# Zihao Liu

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## EDUCATION

**The University of Chicago** **Chicago, IL**
**Master of Science in Financial Mathematics (GPA: 3.9/4.0)** **Expected December 2024**

- Courses: Options: Numerical Methods, Stochastic Calculus, Python/C++ for Finance, Portfolio Theory & Risk Management, Financial Data Science, Fixed Income, Credit Markets, Portfolio Credit Risk, Algorithmic Trading, Market Microstructure,

**The Chinese University of Hong Kong, Shenzhen** **Shenzhen, China**
**Bachelor of Science in Applied Mathematics** **May 2023**

- Courses: Stochastic Process, Optimization, Mathematical Modeling, Machine Learning, Numerical Analysis, Data Structures

## SKILLS

**Computing:** Python (Pandas, Numpy, Scikit-learn, Statsmodel), C++, SQL, Bloomberg, Power BI, MATLAB, MS Office, GitHub
**Knowledge:** Machine Learning, Regression, Statistical Modeling, PCA, Data Analysis, Financial Markets, Time Series

## EXPERIENCE

**PIMCO** **Newport Beach, CA**
**Portfolio Risk Manager Intern** **June 2024 – August 2024**

- Developed systematic pipeline to streamline internal HF strategy tagging, pnl decomposition and aggregation process using Python and SQL, performed statistical analysis on realized time-series pnl at risk owner/desk/fund level for PM risk review
- Created an interactive web-based risk dashboard to visualize multi-strat hedge fund risk attribution and measures (performance, tail risk, market risk factor) with Python plotly, customized drawdown button at complex/account/strategy level for tool users
- Automated PCAF (PIMCO commodity hedge fund) weekly tail risk report by combining commodity sector/subsector/type level PMV (percentage market value) with ex-ante standalone/marginal CVaR computed from holding securities stress test results

**Racon Capital Founder** **Chicago, IL**
**Quant Researcher – University of Chicago Project Lab** **March 2024 – May 2024**

- Simulated next-day return for multi-asset macro portfolio holdings with modeling GARCH volatility, also modeling cross-asset correlations with dimension reduction and Cholesky decomposition on time-varying EWMA covariance matrix
- Collaborated in building dynamic risk dashboard with performance metrics and factor regression statistics on portfolio historic and simulated data; ran simulations across various historic windows to backtest simulated VaR versus realized return

**China Soft New Momentum Asset Management** **Beijing, China**
**FOF Research Intern** **June 2023 – August 2023**

- Developed Python pipelines for financial metrics calculation on weekly net values to automate target product weekly report and performance validation; maintained and updated internal private hedge fund database for optimal data integrity and usability
- Created Jupyter Notebooks to analyze net value and excess return trends of target index funds; identified and reported market-differentiating strategies for diversified multi-asset portfolios from Pearson correlation analysis and due diligence

**China Merchants Securities** **Shenzhen, China**
**Quant Research Intern** **May 2022 – August 2022**

- Developed Python Factor Calculator Class to replicate diverse factors based on turnover rate, VWAP, and high frequency price-volume data from alpha research papers; implemented market neutralization for factor outputs
- Designed Python-based factor backtesting program to construct and analyze weekly rebalanced long-short portfolios based on factor scores, applied Rank IC IR metrics for evaluating input factor's predictive power and stability

## EXTRACURRICULAR

**Kaggle Competition: Feedback Prize - Evaluating Student Writing** **February 2022 – March 2022**

- Developed an automated feedback tool based on Transformer, which generated feedback scores on student essays by segmenting texts and classifying argumentative or rhetorical elements; ranked top 10% of all participants
- Made predictions for Named Entity Recognition problem by building two Longformer models, evaluated and enhanced model performance by parameter tuning extensively with functions in sklearn, pytorch and NLP packages

**The Chinese University of Hong Kong, Shenzhen** **Shenzhen, China**
**Member, Basketball Club** **September 2019 – May 2021**

- Won the third Freshman Cup Basketball Championship of the university
- Collaborated in the design and organization of 20+ on-campus basketball games in multiple forms

## ADDITIONAL INFORMATION

**Languages:** English (proficient), Mandarin (fluent)
**Interests:** Volunteering, basketball, piano, film industry