

Cole Gleason

Ph.D. Student at CMU Human-Computer Interaction Institute
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June 27, 2020
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Education

Carnegie Mellon University

Pittsburgh, PA

Ph.D. Student, Human-computer Interaction

August 2015 - September 2020 (expected)

- Creating blind assistive technology with computer vision and crowdsourcing.
- Advised by Jeffrey Bigham and Kris Kitani as part of the CMU Accessibility Lab
- Relevant Coursework: Computer Vision, Machine Learning, Practical Data Science, Applied Research Methods, Cognitive Perspective in HCI

University of Illinois

Urbana-Champaign, IL

B.S., Computer Science

August 2011 - May 2015

- Advised by Karrie Karahalios as part of the Social Spaces Group
- Chair of the largest Association for Computing Machinery student chapter in the U.S.
- Chair of 2013 Reflections | Projections technology conference
- Relevant Coursework: Mobile Augmented Reality, Virtual Reality, Machine Learning for Signal Processing, Cognitive Science

Peer-Reviewed Publications

Conference Publications

- [C.7] **Cole Gleason**, Stephanie Valencia-Valencia, Lynn Kirabo, Jason Wu, Anhong Guo, Elizabeth J. Carter, Jeffrey P. Bigham, Cynthia L. Bennett, Amy Pavel. 2020. Disability and the COVID-19 Pandemic: Using Twitter to Understand Accessibility during Rapid Societal Transition. *ASSETS 2020 (To Appear)*
- [C.6] **Cole Gleason**, Amy Pavel, Himalini Gururaj, Kris M. Kitani, and Jeffrey P. Bigham. 2020. Making GIFs Accessible. *ASSETS 2020 (To Appear)*
- [C.5] **Cole Gleason**, Amy Pavel, Emma McCamey, Christina Low, Patrick Carrington, Kris M. Kitani, and Jeffrey P. Bigham. 2020. Twitter A11y: Making Images on Social Media Accessible. *CHI 2020 [Best Paper Honorable Mention (Top 5%)]*
- [C.4] **Cole Gleason**, Amy Pavel, Xingyu Liu, Patrick Carrington, Lydia B. Chilton, and Jeffrey P. Bigham. 2019. Making Memes Accessible. *ASSETS 2019*
- [C.3] **Cole Gleason**, Patrick Carrington, Cameron Cassidy, Meredith Ringel Morris, Kris M. Kitani, and Jeffrey P. Bigham. 2019. "It's almost like they're trying to hide it": How User-Provided Image Descriptions Have Failed to Make Twitter Accessible. *WWW 2019*
- [C.2] **Best Paper** | Dragan Ahmetovic, Masayuki Murata, **Cole Gleason**, Erin Brady, Hironobu Takagi, Kris Kitani, and Chieko Asakawa. 2017. Achieving Practical and Accurate Indoor Navigation for People with Visual Impairments. *Web for All 2017*.
- [C.1] Dragan Ahmetovic, **Cole Gleason**, Chengxiong Ruan, Kris Kitani, Hironobu Takagi, and Chieko Asakawa. 2016. NavCog: a navigational cognitive assistant for the blind. *MobileHCI 2016*.

Journal Publications

- [J.2] **Cole Gleason**, Alexander J. Fiannaca, Melanie Kneisel, Edward Cutrell, and Meredith Ringel Morris. 2018. FootNotes: Geo-referenced Audio Annotations for Nonvisual Exploration. *IMWUT 2018*
- [J.1] **Cole Gleason**, Dragan Ahmetovic, Saiph Savage, Carlos Toxtli, Carl Posthuma, Chieko Asakawa, Kris M. Kitani, and Jeffrey P. Bigham. 2018. Crowdsourcing the Installation and Maintenance of Indoor Localization Infrastructure to Support Blind Navigation. *IMWUT 2018*

