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Jeffrey P. Bigham

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ACADEMIC POSITIONS

Director of Human-Centered Machine Intelligence July 2018 –
Apple, Pittsburgh, PA

Associate Professor September 2013 –
Human Computer Interaction Institute and Language Technologies Institute
Carnegie Mellon University, School of Computer Science, Pittsburgh, PA

Assistant Professor July 2009 – August 2013
Department of Computer Science
University of Rochester, Rochester, NY

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

Alfred P. Sloan Research Fellowship	(2014)
NSF CAREER Award	(2012)
MIT Technology Review Top 35 Innovators Under 35 Award	(2009)
UIST 2023 Lasting Impact Award – for VizWiz [C.24]	(2023)
ASSETS 2008, 2009, 2021 Best Paper Award [C.15,C.19,C.125]	(multiple)
CHI 2021 Best Paper Award [C.113]	(2021)
W4A 2014, 2016, 2021 Best Technical Paper Award [C.50,C.69,C.117]	(multiple)
ASSETS 2015 Best Demo Award [P.25]	(2015)
W4A Paciello Group Accessibility Challenge Award – VizWiz [O.8], Scribe [O.14]	(multiple)
ACM WSDM 2012 Best Paper Award [C.30]	(2012)
ACM UIST 2010 Best Paper Award [C.24]	(2010)
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)
Microsoft Imagine Cup Accessible Technology Award	(2008)
Osberg Endowed Presidential Fellowship (University of Washington)	(2008)
W4A Accessibility Challenge Award – WebAnywhere [O.5]	(2008)
NSF Graduate Research Fellowship (Honorable Mention)	(2004)

REFEREED JOURNAL PUBLICATIONS

[J.17] Hasegawa-Johnson, M., Zheng, X., Kim, H., Mendes, C., Dickinson, M., Hege, E., Zwilling, C., Channell, M.M., Mattie, L., Hodges, H., Ramig, L., Bellard, M., Shebanek, M., Sarı, L., Kalgaonkar, K., Frerichs, D., **Bigham, J.P.**, Findlater, L., Lea, C., Herrlinger, S., Korn, P., Abou-Zahra, S., Heywood, R., Tomanek, K., and MacDonald, B. Community-supported shared infrastructure in support of speech accessibility. Journal of Speech, Language, and Hearing Research (2024).

[J.16] **Bigham, J.P.** and Fleizach, C. System-class Accessibility: The architectural support for making a whole system usable by people with disabilities. ACM Queue 2024.

[J.15] Swearngin, A., Wu, J., Zhang, X., Gomez, E., Coughenour, J., Stukenborg, R., Garg, B., Hughes, G., Hilliard, A., **Bigham, J.P.**, and Nichols, J. Towards automated accessibility report generation for mobile apps. ACM Transactions on Computer-Human Interaction (2024).

[J.14] Valencia, S., Steidl, M., Rivera, M., Bennett, C., **Bigham, J.P.**, and Admoni, H. Nonverbal Communication through Expressive Objects. Communications of the ACM. 67:1, pp 123-131. ACM 2023.

[J.13] Rello, L., Baeza-Yates, R., Ali, A., **Bigham, J.P.**, and Serra, M. Predicting risk of dyslexia with an online gamified test. PLOS ONE 2020.

[J.12] Huang, T.K., Azaria, A., Romero, O.J., and **Bigham, J.P.** InstructableCrowd: Creating IF-THEN Rules for Smartphones via Conversations with the Crowd. Human Computation 2019.

[J.11] Wu, J., Ahuja, K., Li, R., Chen, V., and **Bigham, J.P.** ScratchThat: Supporting Command-Agnostic Speech Repair in Voice-Driven Assistants. In *ACM Journal on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*. Presented at UbiComp 2019.

[J.10] Guo, Anhong, Jain, Anuraag, Ghose, Shomiron, Laput, Gierad, Harrison, Chris, and **Bigham, J.P.** Crowd-AI Camera Sensing in the Real World. In *ACM Journal on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*. Presented at UbiComp 2018. Singapore.

[J.9] Gleason, C., Ahmetovic, D., Savagae, S., Toxtli, C., Posthuma, C., Asakawa, C., Kitani, K.M., **Bigham, J.P.** Crowdsourcing the Installation and Maintenance of Indoor Localization Infrastructure to Support Blind Navigation. In *ACM Journal on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*. Presented at UbiComp 2018. Singapore.

[J.8] Lasecki, W.S., Miller, C.D., Naim, I., Kushalnagar, R., Sadilek, A., Gildea, D., and **Bigham, J.P.**. Scribe: Deep Integration of Human and Machine Intelligence to Caption Speech in Real Time. In *Communications of the ACM.* November 2017.

[J.7] **Bigham, J.P.**, Lasecki, W.S., and Wobbrock, J.O. Target Acquisition and the Crowd Actor. Human Computation (2015) 1:2:101-131.

[J.6] Brady, E., and **Bigham, J.P.** Crowdsourcing Accessibility: Human-Powered Access Technologies. Foundations and Trends in Human–Computer Interaction: Vol. 8: No. 4, pp. 273-372. November 2015. http://dx.doi.org/10.1561/1100000050

[J.5] Lasecki, W.S., Homan, C., and **J.P. Bigham**. Architecting Real-Time Crowd-Powered Systems. *Human Computation Journal (HCJournal)*. September 2014.

[J.4] Sims, M., **Bigham, J.P.**, Kautz, H., and Halterman, M.W. Crowdsourcing Medical Expertise in Near Realtime. *Journal of Hospital Medicine*. April 17, 2014. *1.839 Impact Factor*

[J.3] Kushalnagar, R., Lasecki, W.S., and **Bigham, J.P.** Accessibility Evaluation of Classroom Captions. ACM Transactions on Accessible Computing (TACCESS). 5:3, 7:1-7:24 (January 2014).

[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 PUBLICATIONS[1]

[1] Premiere conferences in computer science and human-computer interaction (*e.g.*, ASSETS, CHI, CSCW, UIST) are highly selective and intended for archival papers only. These conferences often exceed journals in their selectivity, visibility, and impact. Submissions undergo multiple rounds of review before being accepted for publication. W4A is a top conference in the field of web accessibility. 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.147] Wu, J., Peng, Y., Li, A., Swearngin, A., **Bigham, J.P.**, and Nichols, J. UICLIP: a data-driven model for assessing user interface design. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2024)*.

[C.146] Peng, Y., Huq, F., Jiang, Y., Wu, J., Li, X.Y., **Bigham, J.P.**, and Pavel, A. Dreamstruct: Understanding slides and user interfaces via synthetic data generation. In *Proceedings of the European Conference on Computer Vision (ECCV 2024)*.

[C.145] Huq, F., Samee, A., Lin, D.C., Tang, X.A., and **Bigham, J.P.** NoTeeline: Supporting Real-Time, Personalized Notetaking with LLM-Enhanced Micronotes. In *Proceedings of the Intelligent User Interfaces Conference (IUI 2025).*

[C.144] Hu, Y., Stegner, L., Kotturi, Y., Zhang, C., Peng, Y., Huq, F., Zhao, Y., **Bigham, J.P.**, and Mutlu, B. "This really lets us see the entire world:" Designing a conversational telepresence robot for homebound older adults. In *Proceedings of the 2024 ACM Designing Interactive Systems Conference (DIS 2024)*.

[C.143] Kingsley, S., Silberman, M.S., Wang, C., Lambeth, R., Zhi, J., Eslami, M., Li, B., and **Bigham, J.P.** 'Your Duties Are To Sweep A Floor Remotely': Low Information Quality in Job Advertisements is a Barrier to Low-Income Job-Seekers' Successful Use of Digital Platforms. In *Proceedings of the 3rd Annual Meeting of the Symposium on Human-Computer Interaction for Work (CHIWORK 2024)*.

