

CHANGJIE (ANGEL) WU

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EDUCATION

CARNEGIE MELLON UNIVERSITY, TEPPER SCHOOL OF BUSINESS

New York, NY

Master of Science in Computational Finance – MSCF

GRE Quant: 170/170, GRE Verbal: 163/170

12/25

- Upcoming Coursework: Option Pricing, Fixed Income, Stochastic Calculus for Finance, Financial Computing, Financial Data Science

NEW YORK UNIVERSITY, COLLEGE OF ARTS AND SCIENCE

New York, NY

Bachelor of Arts in Computer Science, Mathematics and Economics; Minor in Business Studies **GPA: 3.889/4.0**

05/24

- Magna Cum Laude, Entrepreneurship Exchange Group Startup Team, Global China Connections Executive Board Member
- Entrepreneurship: cross-border e-commerce platform for accessories, fund-raising and networking platform for young entrepreneurs
- Programming Language: Python (NumPy, Pandas, Scikit-Learn, PyTorch), SQL, Excel/VBA, Java, MATLAB, C, C++

EXPERIENCE

CHINA MERCHANTS SECURITIES CO., LTD

Shenzhen, China

Quantitative Analyst Intern, Derivatives Trading Department

06/23 – 08/23

- **Strategy Modeling:** Constructed a simulator engine to generate pair-trading signals based on Relative Strength Index thresholds, moving average breakouts, etc.; Identified and monitored a pair trade yielding 11% absolute return within one month of execution
- **Machine Learning:** Integrated the DoubleAdapt meta-learning approach (from a then-recent publication) into an LSTM Neural Network for incremental stock trend forecasting utilizing Python, attaining a 6% boost in Information Coefficient Performance
- **Pairs-Trading:** Developed and back-tested pair trading strategy in Python, capitalizing on HK market's sensitivity to shifts in fundamental values relative to China's; Discovered 3 trend triggers and 1 selling signal; strategy in active use by the company
- **Linear Regression:** Enhanced team's Python-based earnings forecast package by optimizing weighting of analysts' forecasts using correlation analysis, mutual information-based feature selection, regression modelling, etc.; Resulted in a 7% decrease in RMSE

AVIC SECURITIES CO., LTD

Beijing, China

Quantitative Analyst Intern, Group Trading Department

06/22 – 08/22

- **ETF Options:** Performed stress tests in Python using Black-Scholes (BS) model, including principle fluctuations and margin call risk
- **Volatility Modeling:** Developed intuition in calibrating volatility smile with Stochastic Alpha Beta Rho model on weighted implied volatility points generated by BS; Monitored traders' parameter adjustments, quoting strategies, and gained insights into Greeks
- **Credit Risk Analysis:** Assessed corporate bond risks using Altman Z-score, KMV-Merton model, and other compliance checks

ARCHEMY

New York, NY

Part-Time Data Analyst

01/24 – Present

- **Feature Engineering:** Developed financial data fingerprinting algorithm in Python for Citibank Robothon platform; Used InfluxDB for data retrieval and preprocessing, applied Meta's Kats library to extract 40+ statistical metrics, and incorporated new metadata
- **Frequency Analysis:** Visualized Fast Fourier Transform analysis on price data in Python; Identified absence of Short-Term Cycles

ERNST & YOUNG GLOBAL LIMITED

Shenzhen, China

Summer Consultant, Consulting Department (Assisted Auditing Department as well)

06/21 – 08/21

- **Financial Analysis:** Conducted due diligence for a high-profile M&A transaction bidding process; Analyzed financial statements, evaluating capital flow, liquidity positions, etc.; Applied DCF and EV/EBITDA multiples to guide the valuation for target company

RESEARCH/PROJECTS

Open-Source Development, Py-I-ART (Imputation-Assisted Randomization Test) Python Package

09/23 – 06/24

- **Statistical Modeling:** Devised a post-prediction inference framework for design-based causal studies, enabling robust randomization tests with customizable, and advanced imputation techniques (e.g., Bayesian Ridge, LightGBM, XGBoost, etc.) to handle missing data; Implemented covariate adjustment, enhancing the accuracy of causal estimates and hypothesis testing
- **Model Validation:** Implemented one-shot and retrain testing procedure for Py-I-Art; Simulated on NYU HPC

Black-Litterman (BL) Model Approach to Portfolio Optimization

01/24 – 03/24

- **Portfolio Optimization:** Integrated investor views in Python to compute revised expected returns and the covariance matrix applying BL model; Used Monte Carlo simulations to explore portfolio weights, plot the efficient frontier, and identify optimal risky portfolio
- **Back-Testing:** Calculated average VaR using the Bootstrap method with 100 simulations at various confidence levels; Achieved a 8% reduction in standard deviation of VaR estimates and a 5% boost in out-of-sample accuracy compared to the Markowitz model

A Study on Isoperimetric Problem: Graphs and Singular Surfaces (won URC award, secured DURF grant)

01/23 – Present

- **Eigenvalue Analysis:** Established the bounds of Cheeger's Constant to quantify graph connectivity and construct expander graphs
- **Algorithms:** Applied expanders' properties to boost success probability of random algorithms and refine neural network architecture

ADDITIONAL INFORMATION

- Certificates/Awards: CFA Level 1 Passed, Akuna Options 101, Bain Cup Case Competition – Top 15% Excellent Cases
- Other Experiences: Tebon Securities Asset Management Intern (Market Research), Music Genre Classification (Machine Learning)
- Interests: Sudoku, Go, Poker, Lego, Piano (17 years), Dance (19 years), Drums (3 years), Singing, Jet Skiing, Reading
- Languages: English (Native), Mandarin (Native), Spanish (B1 Certificate), French (A2 Certificate), Hindi (Basic Listening)