SIHAN LIU

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EDUCATION

Expected 12/23	**NEW YORK UNIVERSITY**	New York, NY

The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Forthcoming Coursework:*** portfolio theory, risk management, Fama-French, Black Scholes, Monte Carlo simulation, stochastic calculus, Hull-White model

09/18 - 06/22	**NEW YORK UNIVERSITY SHANGHAI**	Shanghai, China

B.S., Double Major in Honors Mathematics and Data Science
- ***Coursework:*** linear algebra, mathematical statistics, Brownian motion, law of large numbers, machine learning, data structures, algorithms, databases
- ***Honors/Awards:*** Dean's list for 4 years, Latin Honors Cum Laude

EXPERIENCE

12/21 - 01/22	**GUOTAI JUNAN SECURITIES CO., LTD**	Shanghai, China (remote)

Quantitative Research Intern
- Evaluated Chinese stock market's key indicators (e.g., major indices, cross-sectional volatility, stock turnover rate); wrote market overview report
- Built backtest system using Python, with modules including data collection, data preprocessing, trading signal detection, data visualization and performance analysis
- Backtested double moving average strategy and achieved 8.9% annualized return as well as 23% max drawdown

06/21 - 08/21	**ATOS INFORMATION TECHNOLOGY**	Chengdu, China

Data Visualization Intern
- Collected information from multiple web databases, cleaned and organized it into Excel tables, as well as generated frequent reports to facilitate manager's monitoring of team productivity
- Created dashboards to display cleaned data clearly and concisely
- Used VBA and Power Query to automatically generate daily reports and send emails; results: reductions to 25% of production time and 17% of computer memory used by data

08/20 - 09/20	**SICHUAN WANYI ENERGY TECHNOLOGY CO., LTD.**	Chengdu, China

Data Mining Intern
- Collaborated with team to build ML model that helped clients extract information from images
- Used Python to generate synthetic optical character recognition dataset comprising images of Chinese character lines in various backgrounds
- Standardized 300+ images in Python; corrected thousands of mismatched labels in image dataset

PROJECTS

	NEW YORK UNIVERSITY SHANGHAI	Shanghai, China

02/22 - 05/22 **Derivatives Pricing: Options Price Fluctuation Simulation with Black-Scholes Formula (Python)**
- Implemented Black-Scholes formula on European calls; collected contract information and historical prices for 100+ Chinese options; simulated price fluctuations from list to maturity dates
- Applied several models to estimate volatility of options, including moving average, exponentially moving average, and GARCH(1, 1)

05/21 - 06/21 **Machine Learning: Music Classification Based on Emotions (Python)**
- Designed conventional machine learning models including SVM, decision trees, and random forest, to classify musical pieces into 3 categories: sad, calm, energetic
- Improved model performance with parameter tuning, PCA, oversampling, stacking, and cross-validation; achieved precision score of 88%

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Proficient in Python, SQL, Java, and Excel; basic in VBA
Affiliations/Certifications: Microeconomics and corporate finance from edX
Languages: English (fluent), Mandarin (native)