Jeff Jaureguy

EDUCATION

Ph.D candidate in Bioinformatics and Systems Biology, University of California, San Diego, CA, 2020
Expected Graduation Date: 2026
Bachelor of Science, Molecular and Cellular Biology, California State University, San Marcos, CA, 2020 CSUSM
A.A, Mathematics and Sciences, MiraCosta College, Oceanside, CA, 2018

FELLOWSHIPS & AWARDS

FELLOWSHIPS

- **Chapman Scholar Salk Institute** 2025-2026
- **UCSD President's Pre-Professoriate Fellowship** (PPPF) 2025-2026
- **NIH National Human Genome Research Institute F31** Ruth L. Kirschstein Predoctoral Individual NRSA Fellowship 2024-2027
- Alfred P. Sloan Scholar Fellow 2020-2026
- UCSD Summer Training Academy for Research Success (STARS) Fellow 2020-2026
- NIH Training Grant 2020-2021
- NIH MARC (NIH) Fellow 2018-2020

AWARDS & HONORS

- **Anthropic for Science Program** (API credits — **$20,000**) 2025-2026
- Salk Institute Cloud Acceleration for Biology **"Moonshot"** Award - PI (AWS credits — **$200,000**) 2025-2026
- American Society of Human Genetics Scholar 2023-2025
- Ford Fellowship Alternate and Honorable Mention 2023
- Competitive Edge (UCSD) 2020
- NASA Jet Propulsion SAGAn Workshop 2020
- C**alifornia State University Trustees Award for Outstanding Achievement** (1 of 23 students in the state of CA) 2019
- Selected Travel Awards: ABRCMS, ERN Conference, CSUSM Office of Graduate Studies. 2016-2019
- CSUSM Dean's List 2018-2020
- CSUSM Thomas Wahlund Scholarship 2018
- **Phi Theta Kappa All-USA Academic Team** (National Scholarship, 1 of 20 students in USA) 2018
- MCC Permanent Honor Roll 2015-2018
- MCC Bridges to the Future (NIH) 2015-2017
- MiraCosta College Winski Scholarship 2015-2017

TEACHING & MENTORING & SERVICE/OUTREACH

TEACHING ASSISTANT ROLES

UCSD Teaching assistant for Quantitative Methods/Genetics (BNFO 262), San Diego, CA Winter 2022 & Winter 2023
Graduate Teaching Assistant.

- Assisted in curriculum development and lesson planning. Improved course backend on DataHub at UCSD with Docker.

UCSD Teaching assistant for the Seminar Life in Code, a Emphasis in Machine Learning and Computational Methods for Bioinformatics (CSE 290), San Diego, CA Fall 2023
Graduate Teaching Assistant.

- Assisting in curriculum development, lesson planning and course administration.

UCSD Deep Learning for Bioinformatics Group, San Diego, CA Fall 2022-Spring 2023
Co-founder.

- Established a deep learning/bioinformatics community, hosting monthly seminars on cutting-edge ML research.

MENTORING EXPERIENCE

ASHG Human Genetics Scholars Initiative Graduate Mentor, San Diego, CA Winter 2024-Present
Graduate Mentor.

- Providing scientific advising, mentoring, and academic support to HGSI scholars.

OAR² Affinity Graduate Mentor, San Diego, CA Winter 2024-Present
Graduate Mentor.

- Selected to mentor graduate students in research and professional development.

Summer Undergraduate Research Fellowship(SURF), San Diego, CA Summer 2023-2025

Graduate Mentor.

- Provided scientific advising, mentoring, and academic support to 2 underrepresented SURF mentees

Sloan Fellow Graduate Mentor, San Diego, CA Fall 2022 - Present

Graduate Peer Mentor.

- Advised Sloan Fellows on research development, career advancement, and imposter syndrome.

Summer Training Academy for Research Success (STARS), San Diego, CA Summer 2021-2022

Graduate Mentor.

- Provided scientific advising, mentoring, and academic support for 2 STARS underrepresented mentees every summer.

NIH Bridges to the Future & MARC Mentor, San Diego, CA Fall 2015 - Summer 2020

Undergraduate Peer Mentor.

- Mentored underrepresented students in securing research opportunities, navigating grad applications, addressing imposter syndrome, and exploring advanced STEM pathways.