[C.142] Wu, J., Schoop, E., Leung, A., Barik, T., **Bigham, J.P.**, and Nichols, J. UICoder: Finetuning Large Language Models to Generate User Interface Code through Automated Feedback. In *Proceedings of the Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2024)*

[C.141] Valencia, S., Huynh, J., Jiang, E.Y., Wu, Y., Wan, T., Zheng, Z., Admoni, H., **Bigham, J.P.**, and Pavel, A. Talaria: Interactively optimizing machine learning models for efficient inference. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2024).* Honolulu, USA.

[C.140] Hohman. F., Wang, C., Lee, J., Görtler. J., Moritz, D., **Bigham, J.P.**, Ren, Z., Foret. C, Shan, Q., Zhang, X. Talaria: Interactively optimizing machine learning models for efficient inference. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2024).* Honolulu, USA.

[C.139] Kotturi, Y., Anderson, A., Ford, G., Skirpan, M., and **Bigham, J.P.** Deconstructing the Veneer of Simplicity: Co-Designing Introductory Generative AI Workshops with Local Entrepreneurs. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2024).* Honolulu, USA.

[C.138] Wu, J., Krosnick, R., Schoop, E., Swearngin, A., **Bigham, J.P.**, and Nichols, J. Never-ending Learning of User Interfaces. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2023)*. San Francisco, USA.

[C.137] Paulino, D., Correia, A., Yagui, M., Barroso, J., Liberato, M., Vivacqua, A, Grover, A., **Bigham, J.P.**, and Paredes, H. Exploring Stigmergic Collaboration and Task Modularity Through an Expert Crowdsourcing Annotation System: The Case of Storm Phenomena in the Euro-Atlantic Region. IEEE Access. vol. 11, pp. 106485-106502, 2023.

[C.136] Lea, C., Yee, D., Narain, J., Huang, Z., Tooley, L., **Bigham, J.P.**, Findlater, L. Latent Phrase Matching for Dysarthric Speech. In *Proceedings of the Annual Conference of the International Speech Communication Association (INTERSPEECH 2023)*. Dublin, Ireland.

[C.135] Krishna, K., Garg, S., **Bigham, J.P.**, and Lipton, Z.C. Downstream Datasets Make Surprisingly Good Pretraining Corpora. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics* (ACL 2023). Toronto, Canada.

[C.134] Lea, C., Huang, Z., Narain, J., Tooley, L., Yee, D., Tran, D.T., Georgiou, P., **Bigham, J.P.**, and Findlater, L. From User Perceptions to Technical Improvement: Enabling People Who Stutter to Better Use Speech Recognition. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2023).* Hamburg, Germany.

[C.133] Wu, J., Wang, S., Shen, S., Peng, Y.-H., Nichols, J., and **Bigham, J.P.** WebUI: A Dataset for Enhancing Visual UI Understanding with Web Semantics. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2023).* Hamburg, Germany. *** Best Paper Honorable Mention ***

[C.132] Peng, Y.-H., Wu, J., **Bigham, J.P.**, and Pavel, A. Diffscriber: Describing Visual Design Changes to Support Mixed-Ability Collaborative Presentation Authoring. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2022).* Bend, OR, USA.

[C.131] Gupta, P., Jiao, C., Yeh, Y.-T., Mehri, S., Eskenazi, J., and **Bigham, J.P.** InstructDial: Improving Zero and Few-shot Generalization in Dialogue through Instruction Tuning. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP 2022).*

[C.130] Gupta, P., Jhamtani, H., and **Bigham, J.P.** Target-Guided Dialogue Response Generation Using Commonsense and Data Augmentation. In *Proceedings of the Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT 2022)*.

[C.129] Kotturi, Y., Johnson, H.T. Jr., Skirpan, M., Fox, S.E., **Bigham, J.P.**, Pavel, A.. Tech Help Desk: Support for Local Entrepreneurs Addressing the Long Tail of Computing Challenges. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022).* New Orleans, LA, USA.

[C.128] Mack, K., McDonnell, E.J., Potluri, V., Xu, M., Zabala, J., **Bigham, J.P.**, Mankoff, J., Bennett, C.. Anticipate and Adjust: Cultivating Access in Human-Centered Methods. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022).* New Orleans, LA, USA. *** Best Paper Honorable Mention ***

[C.127] Lea, C., Huang, Z., Jain, D., Tooley, L., Liaghat, Z., Thelapurath, S., Findlater, L., and **Bigham, J.P.** Nonverbal Sound Detection for Disordered Speech. In *Proceedings of the International Conference on Acoustics, Speech, & Signal Processing (ICASSP 2022). Virtual.*

[C.126] Peng, Y.-H., **Bigham, J.P.**, and Pavel, A. Slidecho: Flexible Non-Visual Exploration of Presentation Videos. In *Proceedings of the ACM Conference on Computers and Accessibility (ASSETS 2021). Virtual.*

[C.125] Valencia, S., Steidl, M., Rivera, M.L., Bennett, C.L., Bigham, J.P., and Admoni, H. Aided Nonverbal Communication through Physical Expressive Objects. In *Proceedings of the ACM Conference on Computers and Accessibility (ASSETS 2021). Virtual.* *** Best Paper ***

[C.124] Kong, J., Sabha, D., **Bigham, J.P.**, Pavel, A., and Guo, A. TutorialLens: Authoring Interactive Augmented Reality Tutorials Through Narration and Demonstration. In *Proceedings of the ACM Conference on Spatial User Interaction (SUI 2021). Virtual.*

[C.123] Krishna, K., **Bigham, J.P.**, Lipton, Z.C. Does Pretraining for Summarization Require Knowledge Transfer? In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP 2021). Virtual.*

[C.122] Wu, J., Zhang, X., Nichols, J., and **Bigham, J.P.** Screen Parsing: Towards Reverse Engineering of UI Models from Screenshots. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2021). Virtual.*

[C.121] Mitra, V., Huang, Z., Lea, C., Tooley, L., Wu, S., Botten, D., Palekar, A., Thelapurath, S., Georgiou, P., Kajarekar, S., and **Bigham, J.P.** Analysis and Tuning of a Voice Assistant System for Dysfluent Speech. In *Proceedings of INTERSPEECH 2021. Brno, Czech Republic.*

[C.120] Bennett, C.L., Ackerman, E.E., Fan, B., **Bigham, J.P.**, Carrington, P., and Fox, S.E. Accessibility and The Crowded Sidewalk: Micromobility's Impact on Public Space. In *Proceedings of the ACM Conference on Designing Interactive Systems (DIS 2021). Virtual.* *** Best Paper Honorable Mention ***

[C.119] Krishna, K., Khosla, S., **Bigham, J.P.**, and Lipton, Z.C. Generating SOAP Notes from Doctor-Patient Conversations Using Modular Summarization Techniques. In *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics* (*ACL 2021*). *Virtual.*

[C.118] Gupta, P., Tsvetkov, Y., and **Bigham, J.P.** Synthesizing Adversarial Negative Responses for Robust Response Ranking and Evaluation. In *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics* (*ACL-Findings 2021*). *Virtual.*

[C.117] Wu, J., Reyes, G., White, S.C., Zhang, X., and **Bigham, J.P**. When Can Accessibility Help?: An Exploration of Accessibility Feature Recommendation on Mobile Devices. In *Proceedings of the International Web for All Conference (W4A 2021). Virtual.* *** Best Paper ***

[C.116] Gupta, P., **Bigham, J.P.**, Tsvetkov, Y., and Pavel, A. Controlling Dialogue Generation with Semantic Exemplars. In *Proceedings of the Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT 2021). Virtual.*

