

YI (BRIAN) SHAN

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EDUCATION

NEW YORK UNIVERSITY

New York, NY

The Courant Institute of Mathematical Sciences

MS in Mathematics in Finance (expected – Dec. 2020)

- **Current coursework:** Stochastic Calculus (Brownian motion, martingales, diffusion process), OOP in Java, Time Series Analysis & Statistical Arbitrage, Fama-French 3-factor model

UNIVERSITY OF WATERLOO

Waterloo, ON

Bachelor of Mathematics in Computer Science/Business Option, Mathematical Finance, Computational Mathematics (Jan. 2015 – Apr. 2019)

- **Coursework:** Option Pricing (Binomial Tree, Black-Scholes, Finite Difference), Stochastic Process (DTMC, Poisson Process, CTMC), Quantitative ERM (VaR, CVaR, EVT, Copulas), Statistical Learning (Bayes, Regression, SVM, K-nearest neighbors, DNN, CNN, Boosting), Data Structure (BST, Heap, AVL, Hashing, Range-Searching, String Matching), Algorithm, Operating System

EXPERIENCE

MENGXI INVESTMENT MANAGEMENT CO. LTD

Shanghai, Shanghai

Quantitative Analyst Summer Intern, Stock Alpha Group (May 2019 – Aug. 2019)

- Led interns to provide comprehensive data loading and cleaning support for strategies' back-testing
- Reimplemented the data cleaning and loading framework by applying various sorting algorithms, data structures and concurrent running (performance optimized up to 85%)
- Researched stock alpha factors and discovered pure short strategies based on prices and volumes
- Automated generating product performance reports with concise user interfaces in VBA

PROJECTS

UNIVERSITY OF WATERLOO

Waterloo, ON

OS/161 OPERATION SYSTEM KERNEL (May 2018 – Aug. 2018)

- Implemented synchronization primitives - Lock, Semaphore and Conditional Variable, system calls - Fork, Execv, Getpid, Waitpid, Exit and features of passing arguments into processes
- Improved OS/161 operation system with features of handling a full Translation Lookaside Buffer (TLB), allowing read-only segments, in-contiguous allocation and reusability of physical memory

REPORT: COMPARING STOCK PRICE MODELS (Mar. 2018 – Apr. 2018)

- Fitted stocks from S&P 500 index in GARCH-Gaussian Copula model with different marginal distributions and Regime Switch Lognormal Model with constant or time-based mean
- Formulated the portfolio by applying Modern Portfolio Theory and generated portfolio forecast distribution with Monte Carlo Simulation for model performance comparison

KAGGLE COMPETITIONS (Jan. 2018 – Apr. 2018)

- Made comparison of Logistic Regression, Random Forest, Gradient Boost in predicting whether an American adult earns over \$50,000 yearly (Acc: 87.419%)
- Incorporated Convolution Neural Network to SVHN datasets (Acc: 92.871%)
- Collaborated in classifying toxic comments by applying TF-IDF with various models (Acc: 97.67%)

OPTION PRICING (Jan. 2017 – Apr. 2017)

- Applied binomial lattice, Monte Carlo, finite difference in pricing American, European option
- Implemented functions for option pricing by assuming underlying assets following Black-Scholes, Local Volatility, Heston Stochastic Volatility and Jump Diffusion model

CHAMBERCRAWLER 3000 – A Rogue-Like Game (Mar. 2016 – Apr. 2016)

- Implemented classes, methods for combat supplies, characters and enemies by applying OOP
- Designed storylines, player's operations, combat mechanisms and map printing in the command line

COMPUTER SKILLS/OTHER

Programming Languages: C/C++ (4 years), Python (3 year), R (3 year), SQL (3 year), LaTeX (5 years), C#, Java, MATLAB, VBA, GIT, Shell,