Steven M. Goodman

smgoodmn [at] uw [dot] edu · stevenmgoodman.com

Curriculum Vitae (Oct 2023)

About Me

I am a Ph.D. candidate in Human Centered Design & Engineering at the University of Washington and a recipient of the NSF Graduate Research Fellowship. I research accessibility technologies, and my graduate work focuses on sound awareness tools for people who are Deaf, deaf, or hard of hearing. My dissertation aims to create a framework for supporting this population in personalizing sound recognition models via accessible interfaces for audio sampling, human-in-the-loop training, and model assessment. I am broadly interested in issues at the intersection of AI and accessibility, including AI fairness for vulnerable populations; end-user agency and trust; and privacy and data protection.

Education

2018 - present
UNIVERSITY OF WASHINGTON, Seattle, WA
Ph.D Candidate in Human Centered Design & Engineering
Advisor: Dr. Leah Findlater

2014 - 2018
UNIVERSITY OF MINNESOTA, Minneapolis, MN
Bachelor of Science in Mathematics, Chemistry Minor

Publications

2023

[14] **"EASIER OR HARDER, DEPENDING ON WHO THE HEARING PERSON IS": CODESIGNING VIDEOCONFERENCING TOOLS FOR SMALL GROUPS WITH MIXED HEARING STATUS**
Emma McDonnell, Soo Hyun Moon, Lucy Jiang, ***Steven Goodman,*** Raja Kushalnagar, Jon E. Froehlich, Leah Findlater
ACM CHI 2023 (PDF | doi)

2022

[13] **LAMPOST: DESIGN AND EVALUATION OF AN AI-ASSISTED EMAIL WRITING PROTOTYPE FOR ADULTS WITH DYSLEXIA**
Steven Goodman, Andy Coenen, Aaron Donsbach, Tiffanie N. Horne, Michal Lahav, Robert MacDonald, Rain Breaw Michaels, Ajit Narayanan, Mahima Pushkarna, Rachel Sweeney, Meredith Ringel Morris
ACM ASSETS 2022, *Best Paper Honorable Mention* (PDF | doi | video)

[12] **SOUNDWATCH: DEEP LEARNING FOR SOUND ACCESSIBILITY ON SMARTWATCHES**
Dhruv Jain, Hung Ngo, Pratyush Patel, ***Steven Goodman,*** Khoa Nguyen, Rachel Grossman-Kahn, Leah Findlater, Jon Froehlich
Communications of the ACM (PDF | doi)

[11] **PROTOSOUND: A PERSONALIZED, SCALABLE SOUND RECOGNITION SYSTEM FOR D/DEAF AND HARD-OF-HEARING USERS**
Dhruv Jain, Khoa Nguyen, ***Steven Goodman,*** Rachel Grossman-Kahn, Hung Ngo, Aditya Kusupati, Ruofei Du, Alex Olwal, Leah Findlater, Jon Froehlich
ACM CHI 2022 (PDF | doi | video)

2021

[10] **TOWARD USER-DRIVEN SOUND RECOGNIZER PERSONALIZATION WITH PEOPLE WHO ARE DEAF OR HARD OF HEARING**

Steven Goodman, Ping Liu, Dhruv Jain, Emma J. McDonnell, Jon Froehlich, Leah Findlater

ACM IMWUT 2021 (PDF | doi | video)

[9] **SOCIAL, ENVIRONMENTAL, AND TECHNICAL: FACTORS AT PLAY IN THE CURRENT USE AND FUTURE DESIGN OF SMALL-GROUP CAPTIONING**

Emma McDonnell, Ping Liu, ***Steven Goodman,*** Raja Kushalnagar, Jon Froehlich, Leah Findlater

PACMHCI CSCW 2021, *Honorable Mention* (PDF | doi)

2020

[8] **EVALUATING SMARTWATCH-BASED SOUND FEEDBACK FOR DEAF AND HARD-OF-HEARING USERS ACROSS CONTEXTS**

Steven Goodman, Susanne Kirchner, Rose Guttman, Dhruv Jain, Jon Froehlich, Leah Findlater

ACM CHI 2020 (PDF | doi)

[7] **SOUNDWATCH: EXPLORING SMARTWATCH-BASED DEEP LEARNING APPROACHES TO SUPPORT SOUND AWARENESS FOR DEAF AND HARD OF HEARING USERS**

Dhruv Jain, Hung Ngo, Pratyush Patel, ***Steven Goodman,*** Leah Findlater, Jon Froehlich

ACM ASSETS 2020, *Best Artifact Award* (PDF | doi)

[6] **HOLOSOUND: COMBINING SPEECH AND SOUND IDENTIFICATION FOR DEAF OR HARD OF HEARING USERS ON A HEAD-MOUNTED DISPLAY**

Ru Guo, Robin Yiru Yang, Johnson Kuang, Xue Bin, Dhruv Jain, ***Steven Goodman,*** Leah Findlater, Jon Froehlich

ACM ASSETS 2020, poster (PDF | doi)

[5] **FIELD STUDY OF A TACTILE SOUND AWARENESS DEVICE FOR DEAF AND HARD OF HEARING USERS**

Dhruv Jain, Brendon Chiu, ***Steven Goodman,*** Chris Schmandt, Leah Findlater, Jon Froehlich

ACM ISWC 2020 (PDF | doi)