[C.115] Lea, C., Mitra, V., Joshi, A., Kajarekar, S., and **Bigham, J.P.** SEP-28K: A Dataset for Stuttering Event Detection from Podcasts with People Who Stutter. In *Proceedings of the International Conference on Acoustics, Speech, & Signal Processing (ICASSP 2021). Virtual.*

[C.114] Peng, Y-H., Jang, J., **Bigham, J.P.**, and Pavel, A. Say It All: Feedback for Improving Non-Visual Presentation Accessibility. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2021). Virtual.*

[C.113] Zhang, X., de Greef, L., Swearngin, A., White, S., Murray, K., Yu, L., Shan, Q., Nichols, J., Wu, J., Fleizach, C., Everitt, A., and **Bigham, J.P.** Screen Recognition: Creating Accessibility Metadata for Mobile Applications from Pixels. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2021). Virtual.* *** Best Paper ***

[C.112] Bennett, C.L., Gleason, C., Scheuerman, M.K., **Bigham, J.P.**, Guo, A., To, A. "It's Complicated'": Negotiating Accessibility and (Mis)Representation in Image Descriptions of Race, Gender, and Disability. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2021). Virtual.* *** Best Paper Honorable Mention ***

[C.111] Valencia, S., Luria, M., Pavel, A., **Bigham, J.P.**, and Admoni, H. Co-designing Socially Assistive Sidekicks for Motion-based AAC. In *Proceedings of the ACM/IEEE Conference on Human Robot Interaction (HRI 2021). To Appear.* *** Best Paper Honorable Mention ***

[C.110] Pavel, A., Reyes, G., **Bigham, J.P.** Rescribe: Authoring and Automatically Editing Audio Descriptions. In *Proceedings of the ACM Conference on User Interface Software and Technology (UIST 2020).* Virtual.

[C.109] Herskovitz, J., Wu, J., White, S., Pavel, A., Reyes, G., Guo, A., and **Bigham, J.P.** Making Mobile Augmented Reality Applications Accessible. In *Proceedings of the ACM Conference on Computers and Accessibility (ASSETS 2020).* Virtual.

[C.108] Gleason, C., Valencia-Valencia, S., Kirabo, L., Wu, J., Guo, A., Carter, E.J., **Bigham, J.P.**, Bennett, C.L., Pavel, A.. Disability and the COVID-19 Pandemic: Using Twitter to Understand Accessibility during Rapid Societal Transition. In *Proceedings of the ACM Conference on Computers and Accessibility (ASSETS 2020).* Virtual.

[C.107] Gleason, C., Pavel, A., Gururaj, H., Kitani, K.M., **Bigham, J.P.**. Making GIFs Accessible. In *Proceedings of the ACM Conference on Computers and Accessibility (ASSETS 2020)*. Virtual.

[C.106] Gleason, C., Pavel, A., McCamey, E., Low, C., Carrington, P., Kitani, K., and **Bigham, J.P.** Twitter A11y: Making Images on Social Media Accessible. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2020).* Honolulu, HI. *** Best Paper Honorable Mention ***

[C.105] Valencia, S., Pavel, A., Maria, J.S., Yu, S., **Bigham, J.P.**, and Admoni, H. Conversational Agency in Augmentative and Alternative Communication. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2020).* Honolulu, HI. *** Best Paper Honorable Mention ***

[C.104] Wu, J., Harrison, C., Bigham, J.P., and Laput, G. Automated Class Discovery and One-Shot Interactions for Acoustic Activity Recognition. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2020*). Honolulu, HI. *** Best Paper Honorable Mention ***

[C.103] Gleason, C., Pavel, A., Liu, X., Carrington, P., Chilton, L.B., and **Bigham, J.P.** Making Memes Accessible. In *Proceedings of the ACM Conference on Computers and Accessibility (*ASSETS 2019). Pittsburgh, PA.

[C.102] Pareddy, S., Guo, A., and **Bigham, J.P.** X-Ray: Screenshot Accessibility via Embedded Metadata. In *Proceedings of the ACM Conference on Computers and Accessibility (*ASSETS 2019). Pittsburgh, PA. *** Artifact Award ***

[C.101] Gupta, P., Mehri, S., Zhao, T., Pavel, A., Eskenazi, M., and **Bigham, J.P.** Investigating Evaluation of Open-Domain Dialogue Systems With Human Generated Multiple References. In *Proceedings of the Joint ISCA and ACL Special Interest Group on Discourse and Dialogue (SIGDIAL 2019)*.

[C.100] Guo, A., Kong, J., Rivera, M., Xu, F.F., and **Bigham, J.P.** StateLens: A Reverse Engineering Solution for Making Existing Dynamic Touchscreens Accessible. In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2019).*

[C.99] Gurari, D., Li, Q., Lin, C., Zhao, Y., Guo, A., Stangl, A., and **Bigham, J.P.** VizWiz-Priv: A Dataset for Recognizing the Presence and Purpose of Private Visual Information in Images Taken by Blind People. In *Proceedings of the Computer Vision Pattern Recognition Conference (CVPR 2019)*.

[C.98] Gordon, M.L., Gatys, L., Guestrin, C., **Bigham, J.P.**, Trister, A., and Patel, K. App Usage Predicts Cognitive Ability in Older Adults. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2019*).

[C.97] TurkScanner: Predicting the Hourly Wage of Microtasks. Saito, S., Chiang, C.W., Savage, S., Nakano. T., Kobayashi, T., and **Bigham, J.P.** In *the Web Conference (WWW 2019).* San Francisco, CA.

[C.96] Gleason, C, Carrington, P., Cassidy, C., Morris, M.R., Kitani, K.M., and **Bigham, J.P**. "It's almost like they're trying to hide it": How User-Provided Image Descriptions Have Failed to Make Twitter Accessible. In *the Web Conference (WWW 2019).* San Francisco, CA.

[C.95] Guo, A., McVea, S., Wang, X., Clary, P., Goldman, K., Li, Y., Zhong, Y., and **Bigham, J.P.** Investigating Cursor-based Interactions to Support Non-Visual Exploration in the Real World. In *ACM Conference on Computers and Accessibility (*ASSETS 2018), Galway, Ireland.

[C.94] Carrington, P., Laput, G., and Bigham, J.P. Exploring the Data Tracking and Sharing Preferences of Wheelchair Athletes. In *ACM Conference on Computers and Accessibility (*ASSETS 2018), Galway, Ireland. *** Best Paper Honorable Mention***

[C.93] Kaplan, T., Saito, S., Hara, K., and **Bigham, J.P.** Striving to Earn More: A Survey of Work Strategies and Tool Use Among Crowd Workers. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2018)*.

[C.92] Gurari, D., Li, Q., Stangl, A.J., Guo, A., Lin, C., Grauman, K., Luo, J., **Bigham, J.P**. VizWiz Grand Challenge: Answering Visual Questions from Blind People. In *Proceedings of the Computer Vision Pattern Recognition Conference (CVPR 2018)*. Salt Lake City, UT. *** Spotlight Presentation ***

[C.91] Hara, K., Adams, A., Milland, K., Savage, S., Callison-Burch, C., and **Bigham, J.P.**. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2018*). Montreal, Canada.[26%, 5%] *** Best Paper Honorable Mention***

[C.90] Haung, T.H., Chang, J.C., and **Bigham, J.P.** Evorus: A Crowd-powered Conversational Assistant Built to Automate Itself Over Time. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2018*). Montreal, Canada. [26%, 5%]. *** Best Paper Honorable Mention***

[C.89] Rauschenberger, M., Rello, L., Baeza-Yates, R., and **Bigham, J.P.** Towards Language Independent Detection of Dyslexia with a Web-based Game. In *Proceedings of the International Web for All Conference (W4A 2018)*. Lyon, France.

