# EMIL BLAIGNAN

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## EDUCATION

**University of California, Los Angeles (UCLA)** — **Los Angeles, CA**
*Mathematics/Economics B.S. with Specialization in Computing* — *Expected June 2026*

- **GPA:** 3.8/4.0 | Dean's List x3, Salutatorian, 17 APs, AP Scholar with Distinction x3
- **Relevant Coursework:** Calculus II/III, Differential Equations, Stochastic Processes, Linear Algebra, Probability/Statistics, Discrete, Python, C++, Monte Carlo, Micro/Macroeconomic Theory, Econometrics, Accounting

## PROFESSIONAL EXPERIENCE

**UCLA Design Media Arts (DMA)** — **Los Angeles, CA**
*Printlab Consultant* — *November 2022 – Present*

- Led workshops, training, and equipment setup, enhancing operational efficiency and productivity by **80%**
- Streamlined workflows by deploying **Adobe Creative Suite** via the cloud, improving operational efficiency by **20%**

**Top Shelf Comics & Books** — **Los Angeles, CA**
*Personal Online Business* — *September 2021 – Present*

- Developed a web scraper and algorithm to identify mispricings on used books for **5-20x arbitrage** opportunities
- Boosted sales by **80%** through **SEO-optimized listings** and data-driven platform strategies for competitive pricing
- Created a database of **800+** out-of-print titles and associated authors, increasing web scraper efficiency by **80%**

**California Financial Partners** — **Glendale, CA**
*Wealth Management Intern* — *July 2024 – September 2024*

- Analyzed large- & small-cap stocks using **CAPM** and **Sharpe** Ratio, projecting a **4%** increase in annual portfolio return
- Identified small-cap outperformance driven by declining interest rates, optimizing client portfolio allocation by **30%**
- Delivered executive-level presentations on sector-specific ad-hoc small-cap research, influencing **0.72M** in **AUM reallocation** and reducing client portfolio risk exposure by **14%**

## RESEARCH

**Non-Linear Factor Dynamic Regime-Aware Yield Curve Forecasting (Working)** — **Los Angeles, CA**
*University of California, Los Angeles (UCLA)* — *January 2025 – Present*

- Proposing a GBM-regime-aware hybrid model for **10x** more efficient forecasts via **10,000+ Monte Carlo simulations**
- Implementing 2 exogenous variables, leading to **4-10x** improvement in identifying increased stochastic jump probability
- Applying non-linear factor dynamics to the **DNS mode**l for CPI-based mean-reversion targets, lowering **RMSE** by 1**5%**

## PROJECTS

**Quantitative Asset Management Dashboard** — *December 2024 – Present*

- Engineering an asset management dashboard using **Dash** that optimizes portfolio **Sharpe** ratios by **30%** with **MPT**
- Implementing Monte Carlo simulations (10,000+ paths) and **VaR analysis**, reducing tail risk exposure by **22%**
- Building a full-stack financial application processing **1000+ assets** with sub-second query response times

**Option Strategy EV Calculator** — *March 2025 – Present*

- Building options EV engine processing **200+ option chains**, leveraging the **Heston mode**l to boost IV accuracy by **35%**
- Developing **Bayesian** risk analytics, visualizing **25+** metrics across 12 strategies, and optimizing confidence intervals
- Implementing calibrated IV surface plot for **10+** strategies, accelerating backtesting by **40% at 99.5%** significance

**YieldCurveForecaster** — *January 2025 – March 2025*

- Built a **Dash/Plotly** 3D yield curve dashboard analyzing **20 years of Treasury data** to forecast yields at 8 maturities
- Implemented 4 backtested models, reducing forecast error by **85% with 90%+ 12-month directional accuracy**
- Developed inversion analytics with **95% regime accuracy**, enabling macro-strategy backtesting across **5+ regimes**

## TECHNICAL SKILLS

- **Languages:** Python, R, C++
- **Frameworks:** NumPy, Pandas, Matplotlib/Seaborn/Plotly, SQL/DuckDB/Polars, Scrapy, PyTorch, TensorFlow
- **Technologies:** Jupyter Lab, VS Code, QuantConnect, Excel
- **Concepts/Interests:** Financial mathematics (fixed-income breadth), modeling, data science, and machine learning
- **Other Activities:** Bruin Reserve Bank and ThaiSA