SICHEN (FRODO) GU

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EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance

- ***Expected Coursework:*** risk management, Fama-French, algorithmic trading, Black-Scholes model, VaR, covariance matrix estimation, Monte Carlo simulation, stochastic process

09/19 - 05/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
B.A. in Mathematics and Economics, Minor in Computer Science

- ***Coursework:*** linear regression, derivatives pricing, machine learning, real analysis, statistics, econometrics, ordinary differential equations, macroeconomic analysis, optimization
- ***Honors/Awards:*** Mathematical Association of America Problem of the Month Winners Circle, Dean's List (all academic years), NYU Founders Day Award, NYU CAS/GSAS Scholarship

EXPERIENCE

06/23 - 08/23 **CHUANG YUAN FUTURES** Shanghai, China
Investment Research Intern (Python)

- Analyzed and processed diverse dataset comprising 127 monthly variables and 1 quarterly variable (GDP) from FRED-MD / FRED-QD dataset
- Executed data transformation, including variable standardization and outlier removal, to ensure variable stationarity
- Leveraged dynamic factor models on nowcasting model to produce accurate forecasts and nowcasts of economic variables
- Enabled proactive decision-making by providing early estimates of critical economic indicators
- Initiated research on hierarchical risk parity (HRP) model, including in-depth analysis of academic papers and facilitation of plans for HRP's future implementation at firm

05/22 - 08/22 **ASTOR REALTY CAPITAL** New York, NY
Private Equity Intern

- Conducted quantitative and qualitative due diligence for potential investments by computing net operating income, yield on cost, and waterfall structure profits
- Leveraged financial modeling techniques like discounted cash flow (DCF) analysis and pro forma modeling to assess projected cash flows and evaluate investment scenarios

PROJECTS

10/23 - 12/23 **NYU COURANT** New York, NY
Comparative Analysis of Correlation Dynamics in Major Financial Markets (Python)

- Analyzed correlations among equity indices, currency pairs, and interest rates using EWMA and GARCH models, examining market trends and VIX's role in forecasting volatility
- Evaluated asset distribution patterns of S&P 500 and other indices by calculating rolling statistics (variance, skew, kurtosis); studied asset returns against Gaussian and alternative distributions
- Compared implied and realized distributions in financial indices; employed butterfly and kernel regression methods to analyze volatility smiles and assess statistical measures of volatility trends

03/23 - 05/23 **Quantifying Musical Evolution and Revolution (Python)**

- Developed cosine similarity and eigenvector centrality model for dataset containing 50K musicians, enabling evaluation of genre similarity and relative popularity
- Employed PCA within k-means clustering and conducted multi-class classifications of music genres using algorithms such as random forest, AdaBoost, decision trees, and neural networks
- Achieved AUC of 0.92 in predicting music genres from their features

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Pandas, Scikit-learn, PyTorch), Java, R programming, MySQL
Interests: highest amateur rank in Go (chess game), Travel (251 cities in 32 countries)
Activities: Teaching Assistant, Grader, and Peer Mentor for undergraduate math majors at NYU Courant