[C.88] Rosenblatt, L., Hara, K., Carrington, P., and **Bigham, J.P.** Vocal Programming for People with Upper-Body Motor Impairments. In *Proceedings of the International Web for All Conference (W4A 2018)*. Lyon, France.

[C.87] Swaminathan, S., Fok, R., Chen, F., Huang, T.H., Lin, I., Jadvani, R., Lasecki, W.S., and **Bigham, J.P.** WearMail: On-the-Go Access to Information in Your Email with a Privacy-Preserving Human Computation Workflow**.** In *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2017)*.[23%]

[C.86] Huang, T.H., and **Bigham, J.P.**. A 10-Month-Long Deployment Study of On-Demand Recruiting for Low-Latency Crowdsourcing. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2017)*.[29%]

[C.85] Kaur, H., Gordon, M., Yang, Y., **Bigham, J.P.**, Teevan, J., Kamar, E., Lasecki, W.S. CrowdMask: Using Crowds to Preserve Privacy in Crowd-Powered Systems via Progressive Filtering. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2017)*. [29%]

[C.84] Hara, Kotaro, and **Bigham, J.P.** Introducing People with ASD to Crowd Work. In *ACM Conference on Computers and Accessibility (*ASSETS 2017). Baltimore, MD.[22%]

[C.83] **Bigham, J.P.**, Lin, Irene, and Savage, Saiph. The Effects of "Not Knowing What You Don`t Know" on Web Accessibility for Blind Web Users. In *ACM Conference on Computers and Accessibility (*ASSETS 2017). Baltimore, MD.[22%]

[C.82] Rello, Luz, **Bigham, J.P**. Good Background Colors for Readers: A Study of People with and without Dyslexia. In *ACM Conference on Computers and Accessibility (*ASSETS 2017). Baltimore, MD.[22%]

[C.81] Huang, T.-H., Chen, V., and **Bigham, J.P.** Real-time On-Demand Crowd-powered Entity Extraction. In the *Proceedings of Collective Intelligence (CI 2017)*. New York, New York.

[C.80] Williams, K., Zimmerman, J., and **Bigham, J.P.** Scopist: Building a Skill Ladder into Crowd Transcription. In the *Proceedings of the International Web for All Conference (W4A 2017)*. Perth, Australia.[67%]

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[C.78] Guo, A., Kim, J., Chen, X.A., Yeh, T., Hudson, S.E., Mankoff, J., and **Bigham, J.P.** Facade: Auto-generating Tactile Interfaces to Appliances. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2017*). Denver, Colorado. [25%]

[C.77] Kacorri, H., Kitani, K.M., **Bigham, J.P.**, and Asakawa, C. People with Visual Impairment Training Personal Object Recognizers: Feasibility and Challenges. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2017*). Denver, Colorado. [25%] *** Best Paper Honorable Mention***

[C.76] Huang, Y., Huang, Y., Xue, N., and **Bigham, J.P.** Leveraging Complementary Contributions of Different Workers for Efficient Crowdsourcing of Video Captions In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2017*). Denver, Colorado. [25%]

[C.75] Huang, T.H., Lasecki, Walter S., Azaria, A., and **Bigham, J.P.** "Is there anything else I can help you with?": Challenges in Deploying an On-Demand Crowd-Powered Conversational Agent. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2016)*, pp. 79-88. Austin, Texas, 2016.[30%]

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[T.65] *Uncovering Humans and Loops: A Random Walk of People and Technology Through Image Description.* HCOMP 2022 Keynote. November 2022.

[T.64] *Uncovering Humans and Loops: A Random Walk of People and Technology Through Image Description.* Stanford Human-Centered AI Fall Conference. November 2022.

[T.63] *A Crowd-Powered Approach to Truly Intelligent User Interfaces.* Information School. University of Texas – Austin. February 2017.

[T.62] *A Crowd-Powered Approach to Truly Intelligent User Interfaces.* Computer Science Colloquium. Texas State University. February 2017.

[T.61] *A Crowd-Powered Approach to Truly Intelligent User Interfaces.* Computer Science Department. University of Iowa. November 2016.

[T.60] *A Crowd-Powered Approach to Truly Intelligent User Interfaces.* ACT. November 2016.

[T.59] *Carnegie Mellon University Accessibility Capacity Building Instiutute.* October 2016.

[T.58] *A Crowd-Powered Approach to Truly Intelligent User Interfaces.* Computer Science Department. Oregon State University. June 2016.

[T.57] Microsoft Research Faculty Summit. July 2016.

[T.56] *Automating Crowd-Powered Systems. Brown University.* Computer Science Department. October, 2015.

[T.55] *Automating Crowd-Powered Systems.* HCI Colloquium. University of Illinois. September, 2015.

[T.54] *Automating Crowd-Powered Systems.* ICML Crowdsourcing Workshop. Invited Talk. Lille, France. July 2015.

[T.53] Crowd Consortium Panel. College Park, Maryland. May 2015.

[T.52] *Automating Crowd-Powered Systems.* University of Zurich. Zurich, Switzerland. May 2015.

[T.51] *Automating Crowd-Powered Systems.* Microsoft Research. Redmond, WA. March 2015.

[T.50] *Crowds and Learning: Three On-Going Projects.* Crowdsourcing, Online Education, and Massive Open Online Courses. Workshop at HCOMP 2014. Invited Talk.

[T.49] *12 Lessons Learned from Deploying Crowd-Powered Systems.* Microsoft Research Faculty Summit. Redmond, WA. July 2014.

[T.48] *Quickly Answering Visual Questions.* CVPR Workshop on Computer Vision and Human Computation. Invited Talk. Columbus, OH. June 2014.

[T.49] *Crowd Agents: A Top-Down Approach to Intelligent Interactive Systems.* Distinguished Colloquium Series, Northwestern University. Evanston, IL. May 2014.

[T.48] *Crowd Agents: A Top-Down Approach to Intelligent Interactive Systems.* HCI Colloquium. University of Wisconsin, Madison, WI. May 2014.

[T.47] *Crowd Agents: A Top-Down Approach to Intelligent Interactive Systems.* CUNY, New York City, NY. March 2014.

[T.46] *Crowd Agents: A Top-Down Approach to Intelligent Interactive Systems*. Google Tech Talk, Mountain View, CA. January 2014.

[T.45] *Crowd Agents: A Top-Down Approach to Intelligent Interactive Systems*. Machine Learning Lunch, Carnegie Mellon University. November 2013.

[T.44] *Interactive Crowd Support. Workshop on Environmental Sensing Technologies for Visual Impairment (ESTVI 13).* Smith Kettlewell Eye Institute. San Francisco, CA. August 2013.

[T.43] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* International Conference on Machine Learning (ICML 2013) – Machine Learning Meets Crowdsourcing. Atlanta, GA. June 2013.

[T.42] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* Xerox Research Center. Webster, NY. June 2013.

[T.41] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* Cognitive Science Dinner, University of Rochester, Rochester, NY. April 2013.

[T.40] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* University of Michigan Computer Science and Engineering, Ann Arbor, Michigan. February 2013.

[T.40] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* HCII Colloquium, Carnegie Mellon University, Pittsburgh, Pennsylvania. February 2013.

[T.39] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* HCII Crowdsourcing Lunch Seminar. Carnegie Mellon University, Pittsburgh, PA. December 2012.

[T.38] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* School of Information Colloquium. University of Michigan, Ann Arbor, MI. December 2012.

[T.37] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* GVU Brown Bag Lunch. Georgia Institute of Technology, Atlanta, GA. November 2012.

[T.36] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* HCI Seminar. MIT, Cambridge, MA. November 2012.

