

Erik Hakopian

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EDUCATION

UNIVERSITY OF CALIFORNIA, IRVINE

Interdisciplinary Neuroscience Program, Ph.D.

Associated Lab: Dr. Jennfier Gelinas

Riverside, CA

2025 – Present

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Neuroscience B.S. GPA: 3.7

Relevant Coursework: Systems Neuroscience, Organic Chemistry, Physics, Electronics, Statistics

Riverside, CA

2021 – 2024

PASADENA CITY COLLEGE

Biological & Physical Sciences A.S. , Mathematics A.A. , GPA: 3.4

Relevant Coursework: Biology, Mathematics, General/Organic Chemistry, Circuit Analysis

Pasadena, CA

2017 – 2021

RESEARCH EXPERIENCE

UNIVERSITY OF CALIFORNIA, IRVINE

GRADUATE STUDENT - Dr. Jennifer Gelinas Lab

• TBD

Irvine, CA

Jul 2025 – Present

UNIVERSITY OF SOUTHERN CALIFORNIA

RESEARCH ASSOCIATE - Dr. Vasileios Christopoulos Lab

- Directed the first successful neuroimaging experiments capturing neural activity in fully behaving, freely moving human infants.
- Designed fUSI probe holders for human and sheep, expanding cross-species applications
- Developed a novel, highly efficient algorithmic model for real-time detection of motor trajectory switching points in PD patients.

Los Angeles, CA

Jul 2024 – Jul 2025

UNIVERSITY OF CALIFORNIA, RIVERSIDE

UC LEADS SCHOLAR - Dr. Vasileios Christopoulos Lab

- Led brain-wide neuronal dynamics study in mice using fUSI to investigate schizophrenia effects
- Studied artifact filtering, and motion correction on fUSI
- Pioneered the first application of ARIMA prewhitening to fUSI data for functional connectivity analysis
- Created classification algorithms to detect drug-induced schizophrenia from neural activity patterns
- Discovered widespread brain connectivity decoupling in schizophrenia resulting in publication
- Engineered an implantable fUSI probe holder for whole-brain imaging in freely moving rats [Patent Pending]

Riverside, CA

Apr 2022 – June 2024

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

UC LEADS SCHOLAR - Dr. Loren Frank Lab

In person: May 2023 – Aug 2023 | Remote: Aug 2023 – Oct 2023

- Trained young and aged rats in linear track tasks for locomotor analysis study
- Designed multi-angle camera system to capture comprehensive locomotion data from three viewpoints
- Implemented DeepLabCut neural network for precise limb tracking in rodent locomotion studies
- Analyzed stepping frequency patterns between young and aged rats using pose estimation data
- Assisted in tetrode construction and hippocampal electrophysiology surgeries and recordings

San Francisco, CA

KECK MEDICINE OF USC

UNDERGRADUATE RESEARCH ASSISTANT - Dr. Darrin Lee Lab

Los Angeles, CA

Dec 2022 – Mar 2023

- Analyzed therapeutic effects of combined ketamine and DBS treatments in depression behavioral studies
- Conducted quantitative behavioral analysis across multiple paradigms including Barnes Maze and EPM
- Co-authored Frontiers in Neuroscience paper comparing DBS-ketamine combination therapy outcomes

CALTECH FSAE

AUTONOMOUS SYSTEM/POWER STEERING ENGINEER

Pasadena, CA

Sep 2019 – Apr 2021

- Developed path planning and trajectory optimization algorithms for autonomous vehicle navigation
- Designed power allocation system managing dual battery configuration for electric race car
- Designed power steering system and implemented servo motors for autonomous driving capabilities
- Secured 22nd place in Electric SAE International Competition among global university teams

PATENTS

- **Erik Hakopian**, Vasileios Christopoulos “Adjustable Functional Ultrasound Imaging Probe Holder For Freely Moving Experiments” *U.S. Provisional Patent Application No. [XX/XXX,XXX], filed April 16, 2025.*

PUBLICATIONS

- **Erik Hakopian**, Argishti Stepanian, Woosong Choi, Kofi Agyeman, Charles Liu, Darrin Lee, Vasileios Christopoulos. “Functional ultrasound imaging and prewhitening analysis reveal MK-801-induced disruption of brain network connectivity” *Frontiers in Pharmacology 16 (2025): 1562102*
- Matthew Bergosh, Sasha Medvidovic, Nancy Zepeda, Lindsey Crown, Jennifer Ipe, Lauren Debattista, Luis Romero, Eimon Amjadi, Tian Lam, **Erik Hakopian**, Woosong Choi, Kevin Wu, Jack Yu Tung Lo, Darrin Lee. “Immediate and Long-Term Electrophysiological Biomarkers of Antidepressant Behavioral Effects After Subanesthetic Ketamine and Medial Prefrontal Cortex Deep Brain Stimulation Treatment.” *Frontiers in Science 18 (2024): 1389096*

