Ruohan Zhan

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EDUCATION

Stanford University   *09/2017 - present*
Ph.D. student in Computational and Mathematical Engineering - GPA: 4.2/4.0

Research Interests: Machine Learning, Quantitative Finance, Statistical Inference

Peking University   *09/2013 - 07/2017*
B.S. in Computational Mathematics - GPA: 3.86/4.00

Coursework: Theory of Probability, Data Structure and Algorithm, Statistical Machine Learning, Mathematical Modeling, Convex Optimization, Numerical Linear Algebra, Partial Differential Equations

COURSE PROJECT

Deep Reinforcement Learning in Portfolio Management   *09/2017-12/2017*
Artificial Intelligence: Principles and Techniques, Stanford University, teamed with Tianchang He and Yunpo Li

- use deep reinforcement learning(python-based tensorflow) to design a reallocation strategy