

Zihang Xiao

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EDUCATION

University of California, Santa Barbara
Bachelor of Art in Biology and Computer Science
3.91/4.00

May 2025

- Selected Coursework: Systems Neuroscience, Regression Analysis, Statistical Machine Learning, Signal Analysis and Processing, Biostatistics, Computational Neuroscience, Electrical and Computer Engineering, Biophysics of the Nervous System

EXPERIENCE

Research Assistant

September 2021 - Present

University of California, Santa Barbara | Sung Soo Kim Lab

- Built a connectome-based large-scale (1300 neurons) neural ODE network simulation of fruit flies' anterior visual pathway with Pytorch.
- Developed a low-budget, multicolor closed-loop virtual reality for fruit flies using a wind-powered treadmill, Unity environment, and flexible screen to create a real-world environment for multiple navigation behavior experiments.
- Created and performed different behavioral experiments combined with transgenic fruit flies to characterize ring neurons' function in the navigation; found a specific behavioral pattern change resulting from silencing ring neurons during fixation behavior with certain visual patterns.

SURF Fellow

June 2023 - September 2023

California Institute of Technology | Elizabeth J. Hong Lab

- Designed and performed multiple behavioral experiments quantifying fruit flies' behavioral change after early age natural odor exposure.
- Constructed a behavioral apparatus for odor delivery and real-time position tracking to quantify fruit flies' odor-encountering behavior.
- Wrote R and MATLAB scripts for cleaning and analyzing behavioral data; discovered a specific dynamic pattern change after early odor exposure.
- Utilized transgenic flies for elucidating neural mechanisms of behavioral change after fruit flies' odor experience.

Research Intern

May 2021 - September 2021

Zhejiang University | Xiao Dong Wang Lab

- Constructed a Y-maze and its two-photo imaging parts to study the lateral entorhinal cortex (LEC) of mice and its relationship with anxiety.
- Analyzed two-photon microscopy data from LEC of mice and its behavioral data in Y-maze using principal component analysis and support vector machines; discovered a subset of neurons in LEC related to anxiety behavior.

ACTIVITIES

Vice President and Founder

June 2023 - Present

Quantitative Biology Club @ UCSB

- Collaborated with other team members for planning guest speaker series and journal clubs about recent biological advancements and their quantitative methodologies.
- Recruited faculty advisor and raised funding for the club.

SKILLS

Python, C++, R, MATLAB, Machine Learning, Pytorch, SQL, HTML/CSS, CAD, soldering, Javascript

Basic fruit flies & mice skills: stock keeping, crossing, dissection, tethering (fly), perfusion (mice), brain slicing (mice)