Bryan Ramirez-Gonzalez

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EDUCATION

The University of Southern California **Los Angeles, CA**
Bachelor of Science in Computer Science, Merit Scholar, Honors Engineering Research Track
- Relevant Coursework: Data Structures, Algorithms, Object-Oriented Programming, Embedded Systems, Discrete Mathematics, Linear Algebra

SKILLS

Programming Languages: C, C++, Python, Java, JavaScript/TypeScript, SQL, OCaml
Frameworks/Tools: PyTorch, OpenCV, NumPy, Pandas, Flask, FastAPI, REST APIs, Matplotlib, React + Vite, Tailwind CSS, Firebase (Auth, Firestore, Hosting, Cloud Functions), Google Cloud Run, Docker, Git & GitHub, GitHub Actions (CI/CD), AWS, Linux

EXPERIENCE

Jane Street **New York, NY**
Undergraduate Fellow (Unboxed 2024; FOCUS 2025) Jul 2024; May 2025
- Selected 1 of 37 (UNBOXED ’24) and 1 of 14 (FOCUS ’25); Wrote over 150+ lines of SQL for data analysis and awarded a $2,000 scholarship
- Completed 30+ hours of coursework in statistics, market-making activities, and computer programming, achieving 15% return improvement in fast-paced market simulation games under mentorship of researchers and software engineers

USC Information Sciences Institute (ISI) — HUMANS Lab (*github.com/bryanrg22/electionBetsImpact*) **Los Angeles, CA**
Undergraduate Research Intern — Kalshi Prediction Markets & Causal Inference (2024 US Presidential Election-Bets Impact) May 2025 - Present
- Built a cross-platform data pipeline to study how Kalshi’s 2024 presidential market relates to online discourse—ingesting X/Twitter posts (Playwright, XScraper) and Kalshi order-book history via API, standardizing datasets with Python/Pandas/NumPy for time-series analysis.
- Modeled market–messaging dynamics by time-aligning Kalshi price shocks with partisan posts, using Granger-causality and DiD tests.

USC Information Sciences Institute (ISI) — HUMANS Lab **Los Angeles, CA**
Undergraduate Research Intern — LLM-assisted AI for TikTok Eating-Disorder Dataset (EDTok) [arxiv] August 2024 - May 2025
- Published EDTok, an ethics-compliant, multimodal (video + text) TikTok dataset of 43,040 videos and 577,071 comments (2019–2024), by building an ingestion/curation pipeline using the TikTok Research API with PykTok.
- Raised dataset precision by 24% using a two-stage filter—weak-supervision rules + LLM-assisted zero-shot relevance classification (Google Gemini) with prompt engineering validated via manual review samples (~99% on 200 videos ; 100% Eating Disorder-related on 300 videos).
- Surfaced platform-scale insights on dataset (537M views, 79.9M likes, 962k shares across 10.9k users) via longitudinal analysis, BERTopic topic modeling, and multi-label emotion classification, linking themes to affect (e.g., recovery to optimism/joy; body-image to fear/sadness).

University of Southern California — Melady Lab **Los Angeles, CA**
Undergraduate Research Intern — Interpretable AI for Image–Text Misinformation Detection July 2024 - August 2024
- Improved out-of-context image–text detection to 68% accuracy (AUC ≈ 0.73) on NewsCLIPpings by adding a learned query ranker over pre-trained Vision-Language Models (CLIP, BLIP-2) with CLIP-retrieved hard-negatives to create challenging pairs using PyTorch.
- Trained a lightweight 4-class evidence ranker that fuses image, caption, and query embeddings (CLIP/BLIP-2) to score evidence supportiveness.
- Outperformed transfer-learning baselines (fine-tuned CLIP) using a feature-based approach: frozen CLIP/BLIP-2 encoders with zero-shot checks feeding a learned query ranker, improving accuracy by 5.6% (62.6% to 68.2%) and AUC by 0.058 (0.672 to 0.730) on NewsCLIPpings.

ACTIVITY / EXTRACURRICULAR - 3x Hackathon Winner

- **Awards:** 2025 Caltech HackTech Winner, 2024 HackHarvard Winner, 2024 AstroHacks Winner, 2024 FTC Robotics Regional Semifinalist
- **Selective Programs & Campus:** 2025 D. E. Shaw Connect Fellowship, 2025 Two Sigma New Seekers Summit, 2025 Susquehanna (SIG) Discovery Day for First Year Students

PUBLICATIONS - [Google Scholar]

- C. Bickham, ***B. Ramirez-Gonzalez***, M.D. Chu, K. Lerman, E. Ferrara. *EDTok: A Dataset for Eating Disorder Content on TikTok*, **ICWSM 2025**

PROJECTS

Lambda Rim *(Full-Stack Statistical & ML Hub for NBA Fantasy Sports Betting - github.com/bryanrg22/lambda-rim / lambdarim.com)*
Founder & Sole Developer January 2025 - Present
- Engineered a full-stack forecasting platform (Poisson, Monte Carlo, GARCH) for NBA sports betting picks, achieving a 78%+ win rate and profit growth from $10 to $3,000 in documented runs shipped via React with a Flask API in Docker on Cloud Run with GitHub Actions CI/CD.
- Cut analysis time from 15 min to seconds by building an automated OCR to prediction pipeline (OpenCV + Tesseract, NBA API, Web-Scraped Injury Reports) with ML-derived probabilities and OpenAI ChatGPT rationales using requests + pdfplumber, nba_api, pandas + NumPy.
- Designed a read-optimized Firestore Database schema (Active, History, Users) and a Cloud Scheduler to Cloud Functions + Google Cloud Run settlement pipeline that auto-archives results, reducing redundant reads and improving page latency.

Swerve *(Winning Full-Stack Project At Caltech’s 2025 HackTech Hackathon - github.com/bryanrg22/CalTech-Hacks)*
Lead Developer April 2025
- Reduced procurement cycle time with “Hugo”, a LangChain agent routing queries through GPT-3.5-turbo (tool selection) and o4-mini (multi-step reasoning) to predict inventory gaps, shipped via React + Tailwind CSS
- Implemented Python/Flask APIs using CRUD to ingest CSVs, CAD files, and user uploads into a structured Firestore (orders, parts, inventory, sales, supply) and wired Slack API to surface low-stock recommendations; Invited by Dryft to SF Neo offices for post-hackathon collaboration.