

## FACULTY POSITION

- Assistant Professor, Department of Computer Science** July 2009–Present  
University of Rochester
- Visiting Scientist, Department of Electrical Engineering and Computer Science (CSAIL)** July–December 2009  
Massachusetts Institute of Technology

**Interests:** human-computer interaction (HCI), accessible computing, real-time human computation, crowdsourcing, intelligent user interfaces, cloud computing, artificial intelligence, and natural language processing.

## EDUCATION

- Ph.D., Computer Science and Engineering, University of Washington – 2009**  
**Thesis Title:** *Intelligent Interfaces Enabling Blind Web Users to Build Accessibility Into the Web*  
Committee: Richard E. Ladner (chair), Tessa Lau, Ed Lazowska, and Jacob O. Wobbrock.
- M.Sc. Computer Science and Engineering, University of Washington – 2005**  
**Qualifying Exam Project:** *Boosting Relation Extraction Recall with Soft Rules.* Advisor: Oren Etzioni.
- B.S.E. Computer Science, Princeton University – 2003**  
**Thesis Title:** *On Using Error-Correcting Codes and Boosting to Learn Multi-Class Classification Problems*  
Advisors: Amit Sahai and Robert Shapire

## HONORS

- NSF CAREER Award (2012)
- ACM UIST 2010 Best Paper Award [C.24] (2010)
- W4A Accessibility Challenge Delegate’s Award – VizWiz [O.8] (2010)
- ACM ASSETS 2009 Best Student Technical Paper [C.19] (2009)
- MIT Technology Review Top 35 Innovators Under 35 Award (2009)
- University of Washington College of Engineering Student Innovator Award for Research (2009)
- NCTI Technology in the Works Award (2009)
- NISH National Scholar Award for Workplace Innovation & Design – Slide Rule (Honorable Mention) (2009)
- NISH National Scholar Award for Workplace Innovation & Design – WebAnywhere (Honorable Mention) (2009)
- Andrew W. Mellon Foundation Award for Technology Collaboration (MATC) (2008)
- ACM ASSETS 2008 Best Student Technical Paper [C.15] (2008)
- Microsoft Imagine Cup Accessible Technology Award (2008)
- Osberg Endowed Presidential Fellowship (2008)
- W4A Accessibility Challenge Delegate’s Award – WebAnywhere [O.5] (2008)
- NSF Graduate Research Fellowship (Honorable Mention) (2004)

## JOURNAL ARTICLES

- [J.2] **Bigham, J. P.**, Brudvik, J. T., Leung, J. O. and Ladner, R.E. Enabling Web Users and Developers to Script Accessibility with Accessmonkey. In *Disability and Rehabilitation: Assistive Technology*, 1748-3115, Volume 4, Issue 4, 2009, pp. 288–299.
- [J.1] Turney, P., Littman, M., **Bigham, J. P.**, and Shnayder, V. Combining independent modules in lexical multiple-choice problems. In *Recent Advances in Natural Language Processing III*, Nicolov, Nicolas, Kalina Bontcheva, Galia Angelova and Ruslan Mitkov (eds.), 101 ff, 2004.

