Xiaotian Zhang (Jim)

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EDUCATION

California Institute of Technology, Pasadena, CA — Expected 6/2020

- B.S. in Applied Physics / Information and Data Sciences

Relevant Coursework

- Machine Learning Systems, Financial Machine Learning, Reinforcement Learning Research
- Statistics and Probability, Bayesian Statistics, Economic Analysis, Computational Physics, Linear Algebra
- Multivariate Calculus, Differential Equations, Complex Analysis/PDEs, Quantum and Statistical Mechanics, Optics

PROFESSIONAL EXPERIENCE

SBB Research Group, Northbrook, Illinois
Quantitative Tactics Summer Intern 2018 — R/Python [tensorflow, xgboost, pandas]

- Trading strategy creation and backtesting using R
- Market indicator signal generation and analysis using ML libraries in Python
- Nonlinear dimension reduction of large feature spaces for improved signal generation
- Implementation of live scripts for data aggregation and all developed strategies

California Institute of Technology, Bellan Plasma Laboratory
Summer Undergraduate Research Fellow 2017 — Hardware/Python/LabVIEW/MATLAB

- Laser-induced fluorescence for contactless temperature measurements of the Caltech Water-Ice Dusty Plasma
- Developed fully automated laser scanning, fluorescence signal capture, and curve-fitting using numpy+LabVIEW
- Accomplished and characterized low-cost alternative to high speed video camera using LED strobe lamp

QTG Capital, Shanghai, China
Summer Intern 2016 — R/Excel/SQL

- 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 PEM hydrogen fuel cells to enhance membrane catalytic efficiency
  - **Goethe Award for Young Researchers**, Goethe-Institut Chicago
  - **First Place**, Connecticut Science and Engineering Fair
  - **Semifinalist**, Siemens Competition for Science and Mathematics

RELEVANT COMPETITIONS AND RESEARCH PROJECTS

Caltech CS155 Kaggle 2018, Second Place (solo) — Python [tensorflow, xgboost, scikit-learn, hpelm, hyperas]

- Machine Learning Sentiment Analysis of Amazon Reviews

CQA Investment Challenge 2017-2018, Rank 20 of 101 — Python/Excel

- Chicago Quantitative Alliance's stock-picking competition, backtesting

Citadel/Citadel Securities SoCal Data Open 2017, Qualifier — Python/Excel/SQL

- Analysis of 2014-2015 Uber and Taxi data from NYC Area

Moody's Math Modelling Challenge 2016, Top 80 — Mathematica/Excel

- Neural networks and multivariate regression to analyze car-sharing services (Zipcar)

Caltech CS159 Research Project 2018

- "Reinforcement Learning for Path-Dependent Portfolio Optimization on the S&P 500"

Caltech CS81 Research Project 2018

- "Prediction of Graduate School Application Results using Sentiment Analysis and SVMs"

SKILLS

Coding, in use: R, Python [np, pd, plt, tf/keras, xgboost, sklearn, cython, numba, PyAutoGUI]
Coding, can use: Mathematica, C/C++, SQL, MATLAB, LabVIEW, Arduino, UNIX, LaTeX
Communication: English (native), Mandarin Chinese (native), Japanese (fluent)