

**YICHEN WANG**  
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## EDUCATION

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### NEW YORK UNIVERSITY

New York, NY

#### The Courant Institute of Mathematical Sciences

**MS in Mathematics in Finance** (September 2017 – December 2018)

- **Coursework:** Black-Scholes & Greeks, Monte Carlo simulation, OOP and data structure in Java, Machine Learning, CAPM and multifactor models, linear regression, FX options & Interest Rates, Volatility modeling, statistical arbitrage, numerical methods
- **Future Coursework:** Continuous time finance, time series modeling, big data application

### BRYN MAWR COLLEGE

Bryn Mawr, PA

**BA (Honor) in Mathematics, Minors in Economics and Statistics** (September 2013 – May 2017)

## EXPERIENCE

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### FIDESSA

**Quantitative Analyst Intern** (June 2018 – August 2018)

Jersey City, NJ

- Built a stochastic model for a limit order book; the book was updated with Deltix L2 tick data in milliseconds (Java virtual machine)
- Calibrated the model with ESZ 16' based on a penalty function, and obtained optimal parameters for initial insertion and cancellation rates of limit orders, and market orders
- Performed preliminary tests for mid-price and sizes of orders at each limit order book level; analyzed stationary and difference-stationary properties
- Fitted an ARCH model for high frequency log returns of index futures ESZ 16' (R studio)
- Used SVMs to model the real high-frequency limit order book dynamics and to predict mid-price movement; performed cross validation and grid search for feature selection; SVM performances were evaluated with accuracy (0.6563) and F-1 score (0.722) (Java, Python, Excel)

### WHARTON SCHOOL, UNIVERSITY OF PENNSYLVANIA

Philadelphia, PA

**Statistics Research Assistant** (February 2016 – August 2016)

- Implemented a Bayesian changepoint model to solve the Parasite Clearance Estimation problem
- Optimized estimates of the treatment effects via utilizing individual-level data in R; reduced mean square error of estimators by 75% compared to those of the classical method

## PROJECTS

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### NEW YORK UNIVERSITY

New York, NY

#### Implied Volatility Smile for FX

- Calibrated SABR model for the implied volatility for FX options with ATM, 25d RR, 25d BF quotes; constructed the implied volatility smile in Python

#### Portfolio risk management with VaR

- Filled in missing data with Bootstrap, Brownian Bridge and Regression-based techniques in Excel
- Estimated VaR with variance/covariance, historical simulation and Monte Carlo simulation
- Backtested portfolios for 95% and 99% VaR and evaluated desk-level limits set on VaR

#### Option Pricing with Monte Carlo Simulation

- Built an extendable Java-based Monte Carlo option pricing framework in Java
- Reduced errors of simulation results and achieved faster convergence rate with three techniques, antithetic variate, importance sampling and stratified sampling
- Implemented parallel computing via middleware using Java Message Service (ActiveMQ)
- Performed the GUI computing (openCL) to improve the process

#### K-Means Clustering in Java

- Implemented and improved the Lloyd's algorithm to perform generic multi-dimensional point clustering and fixed-size clustering; measured the efficiency with within-cluster distance variance

## COMPUTER SKILLS/OTHER

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**Programming Languages & Other Software:** Java, R, Python, Mathematica, SPSS, STATA, LaTeX  
**Certificates:** Passed Actuarial Exam P and Exam FM