## REFEREED CONFERENCE PAPERS<sup>1</sup>

- [C.30] Sadilek, A., Kautz, H. and **Bigham, J. P.** Finding Your Friends and Following Them To Where You Are. In *Proceedings of the ACM International Conference on Web Search and Data Mining (WSDM 2012)*, to appear, Seattle, Washington. <sup>[20%]</sup>
- [C.29] **Bigham, J.P.**, Ladner, R.E., and Borodin, Y. The Design of the Human-Backed Access Technology. In *Proceedings of the ACM International Conference on Computers and Accessibility (ASSETS 2011)*, pp. 3-10, Dundee, Scotland. <sup>[30%]</sup>
- [C.28] Jayant, C., Ji, H., White, S., and **Bigham, J.P.** Supporting Blind Photography. In *Proceedings of the ACM International Conference on Computers and Accessibility (ASSETS 2011)*, pp. 203-210, Dundee, Scotland. <sup>[30%]</sup>
- [C.27] Lasecki, W., Murray, K., White, S., Miller, R.C., and **Bigham, J.P.** Real-time Crowd Control of Existing Interfaces. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2011)*, pp. 23-32, Santa Barbara, California. <sup>[25%]</sup>
- [C.26] UzZaman, N., **Bigham, J.P.**, and Allen, J.F. Multimodal Summarization of Complex Sentences. In *Proceedings of the 14<sup>th</sup> International Conference on Intelligent User Interfaces (IUI 2011)*, pp. 43-52. Palo Alto, California. <sup>[17%]</sup>
- [C.25] **Bigham, J.P.**, Zhang, B., and Brudvik, J.T. Accessibility by Demonstration: Enabling End Users to Guide Developers to Web Accessibility Solutions. In *Proceedings of the 12<sup>th</sup> International Conference on Computers and Accessibility (ASSETS 2010)*, pp. 35-42. Orlando, Florida. <sup>[29%]</sup>
- [C.24] **Bigham, J.P.**, Jayant, C., Ji, H., Little, G., Miller, A., Miller, R.C., Miller, R., Tatrowicz, A., White, B., White, S., and Yeh, T. VizWiz: Nearly Real-time Answers to Visual Questions. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2010)*, pp. 333-342. New York, New York. <sup>[18%, top 1%]</sup> \* **Best Paper Award** \*
- [C.23] Lau, T., Cerruti, J.A., Manzato, G., Bengualid, M., **Bigham, J.P.**, and Nichols, J.W. CoCo: An Intelligent Assistant for the Web. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2010)*, pp. 229-238. New York, New York. <sup>[18%]</sup>
- [C.22] **Bigham, J.P.** and Murray, K.. WebTrax: Visualizing Non-Visual Web Interactions (2010). In *Proceedings of the Conference on Computers Helping People (ICHP 2010)*, pp. 346-353. Vienna, Austria, 2010. <sup>[44%]</sup>
- [C.21] Borodin, Y., Dausch, G., **Bigham, J.P.**, and Ramakrishnan, I.V. More than Meets the Eye: A Survey of Screen-Reader Browsing Strategies. In *Proceedings of the International Cross-Disciplinary Conference on Web Accessibility (W4A 2010)*. Raleigh, North Carolina, 2010. <sup>[31%]</sup>
- [C.20] Cavender, A.C., Otero, D., **Bigham, J.P.** and Ladner, R.E. ASL-STEM Forum: Enabling Sign Language to Grow Through Online Collaboration. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2010) – Notes Track*. Atlanta, Georgia. <sup>[22%]</sup>
- [C.19] Cavender, A.C., **Bigham, J.P.** and Ladner, R.E. ClassInFocus: Enabling Improved Visual Attention Strategies for Deaf and Hard of Hearing Students. In *Proceedings of the 11<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2009)*, pp. 67-74. Pittsburgh, Pennsylvania, 2009. <sup>[31%, top 1%]</sup> \* **Best Student Paper** \*
- [C.18] **Bigham, J.P.**, Kaminsky, R. and Nichols, J. Mining Web Interactions to Automatically Create MashUps. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2009)*, pp. 203-212. Victoria, British Columbia, Canada, 2009. <sup>[17%]</sup>
- [C.17] **Bigham, J. P.** and Cavender, A. C. Evaluating Existing Audio CAPTCHAs and an Interface Optimized for Non-Visual Use. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2009)*, pp. 1829-1838. Boston, Massachusetts, 2009. <sup>[24%]</sup>
- [C.16] **Bigham, J. P.**, Lau, T. A., and Nichols, J. W. TrailBlazer: Enabling Blind Users to Blaze Trails Through the Web. In *Proceedings of the 12<sup>th</sup> International Conference on Intelligent User Interfaces (IUI 2009)*, pp. 177-186. Sanibel Island, Florida, 2009. <sup>[25%]</sup>
- [C.15] Borodin, Y., **Bigham, J. P.**, Raman, R. and Ramakrishnan, I. V. What's New? - Making Web Page Updates Accessible. In *Proceedings of the 10<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008)*, pp. 145-152. Halifax, Canada, 2008. <sup>[36%, top 1%]</sup> \* **Best Student Paper** \*
- [C.14] Brudvik, J. T., **Bigham, J. P.**, Cavender, A. C. and Ladner, R. E. Hunting for Headings: Sighted Labeling vs. Automatic Classification of Headings. In *Proceedings of the 10<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008)*, pp. 201-208. Halifax, Canada, 2008. <sup>[36%]</sup>

<sup>1</sup> Premiere conferences in computer science (e.g., ASSETS, CHI, IUI, UIST) are highly selective and intended for archival papers only. These conferences often exceed journals in their selectivity, visibility, and impact. Please see <http://portal.acm.org/citation.cfm?id=1743546.1743569> for a study comparing the impact of conference papers and journals in these areas. When appropriate, the acceptance rate appears in brackets following each citation.

