

JOSHUA RICHLAND

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EDUCATION

Stanford University | *Department of Statistics*
Master of Science in Statistics

Class of 2026
GPA: **3.94**

Relevant Courses: Applied Statistics I and II (PhD), Theoretical Statistics (PhD), Probability Theory (PhD), Applied Bayesian Statistics (PhD), Convex Optimization I and II (PhD), Stochastic Processes, Machine Learning, Experimental Design (PhD)

University of California, Berkeley | *College of Computing, Data Science, and Society*
Bachelor of Arts in Data Science (High Distinction); Statistics Minor
Emphasis: Applied Mathematics and Modeling

Class of 2024
GPA: **3.97**

RESEARCH EXPERIENCE

Stanford University, Department of Statistics

Stanford, CA

Graduate Research Assistant; Mentor: Prof. Robert Tibshirani

April 2025 – Present

- Engineering the uniLasso algorithm in Python to efficiently solve high-dimensional regression problems with fast, scalable fitting, yielding sparser and more interpretable models than standard Lasso
- Developing an extension of uniLasso that leverages external summary statistics to improve predictive performance
- Applying the Lasso and uniLasso frameworks to high-dimensional genomics data to construct polygenic risk scores (PRS) that predict disease susceptibility
- Assembling a new Python package featuring Lasso and uniLasso for PRS, with open-source documentation and end-to-end support for regression workflows

Graduate Research Assistant; Mentor: Prof. Trevor Hastie

July 2025 – Present

- Maintaining the Adelie Python library through bug fixes, GitHub-reported issues, and performance improvements
- Building visualization tools for cross-validation that plot regularization paths, validation scores, and active set sizes

Stanford University, Departments of Electrical Engineering and Statistics

Stanford, CA

Graduate Research Project; Advisor: Prof. Mert Pilanci

March 2025 – Present

- Adapting Prediction-Powered Inference (PPI), a semi supervised learning algorithm, to non-convex objectives reducing RMSE by over 25% and improving estimation accuracy
- Developing and benchmarking scalable solvers by leveraging first-order and splitting techniques (i.e. stochastic gradient descent and alternating direction method of multipliers) to fit non-convex estimators
- Designing simulation studies across diverse loss function landscapes to validate and extend PPI's performance gains

University of California, Berkeley, Department of Statistics

Berkeley, CA

Undergraduate Researcher; Mentor: Prof. Alexander Strang

January 2024 – March 2025

- Studied the regularity and smoothness of Gaussian processes via spectral representation
- Performed in-depth analysis of correlation coefficients associated with self-organizations in random networks
- Derived closed form and asymptotic expressions for correlation coefficient under multiple kernel families
- Co-authored a manuscript documenting the analysis published in *Results in Applied Mathematics*

Einstein Institute of Mathematics, Hebrew University of Jerusalem

Jerusalem, IS

Visiting Research Fellow in Mathematics; Mentor: Prof. Yuval Peled

June 2024 – August 2024

- Designed and applied an Erdős–Rényi $G(n, p)$ random-graph resampling framework to evaluate the stability of key subgraph structures (giant component, k-core) under edge perturbations
- Established new probabilistic results linking a modified Galton–Watson processes to noise inflicted random graphs
- Developed Python-based simulations to validate theoretical results and confirm stability metrics

Berkeley Seismological Laboratory

Berkeley, CA

Data Science Researcher in Seismology; Mentor: Taka'aki Taira, Ph.D.

