Jim / Xiaotian Zhang

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EDUCATION

California Institute of Technology, Pasadena, CA
- ❖ B.S. in Information and Data Science
- ❖ 9/2016 - 6/2020
- ❖ GPA 3.8/4.0

Completed Relevant Coursework
- ❖ Machine Learning Systems, Financial Machine Learning, Reinforcement Learning Research
- ❖ Statistics and Probability, Bayesian Data Analysis, Computational Physics, Python, C
- ❖ Waves, Quantum and Statistical Mechanics, Modern Optics Lab, Semiconductor Lithography
- ❖ Linear Algebra, Multivariate Calculus, Differential Equations, Complex Analysis with PDEs

Relevant Coursework to be completed by June 2019
- ❖ Numerical Linear Algebra, Numerical Methods, Probability Models, Stochastic Processes, Scientific Computation, SQL Databases, Vision, Quantitative Risk, Mathematical Finance, Mathematical Fintech

RELEVANT COMPETITIONS AND RESEARCH

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 CS155 Kaggle 2018, *Rank 2 (solo) / 74 teams*
- ❖ Python [tensorflow, xgboost, scikit-learn, hyperas]
- ❖ "ML Sentiment Analysis of Amazon Reviews"
- ❖ Blended probabilistic models iteratively
- ❖ Tuned Keras hyperparameters genetically
- ❖ Tuned XGBoost iteratively, and then randomly

CQA Investment Challenge 2017-2018, *Rank 20 / 101*
- ❖ Python/CRSP/Intrinio/ALFRED (backtesting)
- ❖ Chicago Quantitative Alliance's stock-picking competition for undergraduates
- ❖ Expected Investment Growth (EIG) ranking
- ❖ Business cycle sector Sharpe ranking strategy

Citadel/Citadel Securities SoCal Data Open 2017
- ❖ Python/Excel/NoSQL
- ❖ Analyzed 2014-2015 Uber and public transportation data from the NYC area

Moody's Math Modelling Contest 2016, *Top 80 / 1084*
- ❖ Mathematica/Excel
- ❖ Neural networks and multivariate regression to analyze car-sharing services (Zipcar)

SKILLS AND INTERESTS

Coding, *in use*: R, Python [numpy, pandas, keras, xgboost, sklearn, statsmodels, cython, PyAutoGUI]

Coding, *can use*: Mathematica, C/C++, MySQL, MATLAB, LabVIEW, Arduino, UNIX

Communication: English (native), Chinese (native), Japanese (fluent), LaTeX, matplotlib/seaborn

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

Other Interests: Archery, Classical Guitar, Photography, Overwatch, League of Legends

PROFESSIONAL EXPERIENCE

SBB Research Group, Northbrook, Illinois
Quantitative Tactics Summer Intern 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
- ❖ Tested internal Cython performance code

California Institute of Technology:
Bellan Plasma Laboratory
Plasma Research Intern 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 analysis using Python+LabVIEW
- ❖ Developed low-cost alternative to high speed camera using LED strobe lamp and DSLR camera

QTG Capital Management, Shanghai, China
Quantitative Research Summer Intern 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

Stony Brook University:
Garcia Center for Materials Science Research
Materials Science Research Intern 2015
- ❖ Chemical/Hardware/Excel
- ❖ Synthesized novel gold, silver, platinum and alloy nanoparticles by the two-phase Brust method and applied to proton exchange membrane hydrogen fuel cells to enhance membrane catalytic efficiency
  - ○ **Goethe-Institut Award for Young Researchers**
  - ○ **First Place**, Connecticut Science Fair 2016
  - ○ **Semifinalist**, Siemens Science Competition 2015