

## 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) / 74 teams**

- ❖ Python [tensorflow, xgboost, scikit-learn, hyperas]
- ❖ [“ML Sentiment Analysis of Amazon Reviews”](#)

**CQA Investment Challenge 2017-2018, Rank 20 / 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 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, 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
- ❖ Statistical distribution generation of structured note derivative portfolio features by bootstrap simulations

**California Institute of Technology:**

**Bellman 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