ZIHAO CHEN

Chicago, IL | 773-851-1204 | mikechen012345@uchicago.edu | mikechen012345.github.io

EDUCATION

The University of Chicago *June 2026*
Bachelor of Science in Computer Science, Bachelor of Science in Neuroscience (GPA: 3.98/4.0) Chicago, IL

RESEARCH EXPERIENCE

Research Assistant *June 2024 – Present*
Hatsopoulos Lab - University of Chicago Chicago, USA

— Engineered and prototyped an 8-channel force-sensing data acquisition system using Arduino and custom PCB designs in KiCad.
— Developed a Python-based data pipeline to process over 20 GB of time-series data per session, managing sensor calibration, real-time data streaming (RTMA), and video-based object location analysis with OpenCV.
— Trained and evaluated predictive models (PCA, LDA, Reinforcement Learning) to decode grasp force from primary motor cortex signals, establishing a time-dependent relationship between neural activity and behavior.
— Managed 11 human-subject Brain-Computer Interface (BCI) sessions with 2 patients, adhering to IRB protocols and CITI training standards.

Research Assistant *September 2023 – May 2024*
Attention, Perception, & EXperience (APEX) Lab - University of Chicago Chicago, USA

— Implemented an extension to a Neuro Evolution of Augmenting Topologies (NEAT) program by incorporating Compositional Pattern-Producing Networks (CPPN), altering the evolutionary generation of images.
— Analyzed Electroencephalogram (EEG) signals using Brain Electrical Source Analysis (BESA) and Minimum Norm Estimates (MNE) Python libraries.
— Assisted in conducting human-subject behavioral experiments, contributing to data collection and lab protocols.

TEACHING EXPERIENCE

Grader, Introduction to Computer Science *January 2024 – June 2025*
Computer Science Department, The University of Chicago Chicago, USA

— Evaluated Python assignments for 20-25 students weekly, providing targeted feedback on programming logic, style, and software development best practices.
— Collaborated with faculty and TAs to refine grading rubrics and enhance course materials based on analysis of student performance trends.

PRESENTATIONS

Chen, Z. & Sobinov, A., (2025, November 13). *Encoding of grasp force in human motor cortex during object transport* [Paper presentation]. Society for Neuroscience 2025, San Diego, CA, United States.

Chen, Z., (2025, April 25). *Exploring missing grasp force signals in motor cortex during object transport* [Poster session]. University of Chicago QUAD Undergraduate Research Symposium, Chicago, IL, United States.

Chen, Z., (2024, August 13). *Decoding grasp force in the M1 during object transportation* [Paper presentation]. Jeff Metcalf's Research Fellowship Presentation, Chicago, IL, United States.

HONORS AND AWARDS

Phi Beta Kappa Academic Honor Society | *May 2025*
Enrico Fermi Scholars in the Physical Sciences Collegiate Division | Top 5% of cohorts in the last 5 years *May 2025*
Janet Rowley Scholars in the Biological Sciences Collegiate Division | Top 5% of cohorts in the last 5 years *May 2025*
University of Chicago QUAD Research Scholarship | *January 2025*
Robert Maynard Hutchins Scholar | Top 10% of cohorts *August 2024*
Jeff Metcalf's Neuroscience Research Fellowship | *June 2024*

SKILLS

- Programming Languages: Python, MATLAB, C, R
- ML/Data Science Toolkits: Pandas, NumPy, OpenCV
- ML Concepts: Agentic Tool Calling, Deep Learning, PCA, SVM, LDA, Feature Selection, Kernelization
- Tools & Technologies: Git, GitHub, Linux, LaTeX, Arduino, KiCad
- Languages: English (Fluent), Mandarin (Native)