[T.35] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* Math and Computer Science Colloquium. Houghton College, Houghton, NY. October 2012.

[T.34] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* Department of Information Science Colloquium. Cornell University, Ithaca, NY. October 2012.

[T.33] *Crowd Agents: Interactive Crowd-Powered Systems in the Real World.* Laboratory for Laser Energetics Colloquium. University of Rochester, Rochester, NY. September 2012.

[T.32] *Crowd Agents.* Human Computation (HCOMP) Workshop. Keynote. Toronto, ON. July 2012.

[T.31] *Real-Time Crowd Support for People with Disabilities*. Dartmouth University, Computer Science Colloquium. Hanover, NH, November 2011.

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[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. University of Rochester. 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.23] *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.22] *Accessibility on Demand.* IBM Almaden, San Jose, CA. June, 2010.

[T.21] *Accessibility on Demand.* Yahoo! Inc. Sunnyvale, CA. June, 2010.

[T.20] *Improving Access for Blind Web Users.* Xerox Research. Webster, NY, January, 2010.

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[T.16] *Improving Access for Blind Web Users.* Washington University. St. Louis, Missouri. March, 2009.

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[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.

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[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.

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[S.10] *Recipients of Third Annual Mellon Awards for Technology Collaboration Announced.* December, 2008. http://matc.mellon.org/press-release

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[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 Press Pass. June, 2008. http://www.microsoft.com/presspass/features/2008/jun08/06-18imagineaccess.mspx

[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 AND OTHER SUPPORT

[G.43] **NSF – FAI: Quantifying and Mitigating Disparities in Language Technologies**
National Science Foundation, #IIS-2040926
Co-PI (*with Graham Neubig*), October 2021, $375,000

[G.42] **CCRI: ENS: Collaborative Research: Developing the Dialog Ecosystem to Support and Enhance Research in Spoken Dialog Systems**
National Science Foundation, #CNS-1924855
Co-PI, September 2019*,* $1,700,00

[G.41] **FW-HTF-RL: Collaborative Research: Up-skilling and Re-skilling Marginalized Rural and Urban Digital Workers: AI-worker collaboration to access creative work**
National Science Foundation, #1928631
Principal Investigator, July 2019, $2,500,000
with co-PIs Chris Callison-Burch, Benjamin Hanrahan, Aniket Kittur, Beibei Li, Amy Ogan, Amy Pavel, Saiph Savage, and Julia Ticona.

[G.40] **CHS: Small: Deep Integration of Crowds and AI for Robust, Scalable, and Privacy-Preserving Conversational Assistance**
National Science Foundation, #IIS-1816012
Principal Investigator, August 2018, $500,000

[G.39] **Detecting Suspicious Online Interactions**
(DARPA) Active Social Engineering Defense (ASED) program
Co-PI (with Artur Dubrawski), $510,230

[G.38] **Chorus: A Crowd-Powered Conversational Assistant that Automates Itself Over Time**
Yahoo! InMind
Project Lead, 2018, $100,000.

[G.37] **Expert Crowdsourcing for Semantic Annotation of Atmospheric Phenomena**
CMU Portugal
Co-Investigator, with Hugo Alexandre Paredes Guedes da Silva
December 2017. $96,000.

[G.36] **HCII Career Development Fellowship**
Human-Computer Interaction Institute
$75,000

[G.35] **Chorus: A Crowd-Powered Conversational Assistant that Automates Itself Over Time**
Yahoo! InMind
Project Lead, 2017, $100,000.

[G.34] **Zensors**
Bosch.
with Chris Harrison
November 2017. $45,000.

[G.33] **Early Dyslexia Detection and Support at Scale to Help Students Succeed in School**
National Science Foundation, #IIS-1618784
Principal Investigator, June 2016, $500,000
with Maria Luz Rello Sánchez *(co-PI)*

[G.32] **VizWiz**
Microsoft Research
Principal Investigator, February 2016, $50,000.

[G.31] **The VizWiz Data Set: Driving Research in Visual Question Answering with a Large Data Set of Visual Questions and Answers from Blind People**
Google Research Award
Principal Investigator, February 2016, $100,000.

[G.30] **Crowd and Cloud Game Design with Amazon and Twitch**
Amazon.
Co-PI, January 2016, $400,000.
with Jessica Hammer (PI), Drew Davidson (ETC), and Chris Klug (ETC)

[G.29] **Chorus: Automating a Crowd-Powered Approach to Conversational Assistance with the Yahoo! Software Harness**
Yahoo! InMind
Project Lead, 2015, $100,000.

[G.28] **Zensors.**
Bosch.
with Chris Harrison and Aniket Kittur
November 2015. $50,000.

[G.27] **SBIR Phase I: Exploring the Feasibility of Deployable Crowd-Powered Real-Time Captioning Supplemented with Automatic Speech Recognition**
National Science Foundation.
Senior Personnel, November 2014, $150,000.
with Principal Investigator Walter Lasecki (Legion Labs LLC).

[G.26] **RERC on Information and Communication Technology**
From Cloud to Smartphone: Empowering and Accessible Information and Communication Technology
Co-Director, September 2014, $5,000,000.
with Bambang Parmanto (co-director), Jennifer Mankoff.

[G.25] **Human-Assisted Real-Time Speech Recognition**
Google Research Award
Principal Investigator, October 2014, $100,000.

[G.24] **Bootstrapping Academic Bootcamp**
CMU ProSEED/Simon Initiative Seed Grant
with Emma Brunskill and Niki Kittur, July 2014, $19,000.

[G.23] **Chorus: Automating a Crowd-Powered Approach to Conversational Assistance with the Yahoo! Software Harness**
Yahoo! InMind
Project Lead, 2014, $100,000.

[G.22] **Alfred P. Sloan Foundation Fellowship**
Sloan Foundation
Principal Investigator, February 2014, $50,000.

[G.21] **DRRP on Inclusive Cloud And Web Computing**
National Institute for Disability, Independent Living, and Rehabilitation Research (NDILRR)
Scientific Director, September 2013, $3,750,000.
with Aaron Steinfeld (Director), John Zimmerman, Anthony Tomasic, and Charlie Garrod (CMU); Yang Wang and Yun Huang (Syracuse); Amy Hurst (UMBC)

[G.20] **RERC on Physical Access and Transportation**
National Institute for Disability, Independent Living, and Rehabilitation Research (NDILRR)
Co-Investigator, September 2013, $4,600,000.
with Aaron Steinfeld (Director, CMU), Edward Steinfeld (Buffalo), John Zimmerman, Anthony Tomasic, M. Bernadine Dias, Yun Huang, Christopher Mertz, Stephen Smith, Charlie Garrod, Victor Paquet, James A. Lenker, Jordana Maisel, Heamchand Subryan, and Jonathan White.

[G.19] **Crowdsourcing Speech-to-Text in Less Than 5 Seconds**
Google Research Award
Principal Investigator, August 2013, $78,315.

[G.18] **National Federation of the Blind STEM-X – Computer Science Track**
AccessComputing
Principal Investigator, July 2013, $1,570.

[G.17] **A Ubiquitously Accessible Crowd-Powered World / QuiltView**
Google Glass Research Award
with Mahadev Satyanarayanan, August 2013, $28,000 + 10 Google Glass devices ($1,500.00 per)

[G.16] **I-Corps: Real-Time Crowd Captioning**
National Science Foundation, I-Corps Program #1338678.
Principal Investigator, May 2013, $50,000.

[G.15] **Real-Time Captioning by Groups of Non-Experts for Deaf and Hard of Hearing Students**
National Science Foundation, #IIS-1218209
Principal Investigator, August 2012, $500,000.
with Daniel Gildea (University of Rochester) and Raja Kushalnagar (Rochester Institute of Technology)

[G.14] **Workshop: Doctoral Consortium for ASSETS 2012**
National Science Foundation, #IIS-1240198
Principal Investigator, July 2012, $25,074.

