

# Shaun K. Kane

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## Faculty Position

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

University of Maryland, Baltimore County; Baltimore, MD

## Education

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- Ph.D. in Information Science, University of Washington (2005–2011)
- M.S. in Information Science, University of Washington (2011)
- M.S. in Computer Science, University of Massachusetts (2003–2005)
- B.S. in Computer Science, University of Massachusetts (1999–2003)

## Publications

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### Journal Articles

2. 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.
1. **Kane, S.K.** (2007). Everyday inclusive web design: an activity perspective. *Information Research*, 12 (1).

### Highly Selective Conference Papers (acceptance rate in parentheses where available)

22. Carrington, P., Hurst, A., and **Kane, S.K.** (2014). Wearables and chairables: inclusive design of mobile input and output devices for power wheelchair users. *Proceedings of CHI '14*, ACM, to appear.
21. **Kane, S.K.** and Biggam, J.P. (2014). Tracking @stemxcomet: teaching programming to blind students via 3D printing, crisis management, and Twitter. *Proceedings of SIGCSE '14*, ACM, to appear. (acceptance rate 39%)
20. Said, K., Williams, M.A., Hurst, A., and **Kane, S.K.** (2014). Framing the conversation: the role of Facebook conversations in shopping for eyeglasses. *Proceedings of CSCW '14*, ACM, to appear. (27%)
19. **Kane, S.K.**, Morris, M.R., and Wobbrock, J.O. (2013). Touchplates: low-cost tactile overlays for visually impaired touch screen users. *Proceedings of ASSETS '13*, ACM, 8 pages. (29%)
18. Williams, M.A., Hurst, A.K., and **Kane, S.K.** (2013). “Pray before you step out”: describing personal and situational blind navigation behaviors. *Proceedings of ASSETS '13*, ACM, 8 pages. (29%)
17. Oh, U., **Kane, S.K.**, and Findlater, L. (2013). Follow that sound: using sonification and corrective verbal feedback to teach touchscreen gestures. *Proceedings of ASSETS '13*, ACM, 8 pages. (29%)
16. **Kane, S.K.**, Frey, B., and Wobbrock, J.O. (2013). Access Lens: a gesture-based screen reader for real-world documents. *Proceedings of CHI '13*, ACM, 347-350. (20%)
15. **Kane, S.K.**, Linam-Church, B., Althoff, K., and McCall, D. (2012). What we talk about: designing a context-aware communication tool for people with aphasia. *Proceedings of ASSETS '12*, ACM, 49-56. (28%)

14. **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 UIST '11*, ACM, 273-282. (26%)
13. **Kane, S.K.**, Wobbrock, J.O., and Ladner, R.E. (2011). Usable gestures for blind people: understanding preference and performance. *Proceedings of CHI '11*, ACM, 413-422. **Winner of Best Paper Award.** (acceptance rate 26%, best paper top 1%)
12. Rosenthal, S., **Kane, S.K.**, Wobbrock, J.O. and Avrahami, D. (2010). Augmenting on-screen instructions with micro-projected guides: when it works, and when it fails. *Proceedings of Ubicomp '10*, ACM, 203-212. (19%)
11. **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 UIST '09*, ACM, 129-138. (19%)
10. **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 ASSETS '09*, ACM, 115-122. (31%)
9. **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 INTERACT '09*, Springer, 722-735. (29%)
8. 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 Pervasive '09*, Springer, 398-405. (21%)
7. **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 ASSETS '08*, ACM, 73-80. (37%)
6. **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*, ACM, 109-118. **Winner of Best Paper Award.** (32%, best paper top 2%)
5. **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 IUI '08*, ACM, 349-352. (31%)
4. 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 HRI '08*, ACM, 97-104. (18%)
3. 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 DIS '08*, ACM, 1-10. (34%)
2. 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 ASSETS '07*, ACM, 19-26. (31%)
1. **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 W4A '07*, ACM, 148-156. (40%)

## Book Chapter

1. **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, Extended Abstracts, and Workshop Papers

14. Williams, M.A., Hurst, A., and **Kane, S.K.** (2014). Are you going to help her?" – ethical dilemmas presented by research with blind participants (workshop paper). *Proceedings of CSCW '14*, ACM, 4 pages, to appear.