Posters, Demos, and Other Publications

- [M.9] **Cole Gleason**, Patrick Carrington, Lydia B Chilton, Benjamin M Gorman, Hernisa Kacorri, Andrés Monroy-Hernández, Meredith Ringel Morris, Garreth W Tigwell, and Shaomei Wu. Addressing the Accessibility of Social Media. *CSCW 2019 Workshop Proposal*
- [M.8] Christina Low, Emma McCamey, **Cole Gleason**, Patrick Carrington, Jeffrey P. Bigham, and Amy Pavel. Twitter A11y: A Browser Extension to Describe Images. *ASSETS 2019 Poster*
- [M.7] **Cole Gleason**, Kris M. Kitani, Jeffrey P. Bigham. 2019. Enriching Navigation Tools through Human Annotations. *Hacking Blind Navigation (CHI 2019 Workshop)*
- [M.6] **Cole Gleason**. 2018. Descriptive and Scalable Navigation Tools for People with Vision Impairments. *ASSETS 2018 Doctoral Consortium*
- [M.5] **Cole Gleason** 2017. Crowdsourcing the Installation and Maintenance of Indoor Navigation Infrastructure. *ASSETS 2017 Student Research Competition*
- [M.4] **Cole Gleason**, Dragan Ahmetovic, Carlos Toxtli, Saiph Savage, Jeffrey P. Bigham, and Chieko Asakawa. 2017. LuzDeploy: A Collective Action System for Installing Navigation Infrastructure for Blind People. *W4A 2017*
- [M.3] **Cole Gleason**, Anhong Guo, Gierad Laput, Kris Kitani, and Jeffrey P. Bigham. 2016. VizMap: Accessible Visual Information Through Crowdsourced Map Reconstruction. *ASSETS 2016*
- [M.2] Jeffrey P. Bigham, Erin L. Brady, **Cole Gleason**, Anhong Guo, and David A. Shamma. 2016. An Uninteresting Tour Through Why Our Research Papers Aren't Accessible. *alt.chi 2016*
- [M.1] Dragan Ahmetovic, **Cole Gleason**, Kris M. Kitani, Hironobu Takagi, and Chieko Asakawa. 2016. NavCog: turn-by-turn smartphone navigation assistant for people with visual impairments or blindness. *W4A 2016*

Patents

- [P.1] Yigal Dan Rubinstein, Abhishek Doshi, Reshma Khilnani Ebberson, and **Cole Gleason**. 2014. Associating an indication of user emotional reaction with content items presented by a social networking system. U.S. Patent 8,918,339, filed March 15, 2013 and issued December 23, 2014.

Press

- **‘I Wish We Could Connect on This Level.’ Memes Still Aren’t Accessible to People Who Are Blind. What’s Being Done About It?.** Rachel Greenspan. TIME Magazine (Web). Published Jan 27, 2020.
- **CMU Researchers Creating Technology to Read Memes For Visually Impaired Individuals.** WTAE News - Pittsburgh. Aired Nov 26, 2019.
- **New Technology Makes Internet Memes Accessible for People With Visual Impairments.** Virginia Alvino Young. SCS at CMU. Published Nov 25, 2019.
- **Researchers Are Making Memes Accessible to the Blind.** Chris Stokel-Walker. OneZero. Published Oct 4, 2019.

Industry Experience

Microsoft Research

Research Intern

Redmond, WA

May 2017 - August 2017

- Developed tool, FootNotes, as part of the Soundscape project to help people with vision impairments explore the physical world.
- Conducted user studies with blind participants and published a paper on the project in IMWUT 2018.

Facebook Inc.

Software Engineering Intern

Menlo Park, CA

June 2015 - August 2015

- Created and deployed user controls for the On This Day product.
- Experimented with object recognition in photos to improve ranking.

CoreOS Inc.

Software Engineering Intern

San Francisco, CA

May 2014 - January 2015

- Maintained OS update service APIs and associated CLI tool.
- Developed and maintained tool for setup of new hosted customers.

Hulu LLC

Software Engineering Intern

Seattle, WA

May 2013 - August 2013

- Primary architect and developer of a new *Node.js* proxy for testing infrastructure.
- Maintained and improved video metadata service and cache layer.
- Member of design team for an internal software deployment tool.

Facebook Inc.

Software Engineering Intern

Menlo Park, CA

May 2012 - August 2012

- Developed new premium features (*Promote your Post*) for desktop and mobile users with the Facebook Payments team.

