Minsi Hu

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Education

University of Maryland, College Park (UMD) **GPA: 4.00 / 4.00**
- B.S. Computer Science (Machine Learning Track) **Expected May 2025**
- B.S. Mathematics (Applied Math Track)

Relevant Coursework
- Machine Learning | Deep Learning | Computer Vision | Cryptography | Graph Theory | Algorithms | Advanced Data Structures | Web Development | Data Science | Real Analysis | Numerical Analysis | Probability Theory | Theory and Methods of Statistics

Work Experience

Teaching Assistant | *University of Maryland* **August 2023 – Present**
- Teaching Assistant for the CMSC132: **Object-Oriented** Programming, CMSC216: Introduction to **Computer Systems,** CMSC330: Organization of **Programming Languages**, and STAT410: Introduction to **Probability Theory** courses.
- Taught discussion sections, held office hours, and designed coursework for over **2100 students**.

Undergraduate Research Assistant | *University of Maryland*, *NMCL* **December 2023 – Present**
- Developed **software** to assess the efficacy of various **feature extraction** methods (functional connectivity, graph centralities) and **machine learning models** (SVMs, MLPs, CNNs) for classifying **electroencephalography** (EEG) data.
- Currently **investigating** the viability of **deep neural networks** as classification algorithms for EEG and utilizing **saliency methods** (heat maps) as a post-hoc analysis to reveal insights into important connections between different brain regions.

WHK Student Intern | *National Cancer Institute (NCI)*, *Dr. Kylie Walters* **June 2021 – May 2022**
- Conducted research on the **USP14 inhibitor** under mentor Dr. Kylie Walters and her team, utilizing **PyMOL** to generate protein models of enzymes in the ubiquitin-proteasome pathway.

Personal Projects

DeepCore | **C++ & CUDA** **May 2023 – August 2023**
- Engineered a **C++ neural network library** from scratch, leveraging **NVIDIA's CUDA** platform to accelerate **tensor** operations with **parallel computing** on the graphics processing unit (GPU). Evaluated to recognize handwritten digits from the MNIST database with over **98% accuracy**.

Emotion AI | **Python & TypeScript** | **Bitcamp 2024** **April 2024 – April 2024**
- Developed a facial sentiment analysis and chatbot application using **OpenCV**, **TensorFlow**, **OpenAI API**, and **React + TypeScript** to recognize facial expressions in **real-time** with a custom-trained **CNN**, and curate personalized responses based on detected emotions.

Sorting Simulator | **Java** | **Bitcamp 2023** **April 2023 – May 2023**
- Designed an advanced sorting algorithm visualizer with **Java Swing**, showcasing real-time array updates and collecting metrics (swaps & insertions) as various **sorting algorithms** (mergesort, quicksort, introsort) are applied, enabling **algorithm evaluation**.

Skills

Languages | Python, C++, C, Java, Rust, OCaml, R, Javascript, Typescript, SQL, C#
Other | CUDA, Pandas, TensorFlow, OpenCV, HTML, CSS, React, MATLAB, Git, LaTeX