

Jim / Xiaotian Zhang

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EDUCATION

California Institute of Technology, Pasadena, CA

- ❖ B.S. in Information and Data Science, GPA 3.8/4.0
- ❖ 9/2016 - 6/2020

Completed Relevant Coursework

- ❖ Statistics and Probability, Bayesian Data Analysis, Probability Models, Mathematical Fintech
- ❖ Machine Learning Systems (paid TA), Financial ML, Reinforcement Learning (Research Course)
- ❖ SQL/Relational Databases, Python, C (paid TA)
- ❖ Quantum and Statistical Mechanics, Lithography, Modern Optics (Lab), Computational Physics
- ❖ Linear Algebra, Numerical LA, Multivariate Calculus, Diff. Eq's, Complex Analysis and PDEs

Relevant Coursework to be completed by June 2019

- ❖ Stochastic DE's, Empirical Methods in Social Sciences, Quantitative Risk, Mathematical Finance, ML in Seismology (Research)

RECENT RELEVANT RESEARCH AND COMPETITIONS

Caltech CS101 Research Project 2019

- ❖ Application of LSTMs to noise filtering for seismological sensor array data

Caltech CS159 Research Project 2018

- ❖ [“Reinforcement Learning for Path-Dependent Portfolio Optimization on the S&P 500”](#)
- ❖ Attempted to maximize expected Sharpe reward

Caltech CS81 Independent Research Project 2018

- ❖ “Prediction of Graduate School Application Results with Sentiment Analysis and SVM”
- ❖ Extracted features using pdf2txt and web scraping
- ❖ Tried to predict the outcome of the application

Caltech Internal Kaggle 2019, 2018

Rank 1 (solo), Rank 2 (solo) of 80 teams, 74 teams

- ❖ Python [bayes_opt, hyperas, lightgbm, xgboost, tensorflow, sklearn, word2vec, pandas]
- ❖ [“Voter Turnout Prediction in 2008 Elections”](#)
- ❖ [“ML Sentiment Analysis of Amazon Reviews”](#)
- ❖ Bayesian, genetic hyperparameter optimization
- ❖ Categorical feature embedding using word2vec

CQA Investment Challenge 2017-2018, Rank 20 of 101

- ❖ Python/CRSP/Intrinio/ALFRED (backtesting)
- ❖ Chicago Quantitative Alliance's competition
- ❖ Expected Investment Growth (EIG) ranking
- ❖ Business cycle sector Sharpe ranking strategy

OTHER PROFESSIONAL EXPERIENCE

Capula Investment Management, Greenwich, CT

Trading and Research Intern, June-September 2019

- ❖ Specific projects TBD

California Institute of Technology, Pasadena, CA

Teaching Assistant, September 2018-Ongoing

- ❖ CS156a (Machine Learning) and CS11 (C coding)

MAIN PROFESSIONAL EXPERIENCE

MemVerge, Shanghai, China

System Test Intern, December-January 2018/19

- ❖ Python / Linux / Hive
- ❖ Deployed, debugged, and benchmarked Presto+Hive+HDFS/proprietary file system for use with nonvolatile (persistent) memory

SBB Research Group, Northbrook, IL

Quantitative Tactics Intern, June-September 2018

- ❖ R / Python [pandas, sklearn, xgboost, cython]
- ❖ Created and backtested trading strategies for ETFs
- ❖ Generated live trading signals, scraped new data sources, and performed statistical analysis
- ❖ Analyzed structured note derivative portfolio feature distributions by simulation

California Institute of Technology, Pasadena, CA

Bellan Plasma Laboratory

Plasma Research Intern, June-August 2017

- ❖ Hardware/Python/LabVIEW/MATLAB
- ❖ [Laser-induced fluorescence for contactless temperature measurements on the Caltech Water-Ice Dusty Plasma](#)
- ❖ Developed fully automated laser scanning, fluorescence signal capture, and curve-fitting
- ❖ Developed low-cost alternative to high speed camera using LED strobe lamp and DSLR camera

QTG Capital Management, Shanghai, China

Quantitative Research Intern, May-July 2016

- ❖ R [quantmod, RMySQL] / Excel
- ❖ Created and backtested minute-frequency trading strategy for the Chinese futures market using R
- ❖ Performed theoretical development of alternatives to common market indicator signals
- ❖ Reproduced research paper trading strategies for Chinese bank stocks using Microsoft Excel

SKILLS AND INTERESTS

Coding, in use: Python [numpy, pandas, scipy, keras, xgboost, sklearn, statsmodels, PyAutoGUI]

Coding, can use: R, Mathematica, C/C++, MySQL, MATLAB, LabVIEW, [Arduino](#), UNIX

Communication: English (native), Chinese (native), Japanese (fluent), LaTeX, matplotlib, MS Office

Clubs: Caltech Student Investment Fund (President), Caltech Badminton Club (UG Representative)

Caltech Councils and Committees: Caltech Computing and Mathematical Sciences UG Council member, Caltech Freshman Admissions Committee member

Misc. Interests: archery, classical guitar, photography, Overwatch, League of Legends, predictions for university admissions and other topics