

Jack Lutz

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EDUCATION

University of California, Los Angeles

09/2023 - 06/2027 (Expected)

Bachelor of Science, Statistics and Data Science; Minor in Mathematics

Los Angeles, CA

- GPA: 3.5
- Relevant Coursework: Probability Theory; Mathematical Statistics; Machine Learning; Optimization; Abstract Linear Algebra; Experimental Design; Data Structures and Algorithms

EXPERIENCE

New York Life Insurance Company

06/2025 - 09/2025, 40 hrs/wk

Data Analyst Intern

New York, NY

- Designed, developed, and deployed a retrieval-augmented (RAG) underwriting assistant over 5,000+ tokenized policy documents (LangChain, FAISS, cloud-hosted LLM); shipped to production 08/2025 and still in use.
- Finalist in company-wide AI Innovation Competition: RAG-enabled analytics plugin querying 10+ years of nationwide policy data at office-level granularity.

Lutz Consulting Group

11/2024 - Present, 20-40 hrs/wk

Data Science Consultant

Las Vegas, NV

- Founded a technical practice to design, develop, and deploy AI and ML tools for small-business clients.
- Engineered a Gradient Boosting demand forecaster on 138 months of retail data (11.5% MAPE on a 24-month holdout, 58% better than baseline); surfaced \$550K+ in dead stock for liquidation.
- Deployed a GPT-4 Vision pipeline on AWS S3 classifying 30,000+ untagged inventory items; non-technical staff cut inventory reconciliation from months to one week through a Streamlit review dashboard.

UCLA Department of Mathematics

1/2026 - Present, 10-20 hrs/wk

Research Assistant

Los Angeles, CA

- Developing and testing machine-learning trading models (Mixture of Experts with Hidden Markov Model gating and XGBoost timing) under Dr. Mihai Cucuringu.
- Built an end-to-end research pipeline: data ingestion, pair selection, signal generation, and walk-forward validation with rolling recalibration.

PROJECTS

AI-Native Trading and Backtesting Platform | Python, C++, TypeScript, FastAPI, AWS

06/2025 - Present

- Built the backend for a multi tenant AI trading and backtesting platform serving 50+ users, with APIs and TypeScript/Python SDKs for strategy research, broker connections, backtesting, and automated execution.
- Architected sub-second algorithmic trade execution across multiple brokerages, prediction markets, and crypto venues, executing hundreds of trades per day in production.
- Designed security controls for running AI- and user-generated code on the platform: sandboxed, isolated execution for the strategy backtester and AI agents so untrusted code cannot reach production systems.
- Implemented authentication and role-based access control with multiple tiers of scoped per-user permissions for strategy execution, broker access, SDK access, and research workflows.

Dining Recommendation Backend | Go, Python, FastAPI, OR-Tools, PyTorch

09/2025 - Present

- Led a 4-person backend team building an app that recommends meals from a student's live dining-hall menus, matched to their fitness goals, dietary restrictions, and food preferences; coordinated web-scraping, database, constraint-solver API, LLM integration, and cloud hosting (weekly standups, sprint planning), deployed to a 20+ user closed beta.
- Eliminated recommendations for unavailable items (LLM menu hallucination) by routing item selection through a CP-SAT optimizer over each hall's live daily menu; rate dropped from ~20% to <1%.
- LoRA-fine-tuned and cloud-hosted Qwen2-VL-7B for in-app photo calorie estimation at roughly 40x lower inference cost than GPT-4 Vision.

TECHNICAL SKILLS

Languages: Python, TypeScript, Go, C++, SQL, JavaScript, R, C

Backend/Infra: FastAPI, REST APIs, API clients/SDKs, PostgreSQL, Redis, auth/RBAC, Docker, Linux, AWS, Vercel

AI/ML: RAG, FAISS, LangChain, OpenAI API, Hugging Face, PyTorch, scikit-learn, XGBoost, OR-Tools, feature engineering

Activities: Eagle Scout, Bruin AI Research Club (President), Lambda Chi Alpha (Executive at Large), ACM ICPC, Putnam Exam, UCLA MSF Research Group, Bruins in Business