- [C.13] Kane, S., **Bigham, J. P.** and Wobbrock, J. O. Slide Rule: Making Mobile Touch Screens Accessible to Blind People Using Multi-Touch Interaction Techniques. In *Proceedings of the 10<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008)*, pp. 73-80. Halifax, Canada, 2008. <sup>[36%]</sup>
- [C.12] Kawanaka, S., Borodin, Y., **Bigham, J. P.**, Lunn, D., Takagi, H. and Asakawa, C. Accessibility Commons: A Metadata Infrastructure for Web Accessibility. In *Proceedings of the 10<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008)*, pp. 153-160. Halifax, Canada, 2008. <sup>[36%]</sup>
- [C.11] **Bigham, J. P.**, Prince, C. M. and Ladner, R. E. Addressing Performance and Security in a Screen Reading Web Application that Enables Accessibility Anywhere. In *Proceedings of the IEEE International Conference on Web Engineering (ICWE 2008)*, pp. 273-284. Yorktown Heights, New York, 2008. <sup>[34%]</sup>
- [C.10] **Bigham, J. P.**, Prince, C. M. and Ladner, R. E. WebAnywhere: A Screen Reader On-the-Go. In *Proceedings of the 5<sup>th</sup> International Cross-Disciplinary Conference on Web Accessibility (WAA 2008)*, pp. 73-82. Beijing, China, 2008. <sup>[36%]</sup>
- [C.9] **Bigham, J. P.**, Aller, M. B., Brudvik, J. T., Leung, J. O., Yazzolino, L. and Ladner, R. E. Inspiring Blind High School Students to Pursue Computer Science with Instant Messaging Chatbots. In *Proceedings of the 39<sup>th</sup> SIGCSE Technical Symposium on Computer Science Education (SIGCSE 2008)*, pp. 449-453. Portland, Oregon, 2008. <sup>[31%]</sup>
- [C.8] **Bigham, J. P.**, Cavender, A. C., Kaminsky, R. S., Prince, C. M. and Robison, T. S. Transcendence: Enabling a Personal View of the Deep Web. In *Proceedings of the 13<sup>th</sup> International Conference on Intelligent User Interfaces (IUI 2008)*, pp. 169-178. Gran Canaria, Spain, 2008. <sup>[15%]</sup>
- [C.7] **Bigham, J. P.**, Cavender, A. C., Brudvik, J. T., Wobbrock, J. O. and Ladner, R. E. WebinSitu: A Comparative Analysis of Blind and Sighted Browsing Behavior. In *Proceedings of the 9<sup>th</sup> International ACM SIGACCESS Conference on Computers & Accessibility (ASSETS 2007)*, pp. 51-58. Tempe, Arizona, 2007. <sup>[31%]</sup>
- [C.6] **Bigham, J. P.** and Ladner, R. E. Accessmonkey: A Collaborative Scripting Framework for Web Users and Developers. In *Proceedings of the 4<sup>th</sup> International Cross-Disciplinary Conference on Web Accessibility (WAA 2007)*, pp. 25-34. Banff, Canada, 2007. <sup>[40%]</sup>
- [C.5] **Bigham, J. P.** Increasing Web Accessibility by Automatically Judging Alternative Text Quality. In *Proceedings of the 12<sup>th</sup> International Conference on Intelligent User Interfaces: Short Papers Track (IUI 2007)*, pp. 349-352. Waikiki, Hawaii, 2007. <sup>[34%]</sup>
- [C.4] **Bigham, J. P.**, Kaminsky, R. S., Ladner, R. E., Danielsson, O. M., and Hempton, G. L. WebInSight: Making Web Images Accessible. In *Proceedings of the International ACM SIGACCESS Conference on Computers & Accessibility (ASSETS 2006)*, pp. 181-188. Portland, Oregon, 2006. <sup>[36%]</sup>
- [C.3] Pasca, M., Lin, D., **Bigham, J. P.**, Lifchits, A., and Jain, A. Names and Similarities on the Web: Fact Extraction in the Fast Lane. *Proceedings of the International Committee on Computational Linguistics and the Association for Computational Linguistics (COLING-ACL 2006)*, pp. 809-816. Sydney, Australia, 2006. <sup>[23%]</sup>
- [C.2] Pasca, M., Lin, D., **Bigham, J. P.**, Lifchits, A., and Jain, A. Organizing the World Wide Web of Facts - Step One: the One-Million Fact Extraction Challenge. *Proceedings of the National Conference on Artificial Intelligence (AAAI 2006)*, pp. 1400-1405. Boston, Massachusetts, 2006. <sup>[30%]</sup>
- [C.1] Turney, P., Littman, M., **Bigham J. P.**, and Shnayder, V. Combining independent modules to solve multiple-choice synonym and analogy problems. In *Proceedings of the International Conference on Recent Advances in Natural Language Processing (RANLP 2003)*, pp. 482-489. Borovets, Bulgaria, 2003. <sup>[28%]</sup>

