paper Award at MobileHCI 2008 conference for the paper *Getting off the Treadmill: Evaluating Walking User Interfaces for Mobile Devices in Public Spaces*.

Most Innovative Award: UW Science and Engineering Business Association (2008)

Received Most Innovative Award at UW Science and Engineering Business Association Science and Technology Showcase for the poster *Slide Rule: Eyes-Free Mobile Phone Applications for Everyone*.

Outstanding Poster Award: ITICSE Conference (2007)

Received Outstanding Poster Award at ITICSE 2007 conference for the poster *Engaging Student Web Programmers as Inclusive Designers*.

Graduate Student Top Scholar Award, University of Washington (2005)

\$5,000 award presented by the University of Washington Graduate School.

Bay State Fellowship, University of Massachusetts (2003–2005)

Tuition waiver and assistantship presented by the Department of Computer Science at the University of Massachusetts in recognition of undergraduate academic achievement.

ACM SIGCSE Undergraduate Student Research Competition, 3rd Place (2002)

\$200 prize awarded to S. Kane, A. Lehman, E. Partridge and R. Manmatha for the poster *Indexing George Washington's Handwritten Manuscripts: A Study of Word Matching Techniques*. 3rd place.

National Science Foundation Research Experience for Undergraduates Fellowship (2001)

NSF REU research with R. Manmatha and James Allan at the Center for Intelligent Information Retrieval at the University of Massachusetts.

Commonwealth College Scholar, University of Massachusetts (1999–2003)

Honors scholar at the University of Massachusetts.

Computer Science Talent Advancement Program, University of Massachusetts (1999–2000)

Merit-based residence program for computer science undergraduates at the University of Massachusetts.

Teaching Experience

As Instructor

- IS 760: Human Computer Interaction, UMBC (Fall 2011)
- INFO 463: Input and Interaction, University of Washington (Spring 2010, Spring 2011)
- INFO 344: Web Tools and Development, University of Washington (Summer 2006)
- CS 121: Introduction to Problem Solving with Computers, University of Massachusetts (Summer 2005)
- CS 391: Fundamentals of Graphic Communication, University of Massachusetts (Fall 2003, Spring 2004)

As Teaching Assistant

- IMT 540: HCI Design Foundations for Interactive Systems, University of Washington (Fall 2009)
- INFO 445: Advanced Database Design and Management, University of Washington (Fall 2009)
- INFO 344: Databases and Information Retrieval, University of Washington (Spring 2006)
- INFO 100: Fluency with Information Technology, University of Washington (Fall 2006, Winter 2006)

As Workshop Facilitator

- Beyond Beta: Inspiring Long-Term Thinking About Interactive Technology with Envisioning Cards, CHI 2009 (with Lisa P. Nathan and Batya Friedman)
- Teaching in Computer Lab Settings, UW Teaching and Learning Symposium (2006, 2007)
- Disability as Diversity in the Classroom, UW Teaching and Learning Symposium (2007)
- Who We Are Matters: A Conversation with Experienced Minority TAs, UW Teaching and Learning Symposium (2006, 2007)

Students Supervised

- Huimin Qian, Ph.D. Supervisory Committee, UMBC (2011)
- Ted O'Meara, Master's Degree Supervisory Committee, UMBC (2011)
- Nicole Torcolini, Undergraduate Research Assistant, University of Washington (Summer 2010)
- Rishi Talwar, Undergraduate Directed Internship, University of Washington (Spring 2010)
- Josh Scotland, Undergraduate Research Assistant, University of Washington (Spring 2010)
- Tien Nguyen, Research Assistant, University of Washington (Winter 2010)
- Daniel Pineo, Research Assistant, University of Massachusetts (Fall 2003-Spring 2004)

Industry Experience

Research Intern, Adaptive Systems and Interaction Group, Microsoft Research, Redmond, WA (2010)

With Meredith Ringel Morris and Daniel Wigdor. Developed and evaluated new accessible interaction techniques to enable blind and visually impaired people to use applications designed for Microsoft Surface and other large touch screens.

Research Intern, Everyday Technology Group, Microsoft Research, Redmond, WA (2008)

With Amy K. Karlson. Conducted a field study that examined the web browsing habits of mobile information workers across multiple PCs and smartphones. Developed prototype software to share web-browsing history across devices.

Research Intern, Intel Labs Seattle, Seattle, WA (2007, 2008-2009)

With Beverly Harrison, Daniel Avrahami, Ian E. Smith, and Ali Rahimi. Developed and evaluated adaptive user interfaces for mobile devices and laptop PCs, including *Bonfire*, a prototype mobile device that combines micro-projection and computer vision to create interactive surfaces around a laptop.

Interaction Design Intern, Filament Group, Boston, MA (2004)

Designed user interface prototypes for web and mobile applications. Presented design documents to clients. Developed application tools to assist designers in prototyping. Designed and implemented a best practices guide for designing web-based applications.

Technical Intern, Software Design Engineer in Test, Microsoft Corporation, Redmond, WA (2002)

Developed software components for a web-based test monitor. Served as primary tester for a workflow management application. Created and managed a test plan and developed automated testing libraries.

Service and Leadership

AccessComputing Alliance for Access to Computing Careers (2008–)

Student representative for project to increase representation by people with disabilities in computing fields. Participated in recruitment events for high school students with disabilities.

PhD Representative, iSchool Diversity Committee, U. of Washington (2005–2007)

Planned and facilitated social events and research colloquia related to diversity issues at the University of Washington Information School.

Talent Advancement Program Ambassador, U. of Massachusetts (2000)

Recruited and advised applicants to the Department of Computer Science at the University of Massachusetts.

Volunteering and Peer Review

Program Committee

- ACM CHI (2012), IUI (2009-2011)

Reviewer

- ACM Conferences: CHI (2008- 2011), ASSETS (2010-2011), IUI (2009-2011), ITS (2010-2011), Ubicomp (2008)
- Human-Computer Interaction Journal (2010)
- International Journal of Human-Computer Studies (2011)
- Pervasive Conference (2009)
- Pervasive Health Conference (2009)
- Universal Access in the Information Society Journal (2010)

Student Volunteer

- ACM CHI (2008-2009)
- ACM UIST (2008)