



Huaidian Hou

Research Experience

Mu-RoAM

Research Intern

Ann Arbor, MI, January 2024 - Present

- Conducting research with Professor Shai Revzen in Mu-RoAM team.

LoG(M)

Research Intern

Ann Arbor, MI, January 2024 - Present

- Conducting research in LoG(M) Project (MATH 440).

Frankfurt Institute for Advanced Studies

Research Intern

Remote, February 2021 - December 2021

- Conducted research on using Convolutional Neural Networks to predict crowd evacuation in a confined space. Co-designed simulation of real-time evacuation behavior with Cellular Automaton. Designed and evaluated TensorFlow CNN models in predicting simulation results, with fully and partially scoped inputs.
- Co-authored research paper “Measuring Dynamics in Evacuation Behaviour with Deep Learning”, accepted by Entropy Journal.

Work Experience

EECS 376

Instructional Aide

Ann Arbor, MI, January 2024 – Present

- Prepare and lead discussion sections for EECS 376 designed with focus on interactive learning, which, by my experience, is one of the most effective ways of understanding algorithms in this class.
- Hold office hours for student questions, helping students succeed in understanding algorithmic, computability, and cryptography related questions from lectures, exams, and beyond.

Minsheng Fintech Corp. Ltd

Research Intern

Wuhan, China, June 2023

- Conducted preliminary design of Transformer-based search system for China Minsheng Banking mobile app. Authored technical report detailing NLP models, evaluation methods and system engineering recommendations.
- Experimented with tagging model for search query designs and explored model fine tuning process with Hugging Face Transformers with other Search team members. Prepared dataset for model fine-tuning.

University of Michigan Shapiro Design Lab

Student Intern

Ann Arbor, MI, November 2022 – Present

- Co-lead process optimization for 3D printing appointments and equipment maintenance scheduling using automated systems and innovative workflows.
- Provide consultation for users with creative designs and manufacturing needs using 3D printing, laser cutting, and other toolkits available in Shapiro Design Lab.

Featured Projects

Odometry Parameter Optimizer using VR Trackers and Linear Optimization

Independent Developer

Haverford, PA, May 2022 - June 2022

- Developed parameter-tuning utility ([OTune](#)) for wheel-odometry positioning with ROS and SteamVR in Linux, which pioneered team focus on data-driven toolchain for team-wide robot development.
- Derived optimization models for multiple wheel configuration parameters with least square method that fit tracking wheel velocity data ground truth velocities recorded by VR base stations. Produced CLI tool to visualize data fitting process.

VEX Robot Motion Profiling and Control Framework

Software Team Lead

Haverford, PA, August 2021 - June 2022

- Led team research of a scalable control and navigation stack ([Elib](#)) for VEX robotics team 169.
- Managed group research project into full-stack autonomous robotic algorithms; led implementation of A* searcher, multi-wheel odometry localization, and Pure Pursuit path follower algorithms.

Spatial Audio Guidance System

Independent Developer

Zhengzhou, China, August 2021 – January 2022

- Designed the [Spatial Audio Guidance System](#) to assist visually impaired users detecting moving bikes and vehicles using real-time object recognition and OpenAL spatial audio.
- Designed and implemented full stack in Python and C++ running onboard an Nvidia Xavier NX.
- Designed custom object-filtering system based on risk scores (calculated from objects' trajectory and velocities) to minimize unnecessary interference to users' judgement in busy scenes.

Contacts:

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Education:

- University of Michigan
- Aug 2022 – Apr 2026
- Computer Science BSE
- Mathematics Minor
- GPA: 4.0/4.0

Honors/Awards:

- James B. Angell Scholar (2024)
- Branstrom Freshman Book Prize (2023)
- Engineering Honors Program (2023)
- Dean's List (2022-2023)

Programming Languages:

- C++
- Python
- TypeScript

Frameworks & Tools:

- PyTorch
- ROS
- Numpy
- Django
- Next.js
- Docker
- Unix/Linux

Design & Fabrication:

- SolidWorks
- Fusion 360
- 3D Printing
- Laser Cutting

Languages:

- English (Fluent)
- Chinese (Native)