## WORKSHOP PAPERS

- [W.5] **Bigham, J. P.**, Brady, E. and White, S. Human-Backed Access Technology. In *Proceedings of the CHI 2011 Workshop on Crowdsourcing and Human Computation*. Vancouver, BC, 2011.
- [W.4] **Bigham, J. P.**, Jayant, C., Miller, A., White, B., and Yeh, T.. VizWiz::LocateIt – In *Proceedings of the CVPR Workshop on Computer Vision Applications for the Visually Impaired*. San Francisco, CA, 2010.
- [W.3] UzZaman, N., **Bigham, J.P.** and Allen, J.F. Pictorial Summary of Documents to Help People Who Have Trouble Reading. In *CHI 2010 Design to Read Workshop*. Atlanta, Georgia, 2010.

- [W.2] **Bigham, J. P.** Enabling End Users to Independently Build Accessibility Into the Web. In *Proceedings of the CHI 2009 Workshop on End User Programming and the Web*. Boston, Massachusetts, 2009.
- [W.1] **Bigham, J. P.** Accessmonkey: Enabling and Sharing End User Accessibility Improvements. In *Accessibility and Computing: The Newsletter of ACM SIGACCESS*. New York: ACM Press. First appeared in the Doctoral Consortium of ACM ASSETS 2007. Tempe, Arizona (Oct. 15-17).

## REFEREED PAPERS ACCOMPANYING POSTERS AND DEMONSTRATIONS

- [P.6] UzZaman, N., **Bigham, J.P.**, and Allen, J.F. Multimodal Summarization for People with Disabilities in Reading, Linguistic and Verbal Comprehension. *Coleman Conference on Cognitive Disability*. Boulder, Colorado, 2010.
- [P.5] White, S., Ji, H., and **Bigham, J.P.** EasySnap: Real-time Audio Feedback for Assisted Blind Photography. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2010) – Demos*. New York, New York, 2010.
- [P.4] **Bigham, J.P.**, Otero, D.S., DeWitt, J.N., Cavender, A.C., and Ladner, R.E. ASL-STEM Forum: A Bottom-Up Approach to Enabling American Sign Language to Grow in STEM Fields. In *Proceedings of the International Conference On Weblogs and Social Media*. Seattle, Washington, 2008.
- [P.3] **Bigham, J. P.**, Prince, C. M., and Ladner, R. E. WebAnywhere: Enabling a Screen Reading Interface for the Web on Any Computer. In *Proceedings of the International Conference on the World Wide Web (WWW 2008)*. Beijing, China, 2008.
- [P.2] **Bigham, J. P.**, Cavender, A. C., DeWitt, J. N., Otero, D., and Ladner, R. E. ASL-STEM Forum: A Bottom-Up Approach to Enabling American Sign Language to Grow in STEM Fields. In *Proceedings of the International Conference on Weblogs and Social Media (ICWSM 2008)*. Seattle, Washington, 2008.
- [P.1] **Bigham, J. P.** and Prince, C. M. WebAnywhere: A Screen Reader On-the-Go. (Demonstration) In *Proceedings of the Ninth International ACM SIGACCESS Conference on Computers & Accessibility (ASSETS 2007)*. Tempe, Arizona, 2007.

## BOOK CHAPTERS

- [B.1] **Bigham, J.P.**, Lau, T., and Nichols, J. TrailBlazer: Enabling Blind Users to Blaze Trails Through the Web. *No Code Required: Giving Users Tools to Transform the Web*. Eds. Cypher, A., Dontcheva, M., Lau, T., and Nichols, J. Morgan Kaufmann.