[G.13] **Human Computer Interaction (HCI) Principles for Mental Health Intervention with Emerging Adults and their Parents: An Interdisciplinary Tutorial**
Family Research Roundtable, University of Rochester, Committee on Interdisciplinary Studies
with Anthony R. Pisani, Ph.D., June 2012, $2,500.

[G.12] **CAREER: Closed-Loop Crowd Support for People with Disabilities**
National Science Foundation, #IIS-1149709.
Principal Investigator, February 2012, $500,003.
REU Supplement, March 2012, $12,800.
REU Supplement, May 2013, $16,000.
REU Supplement, May 2014, $16,000.
REU Supplement, June 2015, $16,000.
RET Supplement, May 2016, $10,000.
REU Supplement, June 2016, $16,000.

[G.11] **MobileAccessibility: Bridge to the World for Blind, Low-Vision, and Deaf-Blind People**
National Science Foundation, #IIS-1116051
Co-Investigator, September, 2011, $516,000.
with Principal Investigator Richard E. Ladner (University of Washington).

[G.10] **Combining Artificial and Human Intelligence for More Effective Access Technology**
Google Research Award
Principal Investigator, July, 2011, $57,000.

[G.9] **National Federation of the Blind Youth Slam – Computer Science Track**
AccessComputing Mini-Grant
Principal Investigator, May, 2011, $4,800

[G.8] **Quip! Enabling Location-Aware Connections Between Alumni and Current Students**
University of Rochester Provost's Office
May 2011, ~$20,000 in equipment and student support.

[G.7] **REU Support for Student with a Disability**
AccessComputing Summer Research Internship
Principal Investigator, May 2011, $6,000.

[G.6] **WebAnywhere: An Extensible Cloud Platform**
National Center on Disability and Rehabilitation Research
Subcontract from TRACE R&D CENTER, University of Wisconsin September, 2010, $25,000.

[G.5] **RCT of Primary Care-based Patient Navigation-Activation - Research on HIV/AID-Related Cancers Among Racial/Ethnic Minorities**
National Cancer Institute
Co-Investigator, October, 2010, $200,000,
with Principal Investigator Kevin Fiscella (University of Rochester, Family Medicine).

[G.4] **EAGER: VizWiz: Enabling Blind People to Answer Visual Questions On-the-Go with Remote Automatic and Human-Powered Services**
National Science Foundation, #IIS-1049080.
Principal Investigator, September 2010, $49,999.

[G.3] **REU Support for Student with a Disability**
AccessComputing Summer Research Internship
Principal Investigator, May 2010, $6,000.

[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 (University of Washington).

INDUSTRY EXPERIENCE

AI/ML, Apple, Inc. **(2018 --)**

Co-Founder and CEO, Legion Labs, Inc. **(2013 – 2018)**
Developing interactive systems powered by on-demand crowds and machine intelligence: http://legionpowered.com

Usability and Accessibility Consulting, Pittsburgh, PA **(2008 –)**
Work with large and small companies to develop innovative technological solutions primarily in the web and mobile domains to help improve or create accessible and usable customer experiences. Clients have included Adaptech Courseware, AiSquared, Inc., Don Johnston, Inc., Microsoft, and Second Avenue Learning.

Expert Witness **(2013 –)**
Areas of expertise include accessibility and assistive technology (screen readers, speech technology, captioning or subtitle technology, automatic speech recognition to provide access, Web accessibility), human computation and crowdsourcing (technology that works via human and machine cooperation, Amazon Mechanical Turk), and general human-computer interaction and computer science.

Consultant, Google[x], Mountain View, CA **(2014)**

Founding Chief Architect / Researcher, aiSquared, Manchester Center, VT **(2012 – 2013)**
Co-designed and developed prototype of what became *sitecues*, a web page add-on that adapts existing web pages to make them easier to see and hear. Project received funding from investment group. Developed and explored a number of forward-looking projects based on the core service. http://www.sitecues.com

Visiting Researcher, Microsoft Research, Seattle, WA **(2012)**
Host: Meredith Ringel Morris and Andy Wilson
Explored social incentives in social question answering and commenting. Worked toward developing a utility model to explain why people choose to respond to questions and status updates on social media.

Don Johnston, Inc., Volo, IL **(2010 – 2011)**
Adapted the WebAnywhere open source project for use in the reading tool Bookstream. A primary development challenge was to create per-word highlighting that could be delivered in a web-based architecture. Solution involved capturing and streaming word timing information along with audio files and syncing highlighting using Javascript.

Intern, USER Research Group, IBM Almaden Research Center, San Jose, CA **(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.19]

Summer Fellow, Benetech, Palo Alto, CA **(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 **(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.3][C.4]

Research Intern, AT&T Shannon Labs, Florham Park, NJ **(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 misunderstood 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 **(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, resulting in several new bugs being discovered automatically.

TEACHING

Human-AI Interaction **(Fall 2018)**
Created a new course designed to explore the tight connection between humans and AI, and how if we want to create useful impactful AI systems we need to deeply consider the people.
http://www.humanaiclass.org

Accessibility: A Guide to Building Future User Interfaces **(Fall 2017)**
Created a new course to teach accessibility through the lens of people with disabilities being early adopters of next-generation user interfaces.
http://www.accessibilitycourse.com

Accessibility Project Course **(Spring 2018)**
In this project-oriented course, students were paired with a client with a disability and a PhD student mentor. The semester was spent working to deliver a useful and usable solution for a problem that their client had identified.
http://www.accessibilitycourse.com/project/

Crowd Programming **(Spring 2014, 2015, 2016)**
Carnegie Mellon University, Human-Computer Interaction Institute
Created a new course on incorporating the crowd (broadly defined) into computer programs.
http://www.programthecrowd.com
Spring 2014 (overall teaching average) – 05499: 3.6/5.0 (14 students), 05899: 4.5/5.0 (7 students)
Spring 2015 (overall teaching average) – 05499: 4.3/5.0 (16 students), 05899: 4.4/5.0 (13 students)
Spring 2016 (overall teaching average) – 05499: 4.4/5.0 (16 students), 05899: 4.6/5.0 (8 students)

Social Web **(Fall 2014, 2015)**

Carnegie Mellon University, Human-Computer Interaction Institute
http://www.socialweb.io
Fall 2014 (overall teaching average) – 05320: 4.2/5.0 (23 students), 05820: 4.4/5.0 (21 students)
Fall 2015 (overall teaching average) – 05320: 4.1/5.0 (30 students), 05820: 4.2/5.0 (10 students)

Web Accessibility (mini) **(Spring 2015)**
Carnegie Mellon University, Human-Computer Interaction Institute
Created new course (with Jen Mankoff) to introduce accessibility for people with disabilities as applied to the Web.
http://www.accessibilitycourse.com
Fall 2015 (overall teaching average) – 05897: 3.9/5.0 (5 students)

Introduction to Human-Computer Interaction (CSC 212/412) **(Fall 2010, 2011, 2012)**
University of Rochester, Computer Science
Developed a new course introducing computer science students to human-computer interaction.
Fall 2010: 4.7/5.0 average rating (35 students)
Fall 2011: 4.3/5.0 average rating (56 students)
Fall 2012: 4.0/5.0 average rating (47 students)

Web Programming (CSC 210) **(Spring 2010, 2011, 2012, 2013)**
University of Rochester, Computer Science
Developed and taught a popular undergraduate course on the technology and science of web programming.
Spring 2010: 4.4/5.0 average rating (46 students)
Spring 2011: 3.9/5.0 average rating (45 students)
Spring 2012: 4.7/5.0 average rating (51 students)
Spring 2013: 4.0/5.0 average rating (59 students)

National Federation of the Blind (NFB) Youth Slam **(August 2007, 2009, 2011, 2013)**
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 introduce them to programming in one week. [C.9]
http://webinsight.cs.washington.edu/nfbslam/

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.

