Alex Rojas

4067 Miramar St, La Jolla, CA 92037
(301) 910-6659; alexnrojas5@gmail.com

EDUCATION

University of California, San Diego — La Jolla, CA
Ph.D Student in Data Science — September 2025 – June 2030

Harvard University School of Engineering and Applied Sciences — Cambridge, MA
Master of Science (S.M.) in Applied Mathematics — August 2023 – May 2024
- Concurrent A.B./S.M. program

Harvard College — Cambridge, MA
Bachelor of Arts (A.B.) in Statistics & Mathematics — August 2020 – May 2024
- Magna Cum Laude (3.941 GPA)
- Highest Honors in Field

RESEARCH EXPERIENCES

University of California, San Diego — La Jolla, CA
Graduate Student Researcher — September 2025 – Present
Co-advised by Professors Yian Ma and Rose Yu

Harvard University — Cambridge, MA
Undergraduate Research Assistant, Data-Centric Machine Learning Group — September 2023 – May 2024
Investigating performance dynamics of averaging neural network parameters using the induced structure of the loss landscape in two settings: (1) after permutation weight-space alignment (2) after fine-tuning from a foundation model. Worked under Professor David Alvarez-Melis.
- Area (1) Thesis "Characterizing the Effect of Weight-Averaging on Neural Network Loss Landscapes"
- Area (2) paper accepted as poster presentation at Foundation Models in the Wild Workshop at ICML 2024

Harvard University — Remote and Cambridge, MA
Undergraduate Research Assistant (through NIH STEP-UP) — June 2021 – August 2022
Conducted interpretability research to support reinforcement learning in ICU applications under Professor Finale Doshi-Velez and the Data to Actionable Knowledge Lab.
- Paper at American Medical Informatics Association Symposium Proceedings 2024

PROFESSIONAL EXPERIENCES

Belvedere Trading, LLC — Chicago, IL
Junior Quant Trader Analyst — September 2024 – September 2025
Quantitative trader specializing in Futures and ETF options market making of Gold, Silver and Copper.

Junior Quant Trader Analyst Intern — June 2023 – August 2023
Supported options trading on grains desk by contributing to daily reports and monitoring positions. Designed trade-processing order book and conducted signal research for hedging strategies.

Venzyme Venture Catalyst, LLC — Remote and Cambridge, MA
Algorithm Development and Statistics Consultant Intern — March 2022 – December 2022
Enhanced and validated Bayesian network methods for diagnostic decision support platform as a consultant to SimulConsult Inc.; direct report to Chief Financial and Strategist Officer.

TEACHING EXPERIENCES

Harvard University Cambridge, MA
Teaching Fellow for COMPSCI 181 December 2022 - May 2023
Led weekly discussion sections, held individual and group office hours, updated course assignments and materials, and graded assignments for COMPSCI 181: Machine Learning, taught by Dr. Weiwei Pan.

PUBLICATIONS

1. E. Brown, S. Raval,. **A. Rojas**, J. Yao, S. Parbhoo, L. A. Celi, S. Swaroop, W. Pan, F. Doshi-Velez "Where do doctors disagree? Characterizing Decision Points for Safe Reinforcement Learning in Choosing Vasopressor Treatment",
American Medical Informatics Association 2024 Annual Symposium Proceedings

WORKSHOP PUBLICATIONS

1. **Alex Rojas** and David Alvarez-Melis, "Understanding the Role of Functional Diversity in Weight-Ensembling with Ingredient Selection and Multidimensional Scaling",
Workshop on Foundation Models in the Wild ICML 2024.

THESES

1. **Alex Rojas** "Characterizing the Effect of Weight-Averaging on Neural Network Loss Landscapes",
Harvard University. Department of Statistics & Department of Mathematics Senior Thesis (2024).
Supervised by Professor David Alvarez-Melis

PREPRINTS

1. M. Hedman, **A. Rojas**, A. Arora, D. Ola, "Developing and comparing machine learning models to detect sleep apnoea using single-lead electrocardiogram (ECG) monitoring",
medRxiv 2021

AWARDS AND FUNDING

1. **Magna Cum Laude,** Harvard College (2024); based on GPA
2. **Highest Honors,** Department of Statistics, Harvard University (2024); based on thesis, GPA, coursework
3. **John Harvard Scholar,** Harvard College (2022); based on GPA
4. **NIH/NIDDK STEP-UP** (2019, 2020, 2021); research grant for underrepresented minorities in STEM

SKILLS

1. **Python**; PyTorch, Tensorflow, Pandas, NumPy, SciPy, Scikit
2. **Cluster**: SLURM, PyTorch DDP
3. **Languages**: English, Spanish.

ACTIVITIES AND INTERESTS

1. Harvard Men's Club Soccer
2. Running and Swimming
3. Guitar