[4] **HOMESOUND: AN ITERATIVE FIELD DEPLOYMENT OF AN IN-HOME SOUND AWARENESS SYSTEM FOR DEAF OR HARD OF HEARING USERS**

Dhruv Jain, Kelly Mack, Akli Amrous, ***Steven Goodman,*** Matt Wright, Leah Findlater, Jon Froehlich

ACM CHI 2020 (PDF | doi)

2019

[3] **SOCIAL TENSIONS WITH HEAD-MOUNTED DISPLAYS FOR ACCESSIBILITY**

Steven Goodman, Dhruv Jain, Jon Froehlich, Brock Craft, Leah Findlater

ACM CHI 2019, Social HMD Workshop (PDF)

[2] **FAIRNESS ISSUES IN AI SYSTEMS THAT AUGMENT SENSORY ABILITIES**

Leah Findlater, ***Steven Goodman,*** Yuhang Zhao, Shiri Azenkot, Margot Hanley

ACM SIGACCESS Accessibility and Computing, Oct 2019, Issue 125 (PDF | doi)

2017

[1] **SURFACE-MOUNT MANUFACTURING FOR E-TEXTILE CIRCUITS**

Md. Tahmidul Islam Molla, ***Steven Goodman,*** Nicholas Schleif, Mary Ellen Berglund, Cade Zacharias, Crystal Compton, Lucy E. Dunne

ACM ISWC 2017, *Honorable Mention (top 3% of submissions)* (doi)

Research Experience

Sept. 2021 - April 2022

RESEARCH INTERN / STUDENT RESEARCHER, People + AI Research Team

Google Research, Seattle, WA

Mentor: Dr. Meredith R. Morris

Sept. 2018 - present

GRADUATE RESEARCH ASSISTANT, Inclusive Design Lab

University of Washington, Seattle, WA

Advisor: Dr. Leah Findlater

Lead research toward sound awareness tools for d/Deaf and hard of hearing users, including designing study protocols, building prototypes, recruiting research participants, running study sessions, analyzing qualitative and quantitative data, and writing papers.

June 2015 - May 2018

UNDERGRADUATE RESEARCH ASSISTANT, Wearable Technology Lab

University of Minnesota, Minneapolis, MN

Mentor: Dr. Lucy E. Dunne

Developed electronic textile manufacture process for PCB designs as CAD stitch patterns, leading to ISWC 2017 Honorable Mention.

Summer 2017

RESEARCH INTERN, Space Suit Assembly Team

NASA Johnson Space Center, Houston, TX

Mentor: Ian Meginnis

Assisted in human factors evaluation of operational effort for next-generation Z-2 spacesuit using CO2 expenditure data.

Summer 2016

RESEARCH INTERN, Wearable Electronics Application and Research Lab

NASA Johnson Space Center, Houston, TX

Mentor: Cory Simon

Redesigned personal CO2 monitor housing to improve wearability in microgravity, expedite assembly, and accommodate new hardware.

Teaching Experience

Spring 2020

TEACHING ASSISTANT, Accessibility and Inclusive Design (HCDE 598A)

Dept. of Human Centered Design and Engineering, University of Washington, Seattle, WA

Instructor: Dr. Leah Findlater

Fall 2019

TEACHING ASSISTANT, Interactive Systems Design and Technology (HCDE 310A)

Dept. of Human Centered Design and Engineering, University of Washington, Seattle, WA

Instructor: Dr. Sean Munson

Selected Awards and Honors

2022

BEST PAPER HONORABLE MENTION, 2022 ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '22)

Goodman, Coenen, Donsbach, Horne, Lahav, MacDonald, Michaels, Narayanan, Pushkarna, Sweeney, Morris. "LaMPost: Design and Evaluation of an AI-assisted Email Writing Prototype for Adults with Dyslexia"

2020

GRADUATE RESEARCH FELLOWSHIP, National Science Foundation (est. $138,000)

NSF GRFP. Awarded to top graduate student applicants in NSF-supported STEM fields. Provides financial support in the form of a stipend and tuition waiver.

BEST ARTIFACT AWARD, 2020 ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '20)

Jain, Ngo, Patel, **Goodman**, Findlater, Froehlich. "SoundWatch: Exploring Smartwatch-based Deep Learning Approaches to Support Sound Awareness for Deaf and Hard of Hearing Users." (Forbes | Yahoo News | UW News)

2019

RUNNER UP, Madrona Prize

Jain, Mack, **Goodman**, Findlater, Froehlich. "HomeSound: Exploring Sound Awareness in the Home for People Who Are Deaf and Hard of Hearing." University of Washington. (Bloomberg | GeekWire)

2018 **UNDERGRADUATE RESEARCH OPPORTUNITIES GRANT, University of Minnesota ($1,800)**

Goodman, Dunne. “Haptic Feedback Garments for Visual Accessibility.”

2017 **HONORABLE MENTION, 2017 ACM International Symposium on Wearable Computers (ISWC ’17)**

Molla, **Goodman**, Schleif, Berglund, Zacharias, Compton, Dunne. “Surface-Mount Manufacturing for E-Textile Circuits.” Top 3% of submissions.

2014 - 2018 **SCHOLARSHIPS, University of Minnesota**

Merit-based awards from the Tozer Foundation ($10,000), A. & A. Berggren ($8,000), Lemberg Engineering ($4,000).