

# Steven M. Goodman

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Curriculum Vitae (2023 Annual Review)

## 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	<b>UNIVERSITY OF WASHINGTON, Seattle, WA</b> Ph.D Candidate in Human Centered Design & Engineering <a href="#">Advisor: Dr. Leah Findlater</a>
2014 - 2018	<b>UNIVERSITY OF MINNESOTA, Minneapolis, MN</b> Bachelor of Science in Mathematics, Chemistry Minor

## Publications

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| 2023 | <sup>14</sup> <b>"EASIER OR HARDER, DEPENDING ON WHO THE HEARING PERSON IS": CODESIGNING VIDEOCONFERENCING TOOLS FOR SMALL GROUPS WITH MIXED HEARING STATUS</b><br>Emma McDonnell, Soo Hyun Moon, Lucy Jiang, <i>Steven Goodman</i> , Raja Kushalnagar, Jon E. Froehlich, Leah Findlater<br><b>ACM CHI 2023</b> , <a href="#">to appear</a> ( <a href="#">PDF</a> )  |
| 2022 | <sup>13</sup> <b>LAMPOST: DESIGN AND EVALUATION OF AN AI-ASSISTED EMAIL WRITING PROTOTYPE FOR ADULTS WITH DYSLEXIA</b><br><i>Steven Goodman</i> , Andy Coenen, Aaron Donsbach, Tiffanie N. Horne, Michal Lahav, Robert MacDonald, Rain Breaw Michaels, Ajit Narayanan, Mahima Pushkarna, Rachel Sweeney, Meredith Ringel Morris<br><b>ACM ASSETS 2022</b> , <a href="#">Best Paper Honorable Mention</a> ( <a href="#">PDF</a>   <a href="#">doi</a>   <a href="#">video</a> ) |
|      | <sup>12</sup> <b>SOUNDWATCH: DEEP LEARNING FOR SOUND ACCESSIBILITY ON SMARTWATCHES</b><br>Dhruv Jain, Hung Ngo, Pratyush Patel, <i>Steven Goodman</i> , Khoa Nguyen, Rachel Grossman-Kahn, Leah Findlater, Jon Froehlich<br><b>Communications of the ACM</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )   |
|      | <sup>11</sup> <b>PROTOSOUND: A PERSONALIZED, SCALABLE SOUND RECOGNITION SYSTEM FOR D/DEAF AND HARD-OF-HEARING USERS</b><br>Dhruv Jain, Khoa Nguyen, <i>Steven Goodman</i> , Rachel Grossman-Kahn, Hung Ngo, Aditya Kusupati, Ruofei Du, Alex Olwal, Leah Findlater, Jon Froehlich<br><b>ACM CHI 2022</b> ( <a href="#">PDF</a>   <a href="#">doi</a>   <a href="#">video</a> )   |

2021	10	<b>TOWARD USER-DRIVEN SOUND RECOGNIZER PERSONALIZATION WITH PEOPLE WHO ARE DEAF OR HARD OF HEARING</b> <i>Steven Goodman</i> , Ping Liu, Dhruv Jain, Emma J. McDonnell, Jon Froehlich, Leah Findlater <b>ACM IMWUT 2021</b> ( <a href="#">PDF</a>   <a href="#">doi</a>   <a href="#">video</a> )
	9	<b>SOCIAL, ENVIRONMENTAL, AND TECHNICAL: FACTORS AT PLAY IN THE CURRENT USE AND FUTURE DESIGN OF SMALL-GROUP CAPTIONING</b> Emma McDonnell, Ping Liu, <i>Steven Goodman</i> , Raja Kushalnagar, Jon Froehlich, Leah Findlater <b>PACMHCI CSCW 2021</b> , <b>Honorable Mention</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )
2020	8	<b>EVALUATING SMARTWATCH-BASED SOUND FEEDBACK FOR DEAF AND HARD-OF-HEARING USERS ACROSS CONTEXTS</b> <i>Steven Goodman</i> , Susanne Kirchner, Rose Guttman, Dhruv Jain, Jon Froehlich, Leah Findlater <b>ACM CHI 2020</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )
	7	<b>SOUNDWATCH: EXPLORING SMARTWATCH-BASED DEEP LEARNING APPROACHES TO SUPPORT SOUND AWARENESS FOR DEAF AND HARD OF HEARING USERS</b> Dhruv Jain, Hung Ngo, Pratyush Patel, <i>Steven Goodman</i> , Leah Findlater, Jon Froehlich <b>ACM ASSETS 2020</b> , <b>Best Artifact Award</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )
	6	<b>HOLOSOUND: COMBINING SPEECH AND SOUND IDENTIFICATION FOR DEAF OR HARD OF HEARING USERS ON A HEAD-MOUNTED DISPLAY</b> Ru Guo, Robin Yiru Yang, Johnson Kuang, Xue Bin, Dhruv Jain, <i>Steven Goodman</i> , Leah Findlater, Jon Froehlich <b>ACM ASSETS 2020</b> , <b>poster</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )
	5	<b>FIELD STUDY OF A TACTILE SOUND AWARENESS DEVICE FOR DEAF AND HARD OF HEARING USERS</b> Dhruv Jain, Brendon Chiu, <i>Steven Goodman</i> , Chris Schmandt, Leah Findlater, Jon Froehlich <b>ACM ISWC 2020</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )
	4	<b>HOMESOUND: AN ITERATIVE FIELD DEPLOYMENT OF AN IN-HOME SOUND AWARENESS SYSTEM FOR DEAF OR HARD OF HEARING USERS</b> Dhruv Jain, Kelly Mack, Akli Amrous, <i>Steven Goodman</i> , Matt Wright, Leah Findlater, Jon Froehlich <b>ACM CHI 2020</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )
2019	3	<b>SOCIAL TENSIONS WITH HEAD-MOUNTED DISPLAYS FOR ACCESSIBILITY</b> <i>Steven Goodman</i> , Dhruv Jain, Jon Froehlich, Brock Craft, Leah Findlater <b>ACM CHI 2019</b> , <b>Social HMD Workshop</b> ( <a href="#">PDF</a> )
	2	<b>FAIRNESS ISSUES IN AI SYSTEMS THAT AUGMENT SENSORY ABILITIES</b> Leah Findlater, <i>Steven Goodman</i> , Yuhang Zhao, Shiri Azenkot, Margot Hanley <b>ACM SIGACCESS Accessibility and Computing, Oct 2019, Issue 125</b> ( <a href="#">PDF</a>   <a href="#">doi</a> )
2017	1	<b>SURFACE-MOUNT MANUFACTURING FOR E-TEXTILE CIRCUITS</b> Md. Tahmidul Islam Molla, <i>Steven Goodman</i> , Nicholas Schleif, Mary Ellen Berglund, Cade Zacharias, Crystal Compton, Lucy E. Dunne <b>ACM ISWC 2017</b> , <b>Honorable Mention (top 3% of submissions)</b> ( <a href="#">doi</a> )

