Yuelai (Mollie) Feng

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EDUCATION

University of California, Los Angeles (UCLA)
B.S. in Computational and Systems Biology, Minor in Mathematics 6/2024

- GPA: 3.987/4.0 (*summa cum laude*)
- Relevant Coursework: Neuroscience (molecular, cellular, systems, cognitive), multivariable calculus, linear algebra, differential equations, probability, statistics, computer science, mathematical/biological modeling, optimization, networks, stochastic processes, systems and signals, neuroengineering, science writing

RESEARCH EXPERIENCE

McGovern Institute for Brain Research, Massachusetts Institute of Technology (MIT)
Technical Associate | PI: Mehrdad Jazayeri 8/2024 – Present

- Conducted macaque experiments involving simultaneous Neuropixels recording and microstimulation
- Analyzed neural data using linear regression models and dimensionality reduction
- Built custom systems for acute neurophysiology using CAD software
- Developed a human behavioral experiment to study how schema affects episodic memory
- Designed and open-sourced a custom reward delivery system for animal experiments
- Performed or assisted with 10+ cranial implant surgeries, 20+ MRI/CTs, and histological procedures
- Led 5+ journal club discussions on primate memory literature
- Led a comprehensive update of the laboratory's regulatory protocols
- Ensuring laboratory compliance with IACUC, EHS, DEA, and USDA regulations
- Managing inventories and ordering laboratory supplies

W. M. Keck Center for Neurophysics at UCLA
Undergraduate Researcher | PI: Mayank Mehta 1/2023 – 6/2024

- Designed an experiment to study visual selectivity and spatial remapping of rat hippocampal neurons
- Performed 10+ rat craniotomy and chronic Neuropixels implantation surgeries
- Trained rats on Pavlovian (tone-reward) conditioning and real world/virtual reality foraging tasks
- Refined experimental setups, chronic Neuropixels implant designs, and surgical protocols
- Presented study design and expected results at the UCLA Undergraduate Research Week

Department of Epidemiology, UCLA
Undergraduate Research Assistant | PI: Beate Ritz 3/2022 – 6/2023

- Managed and maintained research database for the Parkinson's, Environment & Genes study
- Conducted participant interviews and Montreal Cognitive Assessments
- Recruited and coordinated visits/interviews with participants via mail, phone, and email

Department of Neurobiology, UCLA
Undergraduate Research Assistant | PI: Alcino Silva 9/2021 – 8/2022

- Assisted with mouse Miniscope recording experiments to study the neural mechanism of memory allocation
- Assisted with 20+ mouse craniotomy surgeries and performed post-operative care and monitoring
- Performed histological procedures including brain slicing, immunostaining, and mounting
- Processed immunostaining imaging results and behavioral data
- Performed mouse handling, training, and colony maintenance

Zhongshan Hospital, Fudan University
Student Researcher | Advisor: Zheng Li 3/2019 – 6/2020

- Investigated the protective effect of *Apocynum venetum* leaf extract on PC12 cells
- Cultured PC12 cells and performed protein quantification and cell viability assays
- Analyzed experimental data using ImageJ and statistical tests and published findings

AWARDS, HONORS & CERTIFICATES

McGovern Institute Spot Appreciation Award 2025

Phi Beta Kappa 2024

UCLA Dean's Honors List (11 quarters) 2020 – 2024

UCLA Undergraduate Research Fellowship ($3000) 2023

Neuromatch Academy: Computational Neuroscience Certificate 2023

USA Biology Olympiad: Silver Award 2019

China National Brain Bee Championship: First Prize 2018

China Thinks Big Research and Innovation Competition: Global Gold Award 2018

PUBLICATIONS

Feng, Y., Jiang, C., Yang, F., Chen, Z., & Li, Z. (2020). Apocynum venetum leaf extract protects against H_2O_2-induced oxidative stress by increasing autophagy in PC12 cells. *Biomedical Reports*, 13, 6. https://doi.org/10.3892/br.2020.1313

POSTERS & PRESENTATIONS

Feng, Y., Sung, H., Jazayeri, M. (2025, November). Perturbing the brain to investigate the neural mechanisms of internal error detection [Poster]. *Society for Neuroscience*, San Diego, CA, United States. (Accepted)

Feng, Y., & Mehta, M. R. (2024, May). Multi-sensory mechanism of hippocampal spatial selectivity [Presentation]. *UCLA Undergraduate Research Week*, Los Angeles, CA, United States.

Ying, L., **Feng, Y.**, Hegde, R., Jha, S., & Mehta, M. R. (2024, April). Rats watching movies: Higher-order neural representation of continuous visual sequences in the rat hippocampus [Poster]. *California Neurotechnology Symposium*, Davis, CA, United States.

SCIENCE COMMUNICATION

In Transcription at UCLA
Column Leader, Media Committee Member 4/2023 – 6/2024

- Led the *Biology Everywhere* column and wrote articles in Chinese on life science topics (500+ views)
- Edited articles covering club events and study guides for life science students (1,400+ views)

Neureality, China
Content Creator, Translator 6/2020 – 9/2023

- Wrote and edited educational videos on neuroscience and psychology (100,000+ views)
- Translated popular science articles on neuroscience, cognitive science, psychology, and philosophy (50,000+ views)

UCLA Undergraduate Science Journal
Review Board Member, Writer 11/2022 – 6/2023

- Reviewed undergraduate research and review manuscripts and provided constructive feedback
- Wrote and illustrated a research highlight titled "DishBrain: Neurons in a Dish Learned How to Play Games"

VOLUNTEER EXPERIENCE

Woof On Campus at UCLA
Marketing Team Member 9/2022 – 6/2024

- Promoted rescue animal fostering and adoption among college students
- Designed marketing materials for fundraising events and guest speaker sessions

Chrysalis
Volunteer 10/2023 – 12/2023

- Assisted 9 clients navigating workforce barriers with résumé writing and job interview preparation

Bridge at Shanghai Pinghe School
Co-Founder 9/2018 – 6/2019

- Co-founded the student organization to help senior citizens navigate modern technology
- Organized smartphone workshops with 200+ participants
- Compiled 3 user-friendly smartphone guidebooks
- Created articles and videos to raise awareness among younger generations (20,000+ views)

SKILLS & OTHER

Experimental: Electrophysiology (Neuropixels recording, microstimulation), cranial implant surgery, macaque/rodent behavioral training, MRI/CT image analysis (3D Slicer), CAD modeling (Autodesk Fusion), PCB design (KiCad), histology

Programming: Python, MATLAB, JavaScript, HTML, MWorks, jsPsych, LaTeX

Computational: Neural signal processing, dimensionality reduction, statistical modeling

Languages: Chinese (native), English (fluent), French (basic)

Hobbies: Photography, tennis, movies, travel, Western/Chinese calligraphy, drawing, graphic design