## OTHER PUBLICATIONS

- [O.10] **Bigham, J.P.** and Ladner, R. E. What the disability community can teach us about interactive crowdsourcing. *ACM Interactions Magazine*. Volume 18, Issue 4. 78-81.
- [O.9] Miller, R. C. and Little, G. and Bernstein, M. and Bigham, J. P. and Chilton, L. B. and Goldman, M. and Horton, J. J. and Nayak, R. Heads in the Cloud. *XRDS: Crossroads, The ACM Magazine for Students*. 27-31, Volume 17, Issue 2, December, 2010.
- [O.8] **Bigham, J.P.**, Jayant, C., Ji, H., Little, G., Miller, A., Miller, R.C., Miller, R., Tatrowicz, A., White, B., White, S., and Yeh, T. VizWiz: Nearly Real-time Answers to Visual Questions. In *Proceedings of the International Cross-Disciplinary Conference on Web Accessibility (W4A 2008) – Web Accessibility Challenge*. Raleigh, NC, 2010.  
**\*Winner of W4A Accessibility Challenge Delegate’s Award**
- [O.7] **Bigham, J. P.** WebAnywhere. *National Federation of the Blind Technology Blog*. Invited Post. September, 2008. <http://www.nfb.org/nfb/NewsBot.asp?MODE=VIEW&ID=361>
- [O.6] **Bigham, J. P.** A Web 2.0 Approach to Web Accessibility. In *Proceedings of the 9<sup>th</sup> International Conference on Low Vision (VISION 2008)*. Invited Paper. Montreal, Canada, 2008.
- [O.5] **Bigham, J. P.**, Prince, C. M., Hahn, S., and Ladner, R. E. WebAnywhere: A Screen Reading Interface for the Web on Any Computer. In *Proceedings of the International Cross-Disciplinary Conference on Web Accessibility (W4A 2008) – Web Accessibility Challenge*. Beijing, China, 2008.  
**\*Winner of W4A Accessibility Challenge Delegate’s Award**

- [O.4] Borodin, Y., **Bigham, J. P.**, Stent, A., and Ramakrishnan, I.V. Towards One World Web with HearSay3. In *Proceedings of the International Cross-Disciplinary Conference on Web Accessibility (W4A 2008) – Web Accessibility Challenge*. Beijing, China, 2008.
- [O.3] **Bigham, J. P.** Enabling Blind Web Users to Create Accessible Web Content. *General Exam Document*. University of Washington Department of Computer Science and Engineering, 2007.
- [O.2] **Bigham, J. P.** Boosting Relation Extraction Recall with Soft Rules. *Qualifying Exam Document*. University of Washington Department of Computer Science and Engineering, 2005.
- [O.1] **Bigham, J. P.** On Using Error-Correcting Codes and Boosting to Learn Multi-Class Classification Problems. *Undergraduate Thesis*. Princeton University, 2003.

#### SELECTED INVITED TALKS AND PANELS

- [T.29] *Heads in the Cloud – New Approaches for Access Technology*. Smith-Kettlewell Eye Institute, San Francisco, CA, June 2011.
- [T.28] *Heads in the Cloud –How Strangers, Virtual Farmers, and Your Friends from High Schools May Solve Artificial Intelligence*. Provost’s Phelps Colloquium, Rochester, NY, March, 2011.
- [T.27] *Heads in the Cloud – New Approaches for Access Technology*. University of Washington Department of Computer Science and Engineering, Seattle, WA, January, 2011.
- [T.26] *Heads in the Cloud – New Approaches for Access Technology*. University of San Diego, San Diego, CA, November, 2010.
- [T.25] *Electronic Health Records: Issues for Non-Visual Access*. Accessible Electronic Health Records Workshop at ASSETS 2010. October, 2010.
- [T.24] *Legal and Regulatory Barriers to Accessibility Technology in the Cloud*. Panelist. Moderator: Preston Padden, Silicon Flatirons. Coleman Conference Workshop. October, 2010.
- [T.22] *Heads in the Cloud –How Strangers, Virtual Farmers, and Your Friends from High Schools are Bringing Artificial Intelligence into the Real World*. Johns Hopkins University, Baltimore, MD, September, 2010.
- [T.21] *Accessibility on Demand*. IBM Almaden, San Jose, CA. June, 2010.
- [T.20] *Accessibility on Demand*. Yahoo! Inc. Sunnyvale, CA. June, 2010.
- [T.19] *Improving Access for Blind Web Users*. Xerox Research. Webster, NY, January, 2010.
- [T.18] *Improving Access for Blind Web Users*. MIT CSAIL. Boston, Massachusetts, April, 2009.
- [T.17] *Improving Access for Blind Web Users*. University of Wisconsin. Madison, Wisconsin. March, 2009.
- [T.16] *Improving Access for Blind Web Users*. Washington University. St. Louis, Missouri. March, 2009.
- [T.15] *Improving Access for Blind Web Users*. University of Oregon. Eugene, Oregon. February, 2009.
- [T.14] *Improving Access for Blind Web Users*. Oregon State University. Corvallis, Oregon. February, 2009.
- [T.13] *Improving Access for Blind Web Users*. Microsoft Research. Redmond, Washington. February, 2009.
- [T.12] *Improving Access for Blind Web Users*. University of Rochester. Rochester, New York. February, 2009.
- [T.11] *Understanding the Global Marketplace – Perspectives from WebAnywhere*. National Center for Technology Innovation (NCTI) Technology Innovators Conference. Washington, D.C. November, 2008.
- [T.10] *Overview of NFB Youth Slam Computer Science Track*. AccessComputing Leadership Institute. Panel. Seattle, Washington. November, 2008.
- [T.9] *Research Trends in Supporting Accessibility*. Scripting Enabled. Adobe, Inc. Seattle, WA. Nov., 2008.
- [T.8] *Accessibility, Usability, and Availability – Building an Inclusive Web Experience*. Amazon Accessibility Day, Amazon Inc. Seattle, Washington. October, 2008.
- [T.7] *Accessibility Panel*. LMS Seminar, Electronics and Computer Science Department. Panel. Southampton University, United Kingdom. September, 2008.
- [T.6] *Toward Social Accessibility*. National Association of Disability Practitioners Conference: The Future of Supporting Students Through Technology. High Wycombe, United Kingdom. September, 2008.
- [T.5] *A Web 2.0 Approach to Web Accessibility*. International Conference on Low Vision (VISION 2008). Montreal, Canada. July, 2008.
- [T.4] *WebAnywhere: A Screen Reader On-the-Go*. Microsoft Imagine Cup Finals. Paris, France. July, 2008.
- [T.3] *A Web 2.0 Approach to Web Accessibility*. Stony Brook University, Stony Brook, New York. Nov., 2007.