## 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	<b>GRADUATE RESEARCH ASSISTANT, Inclusive Design Lab</b> <a href="#">University of Washington, Seattle, WA</a> Advisor: Dr. Leah Findlater <i>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.</i>
June 2015 - May 2018	<b>UNDERGRADUATE RESEARCH ASSISTANT, Wearable Technology Lab</b> <a href="#">University of Minnesota, Minneapolis, MN</a> Mentor: Dr. Lucy E. Dunne <i>Developed electronic textile manufacture process for PCB designs as CAD stitch patterns, leading to ISWC 2017 Honorable Mention.</i>
Summer 2017	<b>RESEARCH INTERN, Space Suit Assembly Team</b> <a href="#">NASA Johnson Space Center, Houston, TX</a> Mentor: Ian Meginnis <i>Assisted in human factors evaluation of operational effort for next-generation Z-2 spacesuit using CO2 expenditure data.</i>
Summer 2016	<b>RESEARCH INTERN, Wearable Electronics Application and Research Lab</b> <a href="#">NASA Johnson Space Center, Houston, TX</a> Mentor: Cory Simon <i>Redesigned personal CO2 monitor housing to improve wearability in microgravity, expedite assembly, and accommodate new hardware.</i>

## Teaching Experience

Spring 2020	<b>TEACHING ASSISTANT, Accessibility and Inclusive Design (HCDE 598A)</b> <a href="#">Dept. of Human Centered Design and Engineering, University of Washington, Seattle, WA</a> Instructor: Dr. Leah Findlater
Fall 2019	<b>TEACHING ASSISTANT, Interactive Systems Design and Technology (HCDE 310A)</b> <a href="#">Dept. of Human Centered Design and Engineering, University of Washington, Seattle, WA</a> Instructor: Dr. Sean Munson

## Selected Awards and Honors

2022	<b>BEST PAPER HONORABLE MENTION, 2022 ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '22)</b> <b>Goodman</b> , 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	<b>GRADUATE RESEARCH FELLOWSHIP, National Science Foundation (est. \$138,000)</b> <i>NSF GRFP.</i> Awarded to top graduate student applicants in NSF-supported STEM fields. Provides financial support in the form of a stipend and tuition waiver. <b>BEST ARTIFACT AWARD, 2020 ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '20)</b> Jain, Ngo, Patel, <b>Goodman</b> , Findlater, Froehlich. "SoundWatch: Exploring Smartwatch-based Deep Learning Approaches to Support Sound Awareness for Deaf and Hard of Hearing Users." ( <a href="#">Forbes</a>   <a href="#">Yahoo News</a>   <a href="#">UW News</a> )
2019	<b>RUNNER UP, Madrona Prize</b> Jain, Mack, <b>Goodman</b> , Findlater, Froehlich. "HomeSound: Exploring Sound Awareness in the Home for People Who Are Deaf and Hard of Hearing." University of Washington. ( <a href="#">Bloomberg</a>   <a href="#">GeekWire</a> )

2018	<b>UNDERGRADUATE RESEARCH OPPORTUNITIES GRANT, University of Minnesota (\$1,800)</b> <b>Goodman</b> , Dunne. "Haptic Feedback Garments for Visual Accessibility."
2017	<b>HONORABLE MENTION, 2017 ACM International Symposium on Wearable Computers (ISWC '17)</b> Molla, <b>Goodman</b> , Schleif, Berglund, Zacharias, Compton, Dunne. "Surface-Mount Manufacturing for E-Textile Circuits." Top 3% of submissions.
2014 - 2018	<b>SCHOLARSHIPS, University of Minnesota</b> Merit-based awards from the Tozer Foundation (\$10,000), A. & A. Berggren (\$8,000), Lemberg Engineering (\$4,000).