Alexander Popat

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EDUCATION

The University of Chicago **Chicago, IL**

Master of Science in Financial Mathematics *Dec. 2024*

Courses: Quantitative Trading Strategies, Stochastic Calculus, Numerical Methods, Option Pricing, Credit Markets, Multivariate Statistical Analysis, Portfolio Theory and Risk Management, Fixed Income & Fixed Income Derivatives

Cornell University **Ithaca, NY**

Bachelor of Science in Operations Research and Information Engineering *May 2023*

Computer Science Minor and Dyson Business Minor

Courses: Financial Engineering with Stochastic Calculus, Machine Learning, Engineering ProbStats I & II, Optimization I & II, Differential Equations, Linear Algebra, Multivariate Calculus, Statistical Simulation & Modeling

SKILLS & INTERESTS

Computing: Python, C++, R, Java, OCaml, SQL, Gurobi, Snowflake, AWS SageMaker, Bloomberg, Tableau, Sigma, GitHub, VBA

Skills: Statistical Factor Modeling, Optimization, Machine Learning, Numerical Methods, Fundamental Analysis, Data Analysis

Interests: Ice Hockey, Camping and Canoeing, Portfolio Management, Startup Companies, Wines, Pie Baking

Experience

Cboe Global Markets **Chicago, IL**

Cboe Labs Derivatives Strategy Intern *Jun. 2024 – Aug. 2024*

- Recommended successfully the listing of a new futures product and against launching two other proposed products
- Conducted quantitative research on the viability of novel volatility equity and index option products analyzing market microstructure, liquidity, order book balance, and the quality of market maker quotes across various strikes and expirations
- Evaluated the efficacy of variance swap replication strategies for hedging vega exposure at different notional levels

Racon Capital Partners **Chicago, IL**

Quantitative Researcher - University of Chicago Project Lab *Mar. 2024 – Jun. 2024*

- Developed a risk and performance dashboard for a macro-focused multi-asset portfolio, systematically pulling daily Bloomberg data to forecast conditional returns and volatility
- Assessed systematic and idiosyncratic risk by analyzing percentile rolling cross-asset correlations, calculating beta through regressions on macro indices and benchmarks, and evaluating other risk metrics including VaR and expected shortfall

Neuberger Berman **Chicago, IL**

Quantitative Researcher - University of Chicago Project Lab *Jan. 2024 – Mar. 2024*

- Built a Snowflake database with over 6 billion rows of Fannie Mae and Freddie Mac mortgage data, derived key variables for modeling, and utilized SMOTE to address data imbalance for modeling
- Created a Markov chain transition model to calculate the probability of mortgages transitioning to different states of delinquency by implementing CatBoost and Logistic Regression with SHAP value feature selection and cross validation

Hong Kong Applied Science and Technology Research Institute (ASTRI) **Hong Kong, Hong Kong**

Fintech and AI Intern *Jun. 2022 – Aug. 2022*

- Collaborated with ML engineers to develop a federated learning model for an alternative credit scoring system, with the potential to improve loan accessibility for over 340,000 enterprises, commissioned by the Hong Kong Monetary Authority
- Evaluated over 10 bagging and boosting algorithms (e.g. XGBoost, Random Forest, SVM) under time constraints and interpretability, achieving an AUC of 0.873 for one-year default probability

Cornell University College of Computing and Information Science **Ithaca, NY**

Researcher *May 2021 – Aug. 2021*

- Researched the contagion effect of financial misinformation on Twitter and the development of spread mitigation strategies

Projects

International Association for Quantitative Finance Competition *Jan. 2024 – Mar. 2024*

- Assessed the predictive power of a trading strategy using multivariate regression, leveraging signals from risk-neutral probability distributions created by curve fitting implied volatilities of option series across different assets

ETF Replication Option Collar Trading Strategy *Nov. 2023 – Dec. 2023*

- Implemented a trading strategy to capture high-yield dividends of business development companies (BDCs) at a reduced risk level by holding a BDC ETF and using a Gurobi optimized option collar strategy on a replicating portfolio of the ETF derived from a multivariate GARCH model