- [T.2] *WebAnywhere: A Screen Reader On-the-Go*. Tech Talk, Google Inc. Kirkland, WA. August, 2007.
- [T.1] *WebInSight: Making Web Images Accessible*. Tech Talk, Google Inc. Kirkland, WA. May 2007.

## SELECTED PRESS

- [S.15] Rose, Damon. "Smartphone cameras bring independence to blind people." BBC. <http://www.bbc.co.uk/news/technology-14505748>. 8/19/2011.
- [S.14] Pavlus, John. "Adding Human Intelligence to Software." Technology Review, October, 2010.
- [S.13] "Technology Review Top 35 Under 35 - Jeffrey P. Bigham." Technology Review, 2009.
- [S.12] Tompa, Rachel. "Technologies for the Blind and Deaf Could Have Much Broader Impact, Says UW's Richard Ladner" <http://www.xconomy.com/seattle/2009/07/28/technologies-for-the-blind-and-deaf-could-have-much-broader-impact-says-uws-richard-ladner/>
- [S.11] Prabhu, Maya T. NCTI funds research on assistive technologies. <http://www.eschoolnews.com/news/top-news/index.cfm?i=59585>
- [S.10] *Recipients of Third Annual Mellon Awards for Technology Collaboration Announced*. December, 2008. <http://matc.mellon.org/press-release>
- [S.9] Paulson, Tom. *Professor's work erases technological barriers: Projects help deaf, blind benefit everyone*. Seattle Post-Intelligencer. December, 2008. [http://seattlepi.nwsource.com/local/390358\\_cybersigning03.html](http://seattlepi.nwsource.com/local/390358_cybersigning03.html)
- [S.8] Aycinena, Peggy. *Access For All*. Communications of the ACM. August, 2008.
- [S.7] Thomas, Jeffrey. *The Blind Can Now Use the Web from Anywhere*. America.gov. August, 2008. <http://www.america.gov/st/educ-english/2008/August/200808011316311CJsamohT0.1210901.html>
- [S.8] Makovec, Anne. *Project makes web more accessible to blind*. ABC News. July, 2008. [http://abclocal.go.com/kgo/story?section=news/drive\\_to\\_discover&id=6243441](http://abclocal.go.com/kgo/story?section=news/drive_to_discover&id=6243441)
- [S.5] Nelson, Bryn. *Opening New Portals for the Blind*. MSNBC. July, 2008. <http://www.msnbc.msn.com/id/25630182/>
- [S.4] Stansbury, Meris. *Emerging Tech Makes Learning More Accessible*. eSchool News. July, 2008. <http://www.eschoolnews.com/news/top-news/index.cfm?i=54514>
- [S.3] Blankinship, Donna. *Web-Based Program Gives the Blind Internet Access*. Associated Press. July, 2008.
- [S.2] *Imagine Cup 2008: Web-based Screen Reader Wins Top Accessibility Prize*. Microsoft PressPass. June, 2008. <http://www.microsoft.com/presspass/features/2008/jun08/06-18imagineaccess.msp>
- [S.1] Hickey, Hannah. *Online Service Lets Blind Surf the Internet From Any Computer, Anywhere*. University of Washington Press Release. June, 2008. <http://uwnews.org/article.asp?articleID=42563>

