Bryan Ramirez-Gonzalez

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EDUCATION

The University of Southern California **Los Angeles, CA**
Bachelors of Science in Computer Science, Merit Scholar, Honors Engineering Expected May 2028

- Relevant Coursework: Computer Science Fundamentals (C++), Calculus, Python Programming, C++ Object Oriented Programing, Elementary Statistics, Principles of Macroeconomics, Discrete Mathematics in Computer Science

EXPERIENCE

Jane Street Capital **New York, NY**
Undergraduate Fellow May 2025

- Chosen as 1 of 14 students for a funded 5-day program at Jane Street's NYC office via FOCUS Fellowship

HUMANS LAB, The University of Southern California Information Sciences Institute - *bryanram.com/research.pdf* **Los Angeles, CA**
Undergraduate Research Intern *August 2024 - Present*

- Analyzed a dataset of 40,000+ TikTok videos to study correlations between TikTok content and eating disorders.
- Utilized NLP techniques, including Latent Dirichlet Allocation and sentiment analysis with Python's NLTK library, on 200,000+ comments
- Performed sentiment analysis on more than 100,000 video descriptions and comments using TextBlob and VADER, classifying emotional tone and combining results with Word2Vec embeddings, boosting insights into eating disorder portrayal with an accuracy improvement of 15%.
- Performed correlation analysis and identified key trends across 50+ engagement metrics (likes, shares, comments), revealing top impactful posts and hashtag usage patterns (e.g., #EDAwareness), using Seaborn and Matplotlib for data visualization.

Melady Lab, The University of Southern California **Los Angeles, CA**
Summer Undergraduate Research Intern July 2024 - August 2024

- Enhanced OpenAI's CLIP Model by improving its ability to detect multimodal misinformation in over 80,000 text-image pairs, focusing on subtle inconsistencies between true text and manipulated images through advanced Multimodal Machine Learning techniques in PyTorch
- Developed a comprehensive, realistic dataset of synthetic misinformation by pairing related but incorrect images with true text, providing over 80,000 challenging examples to improve the model's training, making it more robust against deceptive content compared to random mismatches
- Demonstrated the model's ability to generalize to real-world misinformation scenarios involving sophisticated false image-text relationships, achieving significant improvements in detection capabilities

Jane Street Capital **New York, NY**
Undergraduate Fellow July 2024

- Chosen as 1 of 37 students for a funded 5-day program at Jane Street's NYC office through Unboxed Fellowship
- Participated in trading activities and led a team in the Estimathon, solving quantitative challenges under competitive conditions

Activity / Extracurricular - 3x Hackathon Winner

- **Hackathons:** Harvard's HackHarvard (Winner), CalTech's HackTech (Winner), AstroHacks (Winner), UC Berkeley's AI Hackathon, UPenn's PennApps, Yale's YHacks, Princeton's HackPrinceton, Stanford's TreeHacks **Other Competitions:** Jane Street's Estimathon, YHack's Estimathon, MIT's iQuHack
- **Student Organizations:** Google Trusted Tester, Poker Club, ColorStack, SHPE, ALPFA
- **Other:** Two Sigma 2025 New Seekers Summit, Susquehanna Discovery Day for First Year Students, AWS AI & ML AI Programming with Python Nanodegree, Break Through Tech AI Program, CodePath Technical Interview Prep, Data Structures Course

PROJECTS

Lambda Rim *(Full-Stack Statistical & ML Hub for NBA Fantasy Betting - https://github.com/bryanrg22/lambda-rim / lambdarim.com)*
Sole-Developer February 2025 - Present

- Engineered a full-stack platform leveraging Poisson, Monte Carlo (100K simulations), and GARCH Volatility models to predict NBA player performance on Fantasy Sports Betting Platforms, achieving 78%+ win rate and growing initial bankroll 29,900% ($10 → $3,000).
- Developed an automated OCR-to-prediction pipeline: parsed screenshot data, utilized NBA API, and built probabilistic forecasts supplemented alongside ML-derived probability estimates and ChatGPT-driven rationales, reducing manual analysis time from 15 minutes to under 5 seconds.
- Integrated an ensemble ML system (Logistic Regression, LightGBM, CatBoost) with stacking and calibration, providing probability-calibrated predictions and confidence scores to increase accuracy beyond traditional statistical models.
- Implemented a hybrid architecture with React + Vite Front-End, Flask API in Docker, deployed via Google Cloud Run and Firebase Hosting, ensuring <200ms latency for real-time bet analysis and account syncing for multiple users.
- Optimized user experience with dynamic dashboards for performance trends and personalized pick recommendations, supporting CI/CD with GitHub Actions and automated background jobs through Firebase Cloud Functions.
- Designed and deployed scalable infrastructure and incorporated multi-factor authentication (Google, Microsoft, Firebase) for secure user onboarding.

Swift *(Winning Project At CalTech's HackTech Hackathon - https://github.com/bryanrg22/CalTech-Hacks)*
Lead Developer April 2025

- Reduced procurement cycle time by shipping "Hugo", a LangChain agent routing queries through GPT-3.5-turbo (tool selection) and o4-mini (multi-step reasoning) to predict inventory gaps and auto-push Slack PO recommendations.
- Designed and implemented a React + TailwindCSS dashboard (Recharts + MapLibre GL) live-streaming stock-out risks, supplier reliability, and shipment paths.
- Built a Flask backend, frontend, and configured Firebase database to streamline end-to-end data ingestion from ERP systems, CAD files, and user uploads.
- Flown to Dryft's San Francisco offices for on-site collaboration and mentorship from their software engineering team, to continue developing the project.

SKILLS

Programming Languages: Python, Java, C/C++, Lua, SQLite, JavaScript, HTML, CSS
Frameworks and Tools: React · Next.js · Vite · Tailwind CSS · Flask · Docker · Firebase (Auth, Firestore, Hosting, Cloud Functions) · Google Cloud Run · Git/GitHub · GitHub Actions (CI/CD) · REST APIs · PyTorch · TensorFlow · scikit-learn · LightGBM · CatBoost · NumPy · Pandas · Matplotlib · NetworkX · Tesseract OCR · arch (GARCH modeling) · Terraform