DEI SERVICE & OUTREACH

Salk Institute Community Enrichment Event, San Diego, CA December 2024 – Present

Planning Committee Member

- Organizing a Salk Institute diversity-focused event with NIH programs (Bridges to the Future, MARC/RISE), featuring hands-on genetics workshops, career panels, and lab tours for underrepresented students from San Diego–area community colleges and CSUs.

Bridges to the Future Program – Palomar & MiraCosta Colleges, San Diego, Ca Spring 2021-2023

Graduate Panelist.

- Spoke with underrepresented community college students about transferring to four-year universities and pursuing STEM graduate programs**.**

SACNAS BISB Recruitment, San Diego, CA Winter 2022

Graduate Recruitment.

- Promoted expanding diversity in the Bioinformatics & Systems Biology graduate program through targeted outreach and recruitment efforts.

UCSD Open House Graduate Student Event, San Diego, CA Fall 2022

Graduate Panelist.

- Discussed admissions, UCSD's research environment, and well-being strategies for new under represented grad students.

California Forum for Diversity in Graduate Education, San Diego, CA Fall 2021

Graduate Panelist.

- Covered grad admissions, funding opportunities, and building supportive, inclusive academic communities.

UCSD National Transfer Student Week, San Diego, CA Fall 2020

Graduate Panelist.

- Shared a transfer-to-Ph.D. perspective, advising on imposter syndrome, research exploration, and mentorship.

RESEARCH EXPERIENCE

Salk Institute MCVICKER LABORATORY, San Diego, CA Fall 2020-Present

***Graduate Research,* machine learning, bioinformatics.**

- Developing a deep learning framework to predict the effects of genetic variants on chromatin accessibility.

UCSD Collaboration with SimBioSys, San Diego, CA Summer 2023- Summer 2024

***Industry Graduate Research,* machine learning, bioinformatics.**

- Trained and evaluated a state-of-the-art (SOTA) foundation model (HyenaDNA) using multi species genomes.

UCSD Collaboration with FRAZER LABORATORY, San Diego, CA Spring 2023-Present

***Graduate Research,* machine learning, bioinformatics.**

- Conducting in depth analysis of iPSC ATAC-seq datasets via deep learning framework to uncover rare genetic variants and improve QTL analysis.

UCSD BAFNA LABORATORY, San Diego, CA Summer 2019 & Summer 2020

***Competitive Edge Graduate Research,* genomics, population genetics.**

- Developed a bioinformatics pipeline to compare RAD-seq simulated variants with Genome Skim variants, evaluating genome skims as a potential optimal alternative for next generation sequencing.

***STARS Undergraduate Research*, genomics, oncogenes, convolutional neural networks research.**

- Developed and implemented a web framework for ecSeq, a convolutional neural networks tool that quantifies extra-chromosomal DNA.

CSUSM SETHURAMAN LABORATORY, San Marcos, CA 2019-2020

***Undergraduate Research*, bioinformatics analysis/population genetics.**

- Performed Genome annotation and alignment of *Hippodemia convergens* utilizing the Maker bioinformatic pipeline.

- Developed Lotka-Volterra models for users to calculate effective population values from population census.

CSUSM VOURLITIS LABORATORY, San Marcos, CA 2016 – 2019

***Undergraduate Research,* rates of mass and energy exchange of terrestrial ecosystems.**

- Performed enzyme assays to assess nitrogen deposition impact on soil microbial functions and performed organic chemistry techniques (NMR and LC-MS) and identified 10 secondary plant compounds from *Rhamnus crocea* leaf tissue samples.
- Trained undergraduate students in nitrate and ammonium extraction, soil biomass processing, and data entry/analysis.

UIUC DEWALT LABORATORY, Illinois Urbana-Champaign, IL Summer 2016

***Undergraduate Research,* biodiversity patterns of stoneflies in North America .**

- Conducted aquatic ecological research to determine species abundance, species richness, and taxonomy of aquatic insects.

INDUSTRY EXPERIENCE

Genentech, San Francisco, CA Summer 2021

***gRED Summer Intern,* bioinformatics.**

- Developed a bioinformatics pipeline for outlier detection related to Alzheimer's Disease research.

BIOLOGICAL RESOURCE SERVICES, LLC, Central Valley, CA Summer 2014

Field Biologist/ Conservation Ecologist.

- Collected and analyzed population surveys of Blunt-Nosed Leopard Lizards (*Gambelia sila*), recording environmental data and lizard counts.