## GRANTS RECEIVED

- [G.9] **CAREER: Closed-Loop Crowd Support for People with Disabilities**  
National Science Foundation  
*Principal Investigator*, January 2012, \$500,000.
- [G.8] **MobileAccessibility: Bridge to the World for Blind, Low-Vision, and Deaf-Blind People**  
National Science Foundation  
*Subcontract from the University of Washington*, September, 2011, \$120,000.
- [G.7] **Combining Artificial and Human Intelligence for More Effective Access Technology**  
Google Research Award  
*Principal Investigator*, July, 2011, \$57,000.
- [G.6] **National Federation of the Blind Youth Slam – Computer Science Track**  
AccessComputing Mini-Grant  
*Principal Investigator*, May, 2011, \$4,800
- [G.5] **WebAnywhere: An Extensible Cloud Platform**  
National Center on Disability and Rehabilitation Research  
*Subcontract from TRACE R&D CENTER, University of Wisconsin* September, 2010, \$35,000.
- [G.4] **VizWiz: Enabling Blind People to Answer Visual Questions On-the-Go with Remote Automatic and Human-Powered Services**  
National Science Foundation  
*Principal Investigator*, September, 2010, \$49,999.

- [G.3] **RCT of Primary Care-based Patient Navigation-Activation - Research on HIV/AIDS-Related Cancers Among Racial/Ethnic Minorities**  
 National Cancer Institute  
*Co-Investigator*, October, 2010, \$200,000  
 with Principal Investigator Kevin Fiscella
- [G.2] **Enabling More Effective Use of the Web Anywhere with WebAnywhere and TrailBlazer**  
 National Center on Technology Innovation  
*Principal Investigator*, October 2009, \$15,000
- [G.1] **WebAnywhere.**  
 Andrew W. Mellon Foundation Award for Technology Collaboration (MATC)  
*Co-Investigator*, December 2008, \$50,000  
 with Principal Investigator Richard E. Ladner

## INDUSTRY EXPERIENCE

**Intern, USER Research Group, IBM Almaden Research Center, San Jose, CA** (Summer 2008)

*Mentor: Tessa Lau*

Created TrailBlazer, a non-visual, programming-by-demonstration system that makes web tasks easier to complete with a screen reader by enabling users to record, playback and share scripts describing web tasks. Developed a novel, machine-learning technique that uses a user's history and a short task description to suggest a next step even when no script for the desired task exists. [C.17]

**Summer Fellow, Benetech, Palo Alto, CA** (Summer 2008)

*Manager: Reuben Firmin*

Worked with a team to improve the WebAnywhere web-based screen-reading web application. Put the initial release of WebAnywhere through formal quality assurance, adapted WebAnywhere for site-specific release, and made it easier for other developers to join the project.

**Intern, Google Research, Mountain View, CA** (Summer 2005)

*Mentor: Marius Pasca*

Tackled substantial quantitative and qualitative problems with the goal of automatically generating a million correct relational facts from unstructured web text starting with ten seed facts. Made improvements to both the scoring metrics used to evaluate facts and to the extraction mechanism used to extract facts. Adapted the extraction system to use the Map-Reduce paradigm, so it could scale linearly and extract over a million facts. [C.2][C.3]

**Research Intern, AT&T Shannon Labs, Florham Park, NJ** (Summer 2003)

*Advisors: Wen-Ling Hsu and Guy Jacobson*

Tasked with improving the automatic classification and routing of email based on subject. Discovered that the categories currently in use overlapped and were often confused even by human representatives. Developed tools to identify problems in a supplied categorical hierarchy, suggest improved categories through iterative hierarchy improvement, and produce informative visualizations that illustrate confusion in a hierarchy.