August 2022 – December 2022

- Selected to Data Science Discovery Program to identify probabilities of observing certain magnitude earthquakes
- Simulated earthquake ground motion using high performance computing (HPC) on the Calaveras-Hayward Fault
- Automated the process of extracting earthquake duration and amplitude from seismographs for predictive analysis

PUBLICATIONS

- Richland J, Kiiskinen T, Wang W, Lu S, Narasimhan B, Hastie T, Rivas M, Tibshirani R. (Nov 2025). Univariate-Guided Sparse Regression for Biobank-Scale High-Dimensional Omics Data. <https://arxiv.org/pdf/2511.22049>
- Richland J, Strang A. (May 2025). Shared-endpoint correlations and hierarchy in random flows on graphs. *Results in Applied Mathematics*, 26, 100549. <https://doi.org/10.1016/j.rinam.2025.100549>

LECTURES AND POSTER PRESENTATIONS

- Richland J, et al., "Convex-Optimization in Prediction-Powered Inference." Poster presentation at Stanford Convex Optimization II (EE 364b) Final Poster Session (June 2025)
- Richland J, et al., "A Galton Watson Approach to Noise in Random Graphs." Final seminar presenting research results to the mathematics department at the Einstein Institute of Mathematics at the Hebrew University (August 2024)
- Richland J, et al., "Earthquake Ground-Motion Simulations on the Calaveras-Hayward Fault System." Award winning poster presentation at UC Berkeley Data Science Discovery Program Symposium (December 2022)

TEACHING EXPERIENCE

- Stanford University Department of Management Science and Engineering Stanford, CA
Introduction to Probability Theory (MS&E 120); Instructor: Prof. Ellen Vitercik Fall 2024
- UC Berkeley College of Computing, Data Science, and Society Berkeley, CA
Probability Theory for Data Science (Data C140); Instructor: Prof. Ani Adhikari Fall 2022 – Spring 2024

HONORS AND ACKNOWLEDGEMENTS

- Acknowledged contributor to Chatterjee S, Hastie T, and Tibshirani R. (July 2025). Univariate-Guided Sparse Regression. *Harvard Data Science Review*, 7(3). <https://doi.org/10.1162/99608f92.c79ff6db>
- UC Berkeley Outstanding Data Science Undergraduate 2023-24 – Awarded to 4% of students for distinguished work
- High Distinction in General Scholarship – Awarded to UC Berkeley graduates within the top 7% GPA (Spring 2024)
- Cloud Computing/HPC Award – Recognized for best use of HPC in simulating earthquake ground-motion (Fall 2022)
- Dean's Honors List – *UC Berkeley College of Letters & Science* (Fall 2020, Spring 2021, Fall 2021)

PROFESSIONAL EXPERIENCE

- Golden State Warriors San Francisco, CA
Business Analytics and Strategy Coordinator June 2022 – December 2023
- Conducted OLS and random forest modeling to produce NBA game tier pricing of the 2022–23 season schedule
 - Leveraged season-ticket data to build predictive models of game attendance, guiding targeted retention campaigns
 - Automated SQL-based pipelines to clean and disaggregate third-party ticketing data at the transaction and seat levels
 - Integrated primary and secondary market feeds to deliver real-time visibility into seat ownership, powering live communications and personalized fan engagement strategies
- CVS Health Hartford, CT / Remote
Data Science and Analytics Intern May 2023 – August 2023
- Integrated travel-time API into recommendation algorithm to offer members optimized locations for healthcare
 - Developed code to cluster customer medical provider sites and incorporate centroids into future proposals
 - Performed geospatial analysis in Python to study health insurance members' responses to personalized suggestions

LEADERSHIP AND ACTIVITIES

- Sports Analytics Group at UC Berkeley Berkeley, CA
Vice President of Data Journalism August 2020 – May 2024
- Led workshops on article structure, research techniques, and content production as head of new member education
 - Spearheaded informational sessions specifically catered to underrepresented applicants during recruitment cycles
 - Researched, published, and edited data-driven articles on club website (i.e., does NBA contract size affect play)
- MIT Sloan Sports Analytics Conference April 2021
- Constructed a machine learning pitch type classifier using k-nearest neighbors in hackathon presented by MLB

SKILLS AND INTERESTS

Software: Python (NumPy, pandas, scikit-learn, PyTorch), R, SQL, Tableau, Microsoft Office, Experience in Java

Languages: Conversational Spanish (written and verbal), Conversational Hebrew (written and verbal)

Interests: Classical Pianist, Black Belt (Tang Soo Do), Word Games, Puzzles, Fitness, Reading, Cooking, Gardening