William Pham

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EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY   Graduating: December 2025

B.S. in Industrial Engineering and Operations Research (IEOR), Minor in Data Science

M.S. in IEOR Candidate, Graduating May 2027

Relevant Coursework: Stochastic Modeling, Decision Theory, Econometrics, Probability, Advanced Machine Learning, Engineering Statistics

RESEARCH & PROJECTS

Mean Reversion Intraday Trading Algorithm

- Designed a Python-based trading algorithm for mean-reversion across BTC and large-cap equities using 15+ years of OHLCV data
- Engineered 24+ alpha signals including RSI divergence, Bollinger bandwidth compression, MACD crossovers, etc.
- Combined XGBoost, RNNs, and DQNs for signal generation; backtested over 15+ years of data with 72% accuracy
- Applied Kelly criterion and drawdown limits for risk; modeled slippage and transaction costs for realistic PnL

Reinforcement Learning Lab Research Assistant (Smart Hospitals)

- Contributed to development of a Discrete Event Simulation engine and applied PPO models to optimize hospital resource allocation
- Conducted literature reviews on state-of-the-art RL approaches in healthcare and re-implemented models using PyTorch and NumPy
- Evaluated policy performance through reward functions tracking operational efficiency, patient throughput, and resource utilization

Semi-Supervised ML Research – Positive-Unlabeled Learning

- Supported development of binary classification models using minimum cut/max-flow graph algorithms for semi-supervised learning
- Analyzed methods from recent literature on Positive-Unlabeled (PU) learning, focusing on risk estimators and class prior inference

Using Simulation to Model the Optimal Martingale Betting Strategy in Roulette

- Built a Monte Carlo simulation engine to evaluate the Martingale betting strategy under varying bankrolls and payout conditions
- Performed over 500 million stochastic simulations to derive bet sizing thresholds for achieving X% probability of profit, and analyzed tail-risk behavior across parameter sweeps

PROFESSIONAL EXPERIENCE

Capital One   McLean, VA
Business Analytics Intern   May 2025 - Present
- Engineered fraud detection improvements applying ML on 180B-row datasets, reducing FPR by 50% and increasing recall by 20%
- Built end-to-end analytics pipeline with SQL and XGBoost/SVM models, saving thousands of manual review hours
- Delivered models directly integrated into fraud prevention systems, generating operational efficiency gains of $180k+ saved/year

Comtech Telecommunications Corp.   Santa Clara, CA
Machine Learning Intern   May 2024 - May 2025
- Built end-to-end ML pipeline using PyTorch to detect manufacturing defects from sensor data, reaching 91% classification accuracy
- Automated telemetry data logging and cycle-time tracking via creation of a desktop app using SQL and Python
- Developed interactive tool for RF engineers to apply and visualize dynamic signal filters, reducing data preprocessing time by 80%

Automatic Data Processing (ADP)   Berkeley, CA
Consulting Product Manager   June 2024 – December 2024
- Spearheaded a user research initiative for BrightJump by ADP focused on enhancing career transition and planning tools for Gen Z
- Analyzed quantitative/qualitative data to identify market trends/gaps to lead the development of a detailed recommendations report

Qualcomm   Berkeley, CA
Market Research Analyst   September 2023 – May 2024
- Conducted quantitative analysis on 15+ major players in IoT and edge computing using SWOT matrices and financial KPIs
- Modeled potential revenue impact across indirect channels using regression-based forecasting and scenario analysis

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Skills: Probability Theory, Stochastic Processes, Game Theory, Python(PyTorch, scikit-learn, pandas, numpy, matplotlib, cvxpy), SQL
Interests: Financial Markets, Game Theory, Poker, Cryptocurrency, Fintech, Game Theory, Transportation Networks