PUBLICATIONS

David Laub, Aaron Ho, **Jeff Jaureguy**, Adam Klie, Rany M. Salem, Graham McVicker*, and Hannah Carter*. "GenVarLoader: An Accelerated Dataloader for Applying Deep Learning to Personalized Genomics." bioRxiv, (2025): 2025-01

Timothy D. Arthur*, Jennifer P. Nguyen*, Agnieszka D'Antonio-Chronowska, **Jeff Jaureguy**, Nayara Silva, Benjamin Henson, iPSCORE Consortium, Athanasia D. Panopoulos, Juan Carlos Izpisua Belmonte, Matteo D'Antonio, Graham McVicker, and Kelly A. Frazer. "Multi-omic QTL Mapping in Early Developmental Tissues Reveals Phenotypic and Temporal Complexity of Regulatory Variants Underlying GWAS Loci." *Cell Genomics.* 2025..

Brad Balderson, Sanjana Tule, Will Rieger, **Jeff Jaureguy**, Nathan Palpant, Graham McVicker*, and Mikael Boden*. "DNACipher Predicts Long-Range Genetic Variant Effects in Unobserved Biological Contexts." 2025. (in review at Nature Genetics)

Arya R. Massarat, Arko Sen, **Jeff Jaureguy**, Sélène T. Tyndale, Yi Fu, Galina Erikson, and Graham McVicker. "Discovering Single Nucleotide Variants and Indels from Bulk and Single-Cell ATAC-seq." *Nucleic Acids Research*. 2021.

Vourlits G., **Jeff Jaureguy**, Leticia Marin., Charlton Rodriguez. "Biomass allocation and production in semi-arid shrublands exposed to long-term experimental N input." *Science of the Total Environment*. 2020.

Elinne Becket*, Keneshia O. Johnson*, …, **Jeff Jaureguy** et al. "Draft Genome Sequences of Bacillus glennii V44-8, Bacillus saganii V47-23a, Bacillus sp. Strain V59. 32b, Bacillus sp. Strain MER_TA_151, and Paenibacillus sp. Strain MER_111, Isolated from Cleanrooms Where the Viking and Mars Exploration Rover Spacecraft Were Assembled." *Microbiology Resource Announcements* 9, no. 26. 2020.

CONFERENCE PRESENTATIONS

Jaureguy J, Ho A., Lee K., Laub D., Monroe F., McVicker G. Variant-aware training of machine learning models for predicting the effects of genetic variants on chromatin accessibility. Poster presentation at theNIH NHGRI Trainee Conference. Philadelphia, Pa. 2025.

Jaureguy J, Balderson B, McVicker G. Advancing Prediction of Genetic Variant Effects on Gene Regulation: From Variant-Aware Neural Networks to Cell type-Specific Predictions. Invited seminar at the CSU Bioinformatics Seminar Series, San Diego State University. San Diego, Ca. December 2024.

Jaureguy J, Ho A., Lee K., Laub D., Monroe F., McVicker G. Variant-aware training of machine learning models for predicting the effects of genetic variants on chromatin accessibility. Poster presentation at the American Society of Human Genetics. Denver, Co. November 2024.

Jaureguy J, Ho A., Lee K., Laub D., Monroe F., McVicker G. Predicting the Effects of Genetic Variants on Chromatin Accessibility with a Deep Learning Approach. Poster presentation at the American Society of Human Genetics. Washington, D.C. Nov 2023.

Jaureguy J, Ho A., Lee K., Laub D., Monroe F., McVicker G. Predicting the Effects of Genetic Variants on Chromatin Accessibility with a Deep Learning Approach. Poster presentation at University of California San Diego Bioinformatics Exchange. San Diego, Ca. August 2023.

Jaureguy J, Bafna V. Web Portal for EcSeg: A Deep Learning Platform for Extrachromosomal DNA Quantification, Oral presentation at University of California San Diego STARS Summer Research Conference. University of California San Diego. San Diego, Ca. August 2019.

Jaureguy J, Vourlitis G. Second Year of Spatial variations in N deposition: Differences in NH4+ and NO3- deposition between sites and vegetation types in southern California Chaparral. Poster presentation at Emerging Researchers National Conference. Washington DC. February 2019.

Jaureguy J, Vourlitis G. Differences in Nitrogen Deposition Between Vegetation Types. Poster presentation at SACNAS conference Salt Lake City UT. October 2017.