

# William O'Brien

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## Education

- 2024- **Ph.D. Computer Science**  
UNIVERSITY OF CALIFORNIA, LOS ANGELES  
SAMUELI SCHOOL OF ENGINEERING  
*Advisor:* Eleazar Eskin
- 2019–2023 **B.S. Applied Mathematics**  
COLUMBIA UNIVERSITY  
SCHOOL OF ENGINEERING AND APPLIED SCIENCES

## Research Experience

- 2022–2023 Research Assistant. AZIZI LAB, COLUMBIA UNIVERSITY  
*Advisor:* Elham Azizi. Worked on a Bayesian hierarchical model mapping phenotype to genotype using paired whole genome and scRNA-seq data over multiple time-points of PD-1 therapy.
- 2021 Research Assistant. CARLETON LAB, COLUMBIA UNIVERSITY  
*Advisor:* Adrian Brügger. Developed machine learning applications in materials science, optimizing additive manufacturing processes of metals (laser powder bed fusion) through modeling of experimental data.

## Publications

- [1] \*FAN, J. L., \*ZHANG, M., O'BRIEN, WILLIAM, ..., IZAR, B., AND AZIZI, E. Echidna: A bayesian framework for quantifying gene dosage effect impacting phenotypic plasticity. *bioRxiv* (2024). [\[URL\]](#)

## Presentations

### CONTRIBUTED TALKS

- Apr 2025 Research in Computational Molecular Biology Sequencing Workshop (RECOMB-seq)

### POSTERS

- Sep 2024 Single Cell Genomics

## Software

- 2023 [Echidna](#) – A package for probabilistic analysis of heterogeneous tumor samples, deconvolving bulk whole genome sequencing data paired with scRNA data for cell-level resolution. Probabilistic programming with PYRO. Available for install via [PyPI](#) and [bioconda](#).

## Industry Experience

- 2023–2024 Applied AI ML Analyst. JPMORGAN CHASE. NEW YORK, NY  
Developed models to optimize payment processes and mitigate fraud for clients in the Corporate and Investment Bank.

Summer 2022    Applied AI ML Intern. JPMORGAN CHASE. NEW YORK, NY  
Designed and built a reinforcement learning agent to optimize decision-making in the routing of payments.

## Teaching Experience

2023    Teaching Assistant. COLUMBIA UNIVERSITY  
*Course Title:* Data: Past, Present, Future ([HSAM 2901](#)) with Chris Wiggins & Matt Jones  
*Responsibilities:* Ten hours per week. Recitations, weekly office hours, writing and grading programming assignments.

## Skills

Machine learning, probabilistic programming, convex optimization, deep learning, algorithms, statistical modeling, high performance computing

*Selected tools:* Python, C++, SQL, Unix CLI, Git,  $\text{\LaTeX}$

## Leadership & Reviewing

2023    Reviewer, ICML Workshop on Computational Biology.  
2019–2023    Varsity Athlete. 4 years DI pole vaulter and [T&F team captain](#).

## Mentorship

Spring 2025    Dhruv Saran, B.S. COMPUTER SCIENCE, UCLA  
Spring 2025    Alyssa Halvorsen, B.S. COMPUTER SCIENCE, UCLA