

Kai Barker

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EDUCATION

University of California, Santa Barbara

B.S. in Statistics and Data Science

Expected Graduation: June 2026

Major GPA: 3.88 | Cumulative GPA: 3.79

Relevant Coursework

Machine Learning, Time Series, Regression Analysis, Stochastic Processes, Computational Science, Differential Equations, Technology Management, Probability and Statistics, Problem Solving with Computer Science

WORK EXPERIENCE

Blockchain and Property Rights Research

Research Assistant (UCSB)

September 2024- Present

Santa Barbara, CA

- Examined inequality in cryptocurrency markets while gaining a detailed understanding of blockchain technology
- Analyzed over 100 million Ethereum wallets using Python, handling large data sets to generate meaningful insights
- Developed and refined data analysis methods to enhance project outcomes and highlight wealth distribution trends

Tillys (Management)

Assistant Store Manager

July 2024- August 2025

Santa Barbara, CA

- Generated over \$50,000 in personal sales through customer service skills and extensive product knowledge
- Managed the sales floor, monitoring employees and customers to meet sales goals and enhance store performance
- Assessed team strengths and areas for improvement to optimize efficiency and elevate customer experience

Ideathon 2.0 – Liner

Consultant

November 2024- November 2024

Santa Barbara, CA

- Diagnosed key pain points through targeted customer surveys and in-depth product analysis
- Proposed growth solutions that deliver a clear competitive edge, compiled into a data-backed pitch deck
- Created a roadmap and Go-to-Market strategy for implementing proposed features, ensuring seamless integration

PROJECTS & ACTIVITIES

NeurIPS Ariel Data Challenge

Project

July 2024- September 2025

Santa Barbara, CA

- Developed ensemble machine learning models (XGBoost + Gaussian Process Regression) to predict exoplanet atmospheric compositions from 200+ GB of noisy spectral telescope data for ESA's Ariel mission
- Preprocessed and analyzed 14,000 messy image files across 1,100+ exoplanets, implementing advanced signal processing and noise reduction techniques for space-based observations
- Achieved Gaussian Log-Likelihood score of 0.204 predicting atmospheric signals and their uncertainties across 283 wavelength channels

Statistical Modelling for NBA Player Performance

Project

July 2024-November 2024

Santa Barbara, CA

- Developed statistical forecasting model to predict NBA player rebound performance using historical game data and contextual features
- Collected and processed real-time season data using NBA API to engineer features based on performance trends
- Implemented Random Forest Regressor with hyperparameter optimization, achieving 75% accuracy against sportsbook over/under predictions through cross-validation

SKILLS, INTERESTS & HONORS

Technical Skills: Python, R, SQL, JavaScript, Java, C++, Gaussian Process Regression, XGBoost, Markov Chain Monte Carlo, Feature Engineering, Statistical Modelling, Data Pipeline Development, HTML, CSS, Typescript, Microsoft Excel, Git, API Integration, Canva, Microsoft Office Suite, Pandas, NumPy, Matplotlib, Scikit-learn

Honors: High School Valedictorian, Seal of Biliteracy (Spanish), UCSB Dean's List for Academic Excellence