SHAOLUN(ALAN) DU, FRM

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EXPERIENCE

Advocate Capital Management

Quantitative Analyst (Feb. 2018 --- Present, intern included) New York, NY

- Develop and maintain in-house portfolio pricing and risk system in python with OOP design focused on yield curve bootstrapping (LIBOR, OIS, CSA, SOFR(ESTR)) and derivatives pricing. (50%)
- Research historical economic panic periods and conduct scenario analysis and VaR analysis with Monte Carlo simulation, further extended using time series model (GARCH) to forecast volatilities. (20%)
- Research and implement Hull White one factor model with time dependent alpha and sigma to price XVA and volatility smile with SABR model to price swaption and FX option. (20%)
- Automate daily process and quantitative models using Excel VBA and python xlWings library. (10%)

SQI Capital/CIFCO Futures

Quantitative Analyst Intern (May. 2015 --- Aug. 2015, May. 2016 --- Aug. 2016) Shanghai, China

- Developed python web-scraping tools to automatically download market information from China's major commodity exchange website and third-party platform, and stored data in SQL database. (60%)
- Constructed VaR model for derivatives portfolio using Monte Carlo simulation with linear portfolio based on historical multi-assets correlation structure. (70%)
- Researched China's stock index future narrow range breakout strategy using inter-market correlation between stock index futures, CNY and bond futures index and implemented the strategy on TB platform. (40%)

CERTIFICATIONS/AWARDS

- Series 3 licensed (ID: 0526023), Passed CFA level 3 exam (Jun. 2018), designation pending
- Meritorious winner in CoMAP'S Mathematical Contest in Modeling (Mar. 2013)

EDUCATION

NEW YORK UNIVERSITY New York, NY

The Courant Institute of Mathematical Sciences

MS in Mathematics (Sep. 2016 – May. 2018) GPA:3.8/4.0

PURDUE UNIVERSITY West Lafayette, IN

MS in Computer Science (Sep. 2014 – Dec. 2015) GPA:3.6/4.0

SHANGHAI UNIVERSITY Shanghai, China

BS in Mathematics and Applied Mathematics (Sep. 2010 – Jul. 2014) GPA:3.6/4.0

RELEVANT COURSEWORK: Econometrics & Portfolio risk management, Computing in Finance, Stochastic Calculus for Option Pricing, Machine learning and Deep learning, Scientific Computing and Optimization,

PROJECTS

COMPUTING IN FINANCE, JAVA New York University, NY

- Designed a mini-exchange that focused on fast order book sweeping and client operations and implemented efficient binary data merger for tick-level stock records.
- Built Monte Carlo engines following AntiThetic design and asynchronous messaging using event listener with publisher-consumer pattern (JMS-ActivesMQ) for estimating European and arithmetic Asian option prices.

RISK AND PORTFOLIO MANAGEMENT WITH ECONOMETRICS, PYTHON New York University, NY

- Implemented portfolio construction on industrial historical data using Mean-Variance optimization.
- Combined momentum strategy with Black-Litterman model to generate estimated expected returns and PCA to estimate COV matrix.

XINU OPERATING SYSTEM, C Purdue University, NY

- Implemented dynamic process scheduling function using process table with priority queue.
- Implemented process message non-block sending and receiving module with message passing function.
- Implemented virtual memory allocation module using hardware storage with demand paging and global clock.

COMPUTER SKILLS/OTHER

- Python (SCIPY, NUMPY, PANDAS, QUANTLIB) over four years and 50,000 lines, C/C++, JAVA
- EXCEL (Intense using in front-end development and automation with VBA & Python programming)
- SQL, Kdb+/q, Bloomberg, CS-Locus and Barclay-Live. (Working knowledge of daily using)