

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:** object-oriented programming, 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
(1st futures company listed on NEEQ)
Investment Research Intern (Python, Wind)
- Maintained and updated database of 166 municipal bonds; extracted and cleaned 145 monthly macroeconomic indicator data from FRED and Wind
 - Implemented Dynamic Factor Models on Nowcasting model to forecast lower frequency macroeconomic indicators; formulated adjustments to weights, based on predictions
 - Initiated Hierarchical Risk Parity Model research; analyzed relevant papers; plotted dendrogram for 150 stocks; presented model in group; facilitated future implementation of HRP at company
- 05/22 - 08/22 **ASTOR REALTY CAPITAL** New York, NY
(\$2.27B in real estate AUM)
Private Equity Intern
- Performed quantitative and qualitative due diligence on prospective investments; computed net operating income, yields on cost, and profits of waterfall structures
 - Collaborated with analysts to filter out investment project, which generated IRR of 25%
 - Developed capital raising research for LATAM investment institutions in response to Fed rate hikes; conducted macroeconomic analysis to assess their real estate investment decisions
 - Contacted 100+ investment institution prospects within 3 weeks after rate hikes

PROJECTS

- 03/23 - 05/23 **NEW YORK UNIVERSITY** New York, NY
Quantifying Musical Evolution and Revolution (Python)
- Built Cosine Similarity and Eigenvector Centrality Model for dataset of 50k musicians; evaluated similarity among genres and relative popularity
 - Implemented PCA on k-means clustering; conducted multi-class classifications on music genres with random forest, AdaBoost, decision trees, and neural networks
 - Achieved AUC of 0.92 in predicting music genres from their features
- 02/22 - 05/22 **Mathematical Modeling of Nonlinear Dynamic Systems (Python)**
- Solved nonlinear dynamics functions by performing dimensional analysis, linear approximation, and perturbation method
 - Applied Euler's Method to compute numerical solutions for damping pendulum; visualized dynamics using Matplotlib; examined differences between analytical and numerical solutions
 - Rationalized choices of 3 models and 9 parameters; set up equations and interpreted results

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Pandas, Scikit-learn, PyTorch), Java, C, R, Julia

Languages: English (fluent), Mandarin (native), Italian (intermediate)

Interests: Go 5th dan (highest amateur rank), Travel (222 cities in 30 countries)

Activities: Teaching Assistant, Grader, and Peer Mentor for undergraduate math majors at NYU Courant