HRIDAY CHHABRIA

+1(650) 861-0386 ◇ hridayc@umich.edu ◇ LinkedIn ◇ GitHub ◇ Personal Website
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).
- "Practicing Stress Relief for the Everyday: Designing Social Simulation Using Virtual Reality, Augmented Reality, and LLMs" – **UNDER REVIEW** *CHI 2025*

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 stratergies 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 Recogniton 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 Desigining Sound Awareness Systems to classify sounds based on their characteristics rather than discrete sound events
- Devised a similarity matrix using ASL interepreters' 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

- Collaborated with 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 Structrues 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 statisics, facilitating review and revision for M-Write assignments.

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.