Teaching Experience

Programming Usable Interfaces Pittsburgh, PA
Teaching Assistant August 2018 - December 2018

- Instructed lab sections on methods to design and create prototypes of software tools.

Accessibility Project Pittsburgh, PA
Project Team Mentor January 2018 - May 2018

- Lead project team of undergraduate and Master’s students to interview and work with clients.
- Developed prototype system for Blind & Vision Rehabilitation Services of Pittsburgh to track and analyze progress of clients with multiple disabilities in their employment training program.

User-Centered Research and Evaluation Pittsburgh, PA
Teaching Assistant August 2016 - December 2016

- Lead discussion sections on using user-oriented research methods.
- Assisted and graded students on team-focused projects.

Invited Talks & Lectures

Social Computing University of Pittsburgh
Designing Accessibility Technology November 2019

- Lectured a class on accessibility as a field, universal design, and how to complete research with disability communities.

Inclusive Design Course University of Maryland, College Park
Using Machine Learning When Designing for People with Disabilities October 2019

- Spoke on the benefits of using machine learning methods when designing for accessibility, and the pitfalls to avoid.

ACM@UIC Flourish Conference University of Illinois, Chicago
Blockchain as a Backbone April 2014

- Delivered a talk on the importance of the technology underlying Bitcoin in distributed trustless peer-to-peer systems.

Awards & Honors

ACM Student Research Competition - Graduate Student Finalist (\$500)	2017
NSF Graduate Research Fellowship Program - Fellow (\$138,000)	2017 - Present
NSF Graduate Research Fellowship Program - Honorable Mention	2016
The Paciello Group - Web Accessibility Challenge Delegates’ Award	2016
IBM - Web for All People with Disabilities Award (\$2,500)	2016
Daniel L. Slotnick Scholarship (\$2,550)	2014
National Merit - Finalist (\$2,500)	2011
Fermilab Science Award	2011
Illinois State Scholar	2010

University and Department Service

Graduate Student Assembly

VP of Internal Affairs, VP of Communications

Carnegie Mellon University

September 2015 - May 2019

- Secured an additional \$50,000 (increase of 500%) from the Provost to send hundreds of graduate students to academic conferences annually.
- Organized a leadership retreat and published a comprehensive progress report and update to the 10-year strategic plan.
- Launched a national congressional lobbying effort to remove provisions in the Tax Cuts and Jobs Act that would have harmed graduate students (covered in *Wired*, *MarketWatch*, *NY Times*, *Fortune*, *Newsweek*, *Inside Higher Ed*).

Task Force on CMU Experience

Graduate Student Representative

Carnegie Mellon University

September 2018 - November 2019

- Serving as graduate student representative to examine large changes to CMU's culture to reduce stress among students following mental health crises on campus.
- The task force has increased funding for mental healthcare on campus, started leadership programs, and invested in campus infrastructure for wellbeing.

Academic Policies and Procedures

Graduate Student Representative

Carnegie Mellon University

April 2019 - May 2020

- Currently assessing impact of changing add/drop/withdraw policies for courses to reduce overloading by students.

Service to the Research Community

ASSETS Organizing Committees

Local Arrangements Chair (2019), Proceedings Chair (2020)

October 2018 - Present

- **2020 Proceedings Chair:** Testing new submission formats for ASSETS 2020 that will ensure accessible submissions into the future of the conference.
- **2019 Local Arrangements Chair:** Organized 5-day conference in Pittsburgh by finding and coordinating with all vendors (e.g., A/V, screen printing, catering).

Addressing the Accessibility of Social Media

Lead Co-Organizer of Workshop

CSCW 2019, Austin TX

May 2019 - November 2019

- Led representatives from academia and industry through workshop activities including two panel discussions and breakout groups.

Manuscript Reviewing

- UIST (2020)
- ACM Conference on Human Factors in Computing Systems (CHI) 2016 - 2020
- CHI Play (2018 - 2019)
- Machine Vision and Applications (2019-2020)
- IEEE Sensors (2019)
- PLOS ONE (2018)
- CSCW (2018)
- IEEE Transactions on Human-Machine Systems (2016)