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 (CSE 415) with Steve Tanimoto, Artificial Intelligence (CSE 473) with Henry Kautz
Responsibilities included leading quiz sections, creating and grading assignments, and supporting students.

PROFESSIONAL SERVICE

Advisory Board
IEEE Human Computation Journal (2014 –)

Carnegie Mellon University
School of Computer Science Council (2018 –)
HCII Ph.D. Director (2017 –)
Ph.D. Admissions Committee (2014, 2015)
Ph.D. Admissions Committee Chair (2016, 2018)
HCII Relationships Committee (2013 – 2014)
Crowdsourcing Lunch Seminar (co-organizer) (2013 –)
Social Media Faculty Lead (2013 –)

University of Rochester
Department of Computer Science
Graduate Curriculum Committee (2010–2011)
Graduate Student Admissions Committee (2010–2012)

Faculty Search Committee (2011–2013)
Colloquium Chair (2011–2012)
Lab Committee (2011–2013)

College of Arts, Science and Engineering

Digital Media Studies Advisory Group (2011–2013)
Educational Technology Committee (2012–2013)
Spurrier Faculty Committee (developed new Digital Media Studies Major) (2010–2011)

Program Committee

(Senior Program Committee, Associate Chair)

AAAI: AAAI Conference on Artificial Intelligence (2011, 2012)
ASSETS: ACM Conference on Accessibility and Computing (2009–2017)
CHI: ACM Conference on Human Factors in Computing Systems (2011–2014, 2016,2020-2024)
CHI: ACM CHI: Work-In-Progress Track (2009)
CHI: ACM CHI: Student Research Competition (2013)
CSI-SE: International Workshop on Crowdsourcing in Software Engineering (2014–2015)
CSCW: ACM Conference on Computer-Supported Cooperative Work (2014–2015)
EMNLP: Conference on Empirical Methods in Natural Language Processing (2014)
GI: Graphics Interface (2016)
HCOMP: Human Computation Conference (2012–2014, 2016)
ICWSM: International Conference on Weblogs and Social Media (2013–2014)
IJCAI: International Joint Conference on Artificial Intelligence (2011)
UIST: ACM Symposium on User Interface Software and Technology (2011–2012, 2014–2015,2021-2023)
W4A: International Cross-Disciplinary Conference on Web Accessibility (2009–2014)
WWW: International World Wide Web Conference (2013–2014)

Organizing Committee

ASSETS: ACM Conference on Accessibility and Computing (2009–2015)
- General Chair (2019)
- Program Chair (2015)
- Registration Chair and Treasurer (2014)
- Doctoral Consortium Chair (2012)
- Doctoral Consortium Panelist (2011)
- Student Research Competition Chair (2010)
- Web Chair (2009)

CSCW: ACM Conference on Computer-Supported Cooperative Work (2016)
- Doctoral Consortium Panelist (2016)

CHI: ACM Conference on Human Factors in Computing Systems (2015-2018)
- Digital Accessibility Chair (2015)
- Doctoral Consortium Co-Chair (2017)
- Subcommittee Chair for Accessibility, Health, and Aging (2017, 2018)

CI: Collective Intelligence (2014)
- Proceedings Co-Chair (2014)

HCOMP: AAAI Conference on Human Computation (2013 – 2015)
- Doctoral Consortium Panelist (2015)
- General Co-Chair (2014)
- Works-in-Progress and Demonstrations Chair (2013)

W4A: International Cross-Disciplinary Conference on Web Accessibility (2011 – 2014)
- General Co-Chair (2014)
- Program Co-Chair (2013)
- Microsoft Accessibility Challenge Chair (2012)
- Google Student Award Chair (2011)

WWW: World Wide Web Conference (2015)
- Co-Chair of Crowdsourcing Systems and Social Media Track (2015)

Workshop Organizer

VizWiz Grand Challenge (CVPR 2018-2023) (2018 – 2023)
w/ Danna Gurari

Productivity Decomposed: Getting Big Things Done with Little Microtasks (CHI 2016) (2016)
w/ Jaime Teevan, Shamsi T. Iqbal, Carrie J. Cai, Michael Bernstein, Elizabeth Gerber.

CrowdCamp 2013: Rapidly Iterating Crowd Ideas (CSCW 2013) (2013)
w/ Lydia Chilton, Paul Andre, Mira Dontcheva, Elizabeth Gerber, and Eric Gilbert

The Theory and Practice of Social Machines (2013)
w/ Nigel Shadbolt, Dave De Roure, and Max van Kleek

Workshop on Mobile Accessibility (CHI 2013) (2013)
w/ Tiago Guerreiro, Shadi Abou-Zhara, Luis Carriço, Daniel Gonçalves, Yeliz Yesilada

Frontiers in Accessibility for Pervasive Computing (Pervasive 2012) (2012)
w/ Mario Romero, Tiago Guerreiro, Shaun Kane, Votis Konstantinos, Sergio Mascetti, Caleb Southern, and Gottfried Zimmerman

Journal Reviewing

ACM Transactions on Accessible Computing (TACCESS) -- *Editorial Board* (2013 – 2018)
ACM Transactions on Accessible Computing (TACCESS) -- *Associate Editor* (2008 – 2013)
ACM Transactions on Computer-Human Interaction (TOCHI) (2007 – 2014)
IBM Systems Journal (2008)

Reviewer of Conference Publications *(not on Program Committee)*

IJCAI: International Joint Conference on Artificial Intelligence (2009)
CHI: ACM Conference on Human Factors in Computing Systems (2007 – 2009)
CSCW: ACM Conference on Computer Supported Cooperative Work 2016
IUI: ACM Conference on Intelligent User Interfaces (2009 – 2013)
SIGGRAPH: ACM Conference on Graphics and Interactive Techniques (2013)
UBICOMP: Conference on Ubiquitous Computing (2011 – 2016)
UIST: ACM Symposium on User Interface Software and Technology (2007 – 2016)

Grant Proposal Reviewer

National Science Foundation (2011 – 2016)
Ohio Disability Services (2010)

Other

ACM SIGACCESS SIG: Information Director (2011 – 2012)
ASSETS: ACM Student Research Competition Judge (2009, 2011)

Student Volunteer

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

Professional Memberships

AAAI: Association for the Advancement of Artificial Intelligence (2008 –)
ACM: Association for Computing Machinery (2008 –)
SIGACCESS: ACM Special Interest Group on Accessibility (2008 –)
SIGCHI: ACM Special Interest Group on Human-Computer Interaction (2013 –)

STUDENTS AND POSTDOCTORAL FELLOWS

Current Postdoctoral Fellows

- Yasmine Kotturi (2022 -)

Postdoctoral Fellows Supervised

- Cynthia Bennett (2019 – 2022)
  First position as Senior Research Scientist at Google PAIR

- Amy Pavel (2018 – 2021)
  First position as Assistant Professor of Computer Science at the University of Texas – Austin.
- Patrick Carrington (2017 - 2019)
  First position as Assistant Professor in the Human-Computer Interaction Institute at Carnegie Mellon University
- Kotaro Hara (2016 – 2017)
  First position as Assistant Professor in the School of Information Systems at Singapore Management University
- Luz Rello (2014 – 2016)
  First position as System Scientist at Carnegie Mellon University