HONORS/AWARDS

2024 UC GRADUATE DEANS’ LEADERSHIP AWARD

Mar 2024

- Systemwide recognition bestowed upon only three students across all 10 UC campuses in recognition of extraordinary leadership skills, outstanding academic achievements, and immense potential to become a future leader in their chosen field

2024 PILLARS OF EXCELLENCE AWARD

May 2024

- Awarded to four graduating seniors from the class of 2024 who exemplify the University Honors Three Pillars of Excellence. Students must promote creativity and innovation, cultivate a culture of contribution, and celebrate diversity and global citizenship through their academic and extracurricular accomplishments

HONORS CIVIC ENGAGEMENT SCHOLARSHIP

Jun 2024

- Awarded to assist female and/or underrepresented minority students who are pursuing a degree in science, technology, engineering, and mathematics with the cost of their education and that are making exceptional progress in their Honors Capstone project

HONORS EXCELLENCE IN RESEARCH (HEIR) SCHOLARSHIP

Mar 2024

- For University Honors Seniors who are making exceptional progress on their Honors Capstone Project and are in good standing

HAYS CAPSTONE PROJECT FELLOWSHIP

Apr 2023

- Won the award out of the entire honors students in the university with exceptional standing, representing the University of Honors as a hallmark of creativity and innovation, and making exemplary progress in their Honors project

BLACKSTONE LAUNCHPAD IDEAS COMPETITION WINNER

Oct 2022

- Honored with the Best Venture Idea Award in the Health and Life Science Category, selected as one of four exceptional startup entrepreneurs from a highly competitive pool of over 50 participants for presenting the most promising and innovative business concept, aimed at reducing tremors

MARIA FRANCO-GALLARDO SCHOLARSHIP AWARD

Aug 2022

- Recipient of the Best Research and Leadership Skills Award, recognized as the top performer among the Summer 2022 cohort at UCR for exceptional research abilities and outstanding leadership qualities

UNIVERSITY OF CALIFORNIA LEADERSHIP THROUGH ADVANCED DEGREE (UC LEADS)

May 2022

- Prestigious two-year research fellowship awarded to only six UCR STEM undergraduate students, providing funding, mentoring and support to pursue groundbreaking research in their field of expertise

LEADERSHIP & ACTIVITIES

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Riverside, CA

Academic Preparation, Recruitment and Outreach Student Association (APRO-SA), President Sep 2023 – May 2024

- Led a student organization focused on introducing undergraduate students to research opportunities
- Hosted resume-building and on-campus research opportunities workshops
- Successfully placed students into desired labs, providing them with hands-on experience & exposure to their field
- Conducted sessions with the APRO office and fellow researchers to deepen understanding of the research field
- Organized and hosted networking events

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Riverside, CA

Tremors Reducing Device - Blackstone Launchpad Ideas Competition

Aug 2022 – Feb 2023

- Conceptualized a tremor-reducing device using EMG sensors and accelerometers
- Assembled a diverse scientific team of peers from Caltech, USC, and Cal Poly Pomona
- Developed an approach using sensor data to identify muscle groups causing specific tremor motions and counteract them in real-time
- Gained expertise in neuronal control systems and signal processing through the project
- Won the Blackstone LaunchPad Ideas Competition and secured general funding for data collection

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Riverside, CA

Founder of UCR Research Discord Server (700+ Members)

Nov 2022 – May 2024

- Founded UCR's largest student research network hub
- Hosted events and facilitated placements of 250+ students in research labs
- Integrated campus offices to enable direct student-administration interactions on the server
- Implemented automated moderation systems and integrated server bots to maintain community

PASADENA CITY COLLEGE

Pasadena, CA

Armenian Student Association, Treasurer

Feb 2018 – Mar 2020

- Oversaw the management of the financial aspect of the club
- Managed the club's cash flow and scheduled events for fundraisers for the club
- Successfully doubled the funds available for the club
- Connected with ASA treasurers statewide to increase community engagement and awareness

PROJECTS

Pharmacokinetics of a sample drug

- Using linear, regression, and quadratic mathematical models to calculate the effect of drugs on the human body
- Calculated absorption and elimination rate of specific drugs using differential equations
- Predicted the most effective dose of a sample drug using biological parameters of a patient's body

Calculating the Stellar Motion of 7 sample stars (including HD-94028) using MATLAB

- Calculated redshift factor and speed of stars moving towards/away from the earth using diffraction grading matrix
- Calculated and found the Hydrogen alpha-wavelength of each star
- Plotted a histogram of the speed of multiple stars using redshift and blueshift properties.

The Effects of Elevation on Biodiversity of Plants and Birds

- Researched the effect of elevation on abundance, density, and biodiversity of species of plants and birds
- Gathered large datasets using iNaturalist.com for data on species observations
- Analyzed three elevation zones: Low (0-200m), Mid (200-1800m), and High (1800+m)