**Intern, Microsoft, Redmond, WA** (Summer 2002)

*Mentor: Adam Nathan*

Developed an application designed to automatically generate test cases for the Interop area of the .NET Common Language Runtime. Using my program, logical representations of test cases were generated and executed in order to automatically test the entire Interop space

## TEACHING EXPERIENCE

**Introduction to Human-Computer Interaction (CSC 212/412)** (Fall 2010, 2011)

Developed a new course introducing computer science students to human-computer interaction. Received a 4.7/5.0 average rating from ~35 students.

**Web Programming (CSC 210)** (Spring 2010, 2011)

Developed and taught a very popular undergraduate course on the technology and science of web programming. Received a 4.4/5.0 average rating from ~55 students.

**Tutor, University of Washington****(Spring 2005, Fall 2005, Fall 2007)***Operating Systems (CSE 451), Artificial Intelligence (CSE 473)*

Held weekly tutoring sessions with groups of 1-3 students.

**National Federation of the Blind (NFB) Youth Slam****(August 2007, July 2009)**

Led the development of the curriculum for the computer science track at the Youth Slam and used it as part of an intensive class for 15 blind high school students to teach them the excitement of programming in 4 days. [C.8]

<http://webinsight.cs.washington.edu/nfbslam/>**Teaching Assistant, University of Washington****(Fall 2003 – Winter 2006)***Computer Vision (CSE 455) with Steve Seitz, Cyber-Terrorism (CSEP 590TU) with Ed Lazowska, Machine Organization and Assembly Language Programming (CSE 378) with Jean-Loupe Baer, Artificial Intelligence – non-majors (CSE 415) with Steven Tanimoto, Artificial Intelligence (CSE 473) with Henry Kautz*

Responsibilities included leading quiz sections, creating and grading assignments, and supporting students. Also prepared and presented lectures and quiz sections.

**PROFESSIONAL SERVICE****Program Committee**

<b>AAAI:</b> AAAI Conference on Artificial Intelligence	(2011)
<b>CHI:</b> ACM Conference on Human Factors in Computing Systems	(2011-2012)
<b>IJCAI:</b> International Joint Conference on Artificial Intelligence	(2011)
<b>ASSETS:</b> ACM Conference on Accessibility and Computing	(2009-2012)
<b>CHI:</b> ACM CHI: Work-In-Progress Track	(2009)
<b>UIST:</b> ACM Symposium on User Interface Software and Technology	(2011)
<b>W4A:</b> International Cross-Disciplinary Conference on Web Accessibility	(2009-2011)

**Organizing Committee**

<b>ASSETS:</b> ACM Conference on Accessibility and Computing	(2009-2011)
<b>W4A:</b> International Cross-Disciplinary Conference on Web Accessibility	(2009-2012)

**Reviewer of Journal Publications**

ACM Transactions on Accessible Computing	(2008-2010)
IBM Systems Journal	(2008)
ACM Transactions on Computer-Human Interaction	(2007)

**Reviewer of Conference Publications**

<b>IJCAI:</b> International Joint Conference on Artificial Intelligence	(2009)
<b>CHI:</b> ACM Conference on Human Factors in Computing Systems	(2007-2010)
<b>UIST:</b> ACM Symposium on User Interface Software and Technology	(2007-2010)

**Other**

<b>ASSETS:</b> ACM Student Research Competition Judge	(2009)
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**Student Volunteer**

<b>ICWSM:</b> ACM Conference on Weblogs and Social Media	(2008)
<b>IUI:</b> ACM Conference on Intelligent User Interfaces	(2008)

**Professional Memberships**

<b>AAAI:</b> Association for the Advancement of Artificial Intelligence	(2008 – Present)
<b>ACM:</b> Association for Computing Machinery	(2008 – Present)
<b>SIGACCESS:</b> ACM Special Interest Group on Accessibility	(2008 – Present)

**OTHER PROFESSIONAL ACTIVITIES**

Raising the Floor Initiative ( <i>raisingthefloor.org</i> ) – Member	(2009 – Present)
Global Public Inclusive Infrastructure ( <i>gpii.org</i> ) – Architecture Committee Member	(2010 – Present)
WebAnywhere Web-Based Screen Reader Open Source Project [C.10][C.11]	(2007 – Present)
National Federation of the Blind, Youth Slam – <i>Computer Science Track Instructor</i>	(2007,2009,2011)
Human Computer Interaction Consortium (HCIC) Conference – <i>Student Delegate</i>	(2009)
Accessible Web Capacity Building Institute, University of Washington DO-IT Program	(2006)
Vertical Mentoring Workshop for the Blind in STEM, Volunteer	(2006)
DO-IT Game of Life Workshop, Volunteer	(2006)

## REFERENCES

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Available upon request.