Current Ph.D. Students

- Jessica Huynh (Carnegie Mellon University – LTI)
- Faria Huq (Carnegie Mellon University – HCII)
- Sara Kingsley (Carnegie Mellon University – HCII)
  - Co-advised with Beibei Li (Heinz College)
- Kundan Krishna (Carnegie Mellon University – LTI)
  - Co-advised with Zach Lipton (Tepper & MLD)
- Yi-Hao Peng (Carnegie Mellon University – HCII)
  - Co-advised with Amy Pavel (Computer Science at the University of Texas – Austin)
- Jason Wu (Carnegie Mellon University – HCII)

Ph.D. Graduates

- Prakhar Gupta (Carnegie Mellon University – LTI), 2023
  "Improving Reliability in Dialogue Systems"
  First Position as Senior Research Scientist
  Google Bard
- Stephanie Valencia-Valencia (Carnegie Mellon University – HCII), 2023
  "Agency in Augmentative and Alternative Communication"
  First Position as Assistant Professor
  University of Maryland – School of Information
- Cole Gleason (Carnegie Mellon University – HCII), 2021
  "Accessible User-Generated Social Media for People with Vision Impairments"
  First Position as Machine Learning Research Scientist
  Apple AI/ML Human-Centered Machine Intelligence
- Anhong Guo (Carnegie Mellon University – HCII), 2020
  "Human-AI Systems for Visual Information Access"
  First Position as Assistant Professor of Computer Science and Engineering
  University of Michigan
- Ting-Hao Kenneth Huang (Carnegie Mellon University - LTI), 2018
  "A Crowd-Powered Conversational Assistant That Automates Itself Over Time"
  First Position as Assistant Professor in the College of Information Sciences and Technology (IST) at Pennsylvania State University
- Erin Brady (University of Rochester), 2015.
  "Social Microvolunteering: Quick, Free Answers to Visual Questions from Blind People"
  First Position as Assistant Professor in the School of Informatics and Computing
  Indiana University Purdue University Indianapolis
- Walter Lasecki (University of Rochester), 2015.
  "Crowd Agents: Interactive Intelligent Systems Powered by the Crowd"
  First Position as Assistant Professor of Computer Science and Engineering
  University of Michigan
- Yu Zhong (University of Rochester), 2015.
  "Enhancing Access to Complex and Spatial Information for Blind Users of Mobile Devices"
  First Position as Software Engineer in Accessibility Engineering
  Google Research

Ph.D. Committee Member

- Toby Li (Carnegie Mellon University), 2021
  "A Multi-Modal Intelligent Agent that Learns from Demonstrations and Natural Language Instructions"
  First Position as Assistant Professor, Notre Dame University Department of Computer Science
- Anna Michele Kasunic Das (Carnegie Mellon University), 2019.
  "Research through Evocative Play: Play-based Methods for Drawing out Contextual Complexities and Understanding Power."
- Andrii Soviak (Stony Brook University), 2018.
  "FeelX: a Next Generation Haptic Device for Semantic Web Browsing"
  First Position at Charmtech Labs, LLC.
- David Mark Swallow (University of York), 2017.
  "Understanding and Supporting Web Developers: Working Practices and Resources for the Creation and Evaluation of Accessible Websites"
  First Position as Accessibility Engineer at The Paciello Group.
- Sauvik Das (Carnegie Mellon University, HCII), 2017.
  "Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior"
  First Position as Assistant Professor, Georgie Institute of Technology
- Amal Fahad. (University of Rochester, Computer Science), 2014.
  "System- and Application-Level Techniques for Limited Resources Environments."
  First Position at Microsoft.
- Yury Puzis (Stony Brook University, Computer Science), 2013.
  "Accessible Web Automation"
  First Position at Charmtech Labs, LLC.
- Surjya Sarathi Ray (University of Rochester, Electrical and Computer Engineering), 2013.
  "Advertisement-Based Energy Efficient Medium Access Protocols for Wireless Sensor Networks"
  First Position as Post-Doctorate Researcher at the Rochester Institute of Technology
- Adam Sadilek (University of Rochester, Computer Science), 2013
  "Modeling Human Behavior at a Large Scale"
  First Position as Data Scientist at Google
- Chen-Hsiang Feng (University of Rochester, Electrical and Computer Engineering), 2013.
  "Stack Architectures and Protocols for Emerging Wireless Networks"
  First Position as Software Engineer at Intel Corporation
- Faisal Ahmed (Stony Brook University, Computer Science), 2012
  "Algorithms and Interfaces for Automated Non-Visual Skimming"
  First Position at NetApp
- Naushad UzZaman (University of Rochester, Computer Science), 2012.
  "Interpreting the Temporal Aspects of Language."
  First Position as Research Scientist at Nuance Communications.
- John Magee (Boston University, Computer Science), 2011.
  "Adaptable Interfaces for People with Motion Disabilities."
  First Position as Visiting Professor at Clark University.

Masters Students Supervised

- Juhon Kong*, First Position at University of Washington iSchool PhD Program*
- Yashesh Gaur, *First Position at Baidu Research*
- Anna Loparev, *Phd Student at University of Rochester Computer Science*
- Phyo Thihia, *Phd Student at University of Rochester Computer Science*
- Julia Ferraioli, *First Position at Google*
- Hanjie Ji, *First Position at Qwiki*

Undergraduate Research Assistants

- Stephanie Wang (2018)
- Caroline Anderson (2018)
- Adrian Jenkins (2018)

- Cameron Cassidy (2017 – 2018)
- Judy Kong (2017 -)
- Lucas Rosenblatt (2017)
- Irene Lin (2016 –)
- Jessi Li (2016)
- Joshua Churchin (2016)
- Ronnie Ghose (2016), *First Position at Salesforce*
- Summer Kitahara (2016)
- Nila Banerjee (2016)
- Bram Adams (2015)
- Sarah Chen (2015)
- Mitchell Gordon (2015), *First Position at Stanford Ph.D. Program*
- Sara Lickers (2014)
- Jennifer Godzicki (2014)
- Grant He (2014)
- Chris Miller (2014)
- Matthew Murphy (2014)
- Dan Scarafoni (2014), *First Position at MIT Lincoln Labs*
- Rachel Wesley (2013), *First Position at Brand Networks*
- Bradley Halpern (2013), *First Position at Skoll Foundation*
- Emily Danchik (2013), *First Position in Masters Program, CMU HCII*
- Donato Borrello (2012), *First Position at FactSet Research Systems, Inc.*
- Kyle Murray (2012), *First Position as Ph.D. Student at MIT CSAIL*
- Preet Singh (2012), *First Position as Ph.D. Student at Northwestern*
- Samuel White (2012), *First Position at Apple*
- Michael Leezenbaum (2011), *First Position at Pioneering Evolution LLC*
- Sara Melnick (2011), *First Position as Ph.D. Student at Washington University (St. Louis)*
- Robin Miller (2011), *First Position at Microsoft*

OTHER PROFESSIONAL ACTIVITIES

CommunityForge Advisory Board	(2019 –)
ChangeDyslexia Advisory Board (*changedyslexia.org)*	(2015 – 2019)
Project Possibility Advisory Board (*projectpossibility.org)*	(2015 – 2019)
National Science Foundation Innovation Corps – Principal Investigator	(2013)
National Federation of the Blind, Youth Slam – *Computer Science Track Instructor*	(2007, 2009, 2011, 2013)
University of Rochester – Digital Media Studies – *Founding Faculty Representative*	(2010 – 2013)
Global Public Inclusive Infrastructure (*gpii.org*) – *Architecture Committee Member*	(2010 – 2011)
Raising the Floor Initiative (*raisingthefloor.org) – Member*	(2009 –)
WebAnywhere Web-Based Screen Reader Open Source Project [C.10][C.11]	(2007 –)