13. Hurst, A., and **Kane, S.K.** (2013). Making "making" accessible (workshop paper). *Proceedings of IDC '13*, ACM, 635-638. **Winner of Best Workshop Paper.**
12. Carrington, P., Hurst, A., and **Kane, S.K.** (2013). How power wheelchair users choose computing devices (poster). *Proceedings of ASSETS '13*, ACM, 2 pages.
11. Said, K. and **Kane, S.K.** (2013). Button Blender: remixing input to improve video game accessibility. *Extended Abstracts of CHI '13*, ACM, 43-48.
10. Brock, A.M., Kammoun, S., Nicolau, H., Guerreiro, T., **Kane, S.K.**, and Jouffrais, C. (2013) SIG: NVI (Non-visual interaction). *Extended Abstracts of CHI'13*, ACM, 2513-2516.
9. Zhu, S., **Kane, S.K.**, Feng, J., and Sears, A. (2012). A crowdsourcing quality control model for tasks distributed in parallel. *Extended Abstracts of CHI '12*, ACM, 2501-2506.
8. **Kane, S.K.** (2009). Context-enhanced interaction techniques for more accessible mobile phones. *SIGACCESS Newsletter*, ACM, 2 pages.
7. **Kane, S.K.** (2009). Improving mobile phone accessibility with adaptive user interfaces (poster). Presented at iConference 2009. **Winner of Best Poster Award.**
6. **Kane, S.K.** and Klasnja, P.V. (2009). Supporting volunteer activities with mobile social software. *Extended Abstracts of CHI '09*, ACM, 4567-4572.
5. 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 CHI '09*, ACM. 4321-4326.
4. **Kane, S.K.** (2008). Context-enhanced interaction techniques for more accessible mobile phones (doctoral consortium). *Proceedings of ASSETS '08*, ACM, 2 pages.
3. **Kane, S.K.** and Wobbrock, J.O. (2007). Automatically correcting typing errors for people with motor impairments (poster). *Proceedings of UIST '07*, ACM, 2 pages.
2. **Kane, S.K.** (2007). Engaging student web programmers as inclusive designers (poster). *Proceedings of ITICSE '07*. **Winner of Outstanding Poster Award.**
1. **Kane, S.K.**, Lehman, A. and Partridge, E. (2002). Indexing George Washington's handwritten manuscripts: a study of word matching techniques. *SIGCSE '02 Undergraduate Research Competition*. ACM.

## Technical Reports

5. **Kane, S.K.**, and Galbraith, C. (2013). Design guidelines for creating voting technology for adults with aphasia. *Innovation Technology and Innovation Foundation Working Paper #006*.
4. **Kane, S.K.** (2005). Sketch-based input and evaluation in an online web-based learning environment. Master's thesis, University of Massachusetts.
3. **Kane, S.K.** (2003). Developing modular multi-user environments with Carnival. Undergraduate honors thesis, University of Massachusetts.
2. 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 MM-36, University of Massachusetts.
1. **Kane, S.K.**, Lehman, A. and Partridge, E. (2001). Indexing George Washington's handwritten manuscripts. CIIR technical report MM-34, University of Massachusetts.

## Selected Press Coverage

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- Staff. Hubble images become tactile 3D experience for the blind. *ScienceBlog*. January 19, 2014.
- Marco della Cava. Beyond a gadget: Google Glass is a boon to disabled. *USA Today*. October 23, 2013.
- Nic Halverson. Gesture reader lets blind decipher documents. *Discovery News*. May 1, 2013.
- Sharon Pian Chan. Microsoft's Imagine Cup aims to inspire creativity. *Seattle Times*. June 30, 2010.
- Mike Szczys. Bonfire – interactivity using pico projectors and cameras. *Hack A Day*. April 28, 2010.
- Staff. Hardware: Demo of laptop/tabletop hybrid UI. *Slashdot*. April 14, 2010.
- Nick Eaton. Tabletop UI, wireless power and more from Intel Labs Seattle. *Seattle Post-Intelligencer Blogs*. September 30, 2009.
- Gregory T. Huang. Intel Labs Seattle shows off new sensing interfaces, self-charging robot, wireless power. *Xconomy*. September 29, 2009.
- Brier Dudley. Intel robot's new trick, wireless music and other research goodies. *Seattle Times Blogs*. September 28, 2009.

## Funding and Grants

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- **Kane, S.K.** (2014–15). Exploring Opportunities and Challenges for Wearable Computing in Classroom Settings. UMBC Hrabowski Innovation Fund. \$13,000.
- **Kane, S.K.** (2013–14). Understanding Barriers to Workplace Collaboration for People with Visual Impairments. National Science Foundation EAGER Award. \$165,000.
- Hurst, A.K. and **Kane, S.K.** (2012–13). Exploring Ultra-Mobile Navigation Aids for Blind People. Toyota Engineering and Manufacturing North America (TEMA). \$185,000.
- **Kane, S.K.** and Hurst, A.K. (2013). Wheeltop Interaction: Full-Body Gesture Control for Power Wheelchair Users. Microsoft Software Engineering and Innovation Foundation Award. \$25,000.
- **Kane, S.K.** and Hurst, A.K. (2013). Accessible Touch Interfaces for Power Wheelchair and Scooter Users. Nokia University Cooperation Funding. \$11,450.
- **Kane, S.K.** and Hurst, A.K. (2013). Full-Body Gesture Control for Power Wheelchair Users. UMBC Special Research Assistantship/Initiative Support. \$20,000.
- **Kane, S.K.** (2012-13). VotingVoice: A mobile voters' guide for people with aphasia. Information Technology and Innovation Foundation. \$102,434 (\$27,760 cost share from UMBC).
- **Kane, S.K.** (2012). Audio-haptic feedback for teaching blind people to use touch screens. Google Research Award. \$48,176.
- **Kane, S.K.** (2012). Accessibility Hack Day. UMBC BreakingGround. \$900.
- Hurst, A.K., **Kane, S.K.**, and Kuber, R. (2012). Introducing middle and high school students who are blind and visually impaired to computing at UMBC. AccessComputing Mini-grant. \$1,630.
- **Kane, S.K.** (2010). Google Lime Fellowship for Students with Disabilities. \$10,000.
- **Kane, S.K.** (2010). Accessible Touch Screen-Based User Interfaces for Mobile Devices. Foundation for Science and Disability Grant. \$1,000.

- **Kane, S.K.** (2005). Graduate Student Top Scholar Award. University of Washington. \$5,000.

## Invited Presentations

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- **Kane, S.K.** (2013). Next generation accessible touch interfaces. Invited talk at Smith-Kettlewell Eye Research Institute. June 6, 2013.
- **Kane, S.K.** (2013). Mobile gesture-based user interfaces for people with disabilities. Invited talk at Microsoft Research. January 22, 2013.
- **Kane, S.K.** (2012). Mobile gesture-based user interfaces for people with disabilities. Invited talk at IRIT (Toulouse, France). December 6, 2012.
- **Kane, S.K.** (2012). Prototyping and designing new assistive technologies for people with disabilities. Agency for Healthcare Research and Quality (AHRQ) Annual Conference. September 10, 2012.
- **Kane, S.K.** (2012). Understanding and creating usable touch interactions for blind people. HCIL Lab Talk, University of Maryland. February 23, 2012.
- **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.
- **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.
- **Kane, S.K.** and Eisenberg, M.B. (2007). New tools for web credibility. Presented at Microsoft Research. January 12, 2007.

## Honors and Awards

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- **UMBC Academic Innovation Fellow (2014)**  
Awarded UMBC Academic Innovation Fellowship from the UMBC Hrabowski Innovation Fund, January 2014–December 2015.
- **Best Workshop Paper Award. IDC Conference (2013)**  
Received best workshop paper award at the IDC 2013 conference for the paper *Making “Making” Accessible*.
- **Best Paper Award: CHI Conference (2011)**  
Received best paper award (top 1% of submissions) at the CHI 2011 conference for the paper *Usable Gestures For Blind People: Understanding Preference and Performance*.
- **Imagine Cup Touch and Tablet Accessibility Award, Finalist (2010)**  
Finalist for the Touch and Tablet Accessibility Award for the project *OneView: Enabling Collaboration between Blind and Sighted Students Using Tablet Computers*.
- **Best Poster Award: iConference (2009)**  
Received Best Poster Award at iConference 2009 for the poster *Improving Mobile Phone Accessibility with Adaptive User Interfaces*.
- **NISH National Scholar Award for Workplace Innovation and Design, Honorable Mention (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*.
- **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, Finalist (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*. Finalist.
- **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.

## Courses Taught

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- IS 403: User Interface Design, UMBC, Fall 2013)
- IS 800: Mobile Human-Computer Interaction, UMBC, Spring 2013
- IS 760: Human-Computer Interaction, UMBC, Fall 2011, Fall 2012
- IS 387: Information Architecture for the World Wide Web, UMBC, Spring 2012
- 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)

## Students Supervised

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### Ph.D. Students

- Lula Albar, Ph.D. advisor, UMBC (2013–)
- Patrick A. Carrington, Ph.D. co-advisor (with Amy Hurst), UMBC (2012–)
- Michele A. Williams, Ph.D. co-advisor (with Amy Hurst), UMBC (2012–)
- Huimin Qian, Ph.D. Supervisory Committee, UMBC (2011–)
- Shaojian Zhu, Ph.D. Supervisory Committee, UMBC (2012–)
- Karl Wiegand, Ph.D. Supervisory Committee, Northeastern University (2012–)

### Master's Students

- Ankita, Master's Degree Chair, UMBC (2013–)
- Jasmine Tobias, Master's Degree Committee, UMBC (2013–)
- Ted O'Meara, Master's Degree Supervisory Committee, UMBC (2011–)

### Undergraduate Students

- Beatrice Garcia, Undergraduate Research Assistant, UMBC (2013–2014)
- Caroline Galbraith, Undergraduate Research Assistant, UMBC (2012–2014)

- Manpreet Suri, Undergraduate Research Assistant, McNair Fellowship, UMBC (2012)
- Kyle Althoff, Undergraduate Research Assistant, UMBC (2012)
- Alec Pulianas, Undergraduate Research Assistant, UMBC (2011–2012)
- Nicole Torcolini, Undergraduate Research Assistant, University of Washington (2010)
- Rishi Talwar, Undergraduate Directed Internship, University of Washington (2010)
- Josh Scotland, Undergraduate Research Assistant, University of Washington (2010)
- Tien Nguyen, Research Assistant, University of Washington (2010)
- Daniel Pineo, Research Assistant, University of Massachusetts (2003–2004)

## Volunteering and Peer Review

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### Program Committee Member

- ACM CHI (2012, 2013)
- ACM ASSETS (2012, 2013)
- ACM UIST (2012)
- ACM IDC (2014)
- ACM IUI (2009-2011)

### Conference Volunteering

- Accessibility Co-Chair, CSCW 2014
- Doctoral Consortium Panelist, ASSETS 2012
- Student Volunteer: ACM CHI (2008-2009), ACM UIST (2008)

### Associate Editor

- ACM Transactions on Accessibility (2013–)
- International Journal of Human-Computer Studies (2011–2012)

### Reviewer

- ACM Conferences: CHI (2008- 2014), ASSETS (2010-2011), IUI (2009-2013), 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)