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, Linear Algebra, Python, C
- Multivariate Calculus, Differential Equations, Complex Analysis/PDEs, Quantum and Statistical Mechanics, Optics, Semiconductor Lithography

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"

Caltech CS81 Independent Research Project 2018
"Prediction of Graduate School Application Results with Sentiment Analysis and SVM"

Caltech CS155 Kaggle 2018, *Rank 2 (solo) of 74 teams*
- Python [tensorflow, xgboost, scikit-learn, hyperas]
- "ML Sentiment Analysis of Amazon Reviews"

CQA Investment Challenge 2017-2018, *Rank 20 of 101*
- Python/Excel/CRSP/ALFRED (backtesting)
- Chicago Quantitative Alliance's stock-picking competition for undergraduates

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

Moody's Math Modelling Challenge 2016, *Top 80*
- 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, scipy, statsmodels, 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, $675k AUM, Automated Trading), Caltech Badminton Club (Undergrad 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 [tensorflow, xgboost, pandas]
- Trading strategy creation and backtesting using R
- Live market indicator signal generation, data collection, and statistical analysis using ML techniques in Python
- Nonlinear dimension reduction of large feature spaces with autoencoders for signal generation
- Statistical distribution generation of structured note derivative portfolio features by bootstrap simulations

California Institute of Technology:
Bellan Plasma Laboratory
Summer Undergraduate Research Fellow 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
- Low-cost alternative to high speed video camera using LED strobe lamp and DSLR camera

QTG Capital, Shanghai, China
Quantitative Research Summer Intern 2016
- R [quantmod, RMySQL] / Excel
- Trading strategy creation and backtesting for the Chinese futures market using R
- Theoretical development of alternatives to common market indicator signals
- Reproduction of research paper trading strategy for Chinese bank stocks using Microsoft Excel

Stony Brook University:
Garcia Center for Materials Science Research
Summer Researcher 2015
- Chemical/Hardware/Excel
- Synthesis of gold, silver, platinum and alloy nanoparticles by the two-phase Brust method
- SEM characterization and application to proton exchange membrane hydrogen fuel cells to enhance membrane catalytic efficiency
  - **Goethe Award for Young Researchers** Goethe-Institut Chicago
  - **First Place**, Connecticut Science Fair 2016
  - **Semifinalist**, Siemens Science Competition