HRIDAY CHHABRIA

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San Jose, CA

EDUCATION

B.S. in Computer Science, University of Michigan, Ann Arbor, GPA 3.65 Expected May 2025
Relevant Coursework:, Applied ML for Modeling Human Behavior — Operating Systems — Machine Learning — Web Systems — Data Structures and Algorithms — Computer Organization — Linear Algebra — Probability and Statistics

RESEARCH INTERESTS

Human-Centereed Computing, Applied Artifical Intelligence, Interactive Systems, Social Computing, Mental Health, Accessibility

PUBLICATIONS

Peer-Reviewed Conference Papers

- Huang, J., **Chhabria, H.**, and Jain, D., 2023, October. "Not There Yet": Evaluating the Feasibility and Challenges of Mobile Sound Recognition to Support Deaf and Hard-of-Hearing People. In *Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2023)* (pp. 1-13)
- Huang, J., Wood, R., **Chhabria, H.**, and Jain, D., 2024, May. Show, Not Tell: A Pattern-Based, Deaf-Centric Classification Approach for Everyday Sounds. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI 2024)* (pp. 1-19).
- Fang, A., **Chhabria, H.***, Maram, A.*, and Zhu, H., 2024. Practicing Stress Relief for the Everyday: Designing Social Simulation Using VR, AR, and LLMs. Under revision for the *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. arXiv preprint.

RESEARCH EXPERIENCE

Everyday Stress Relief Project — Carnegie Mellon University Social AI Lab May 2024 - Present

- Developed VR and AR simulations in Unity for the Meta Quest 3 using C# to help users practice challenging scenarios, such as conflict resolution and public speaking, with interactive avatars in immersive environments.
- Implemented speech-to-text functionality using OpenAI Whisper API in Unity, enabling real-time conversion of user speech to text for interactive dialogues with avatars.
- Integrated and prompt-engineered OpenAI GPT-4o API to generate dynamic, context-aware responses from avatars, providing users with realistic conversational practice and feedback within the Unity environment.
- Now developing high-fidelity simulations in AR to teach users different self-care strategies for stress relief.

SoundWatch Dataset Project – University of Michigan Soundability Lab Aug 2024 - Present

- Developing SoundWatch: A sound-awareness app for iOS and watchOS to identify and notify DHH users of environmental sounds in real-time.
- Leveraging AVFoundation for audio capture and processing and CoreML's SoundAnalysis Framework for real-time sound classification.
- Utilizing Apple's SoundAnalysis Framework to perform On-Device machine learning for Sound Recognition on the Apple Watch.
- Implementing WatchConnectivity and WCSession to synchronize data and between the iPhone and Apple Watch.

AdaptiveSound Project — University of Michigan Soundability Lab May 2023 - Sept 2023

- Co-created AdaptiveSound: a reinforcement learning based solution for personalized sound recognition
- Created high-fidelity prototypes of AdaptiveSound's Android app UI and control flow using Figma

- Developed the app's front-end in Kotlin with a live waveform visualizer and pipeline for reinforcement learning

Human-AI Sound Project — University of Michigan Soundability Lab May 2023 - Sept 2023

- Designed a Human-AI Collaborative Approach for Designing Sound Awareness Systems to classify sounds based on their characteristics rather than discrete sound events
- Devised a similarity matrix using ASL interpreters' sorting of sound-classes to cluster our novel taxonomy
- Generated Mel-Spectrograms using Python to validate Convolutional Neural Network

SoundWatch Field Study Project — University of Michigan Soundability Lab Jan 2023 - May 2023

- Performed field-study of SoundWatch: A deep-learning solution for sound accessibility on smartwatches
- Wrote Python scripts to scrape user log-file data and generate plots of app-usage over time using Seaborn
- Coded interview transcripts, performing a qualitative analysis to gain insight into participants' experience

DEVIATE Project — University of Michigan Transportation Research Institute Jan 2022 - Dec 2022

- Worked under Professor Carol Flannagan and Dr. Kathleen Klinich to develop a Computer Vision solution aimed at detecting motion sickness indicators among passengers in autonomous vehicles

TEACHING EXPERIENCE

Teaching Assistant – EECS 370: Intro to Computer Organization August 2023 - Present

- Serve as a Teaching Assistant(TA) for EECS 370 a core course for Computer Science and Engineering with 700+ students a semester
- Lead a weekly lab section instructing 30+ students in introductory computer organization concepts including assembly language programming, data-path design, instruction pipe-lining and cache construction
- Hold office hours for 3 hours a week to help students debug projects in C and assembly, and tackle homework and lab problems

Peer Tutor – Elementary Programming Concepts, Data Structures August 2022 - May 2023

- Served as a peer tutor for Elementary Programming Concepts and Data Structures and Algorithms
- Held 6 weekly tutoring hours to help students with homework assignments and project code debugging in C++

M-Write Fellow – Stats 250: Intro to Statistics and Data Analysis August 2022 - December 2022

- Selected by Dr. Alicia Romero to serve as an M-Write Fellow for Stats 250 (the largest course at the University of Michigan)
- Helped students improve writing and presenting ideas with statistics, facilitating review and revision for M-Write assignments.

AWARDS

Departmental nominee CRA Outstanding Undergraduate Researcher

- Selected as one of four undergraduate students by the Computer Science and Engineering department at the University of Michigan. This award recognizes outstanding potential in computing research for students in North American colleges and universities. I am currently awaiting a decision from the CRA committee.

Best Student Paper Honorable Mention at ASSETS 2023

- Our paper "Not There Yet": Feasibility and Challenges of Mobile Sound Recognition to Support Deaf and Hard-of-Hearing People, won an honorable mention for best student paper at ASSETS 2023: The ACM SIGACCESS Conference on Computers and Accessibility. I am the second author on this paper.

University Honors

- University Honors are awarded to all students who have achieved a 3.50 GPA and 14 credit hours (12 of which must be graded A-E). I received this distinction 4 out of 5 semesters I was eligible.

SKILLS

Languages:	Python, C/C++, Java, HTML/CSS, JavaScript, Swift, Kotlin, R, SQL
Frameworks:	TensorFlow, PyTorch, CoreML, Scikit-learn, React, NodeJS, Flask, UIKit, SwiftUI
Tools:	Jinja, Firebase, Git

HOBBIES

Creating Tech videos on YouTube, Basketball, Pickleball, Hiking, Board Games and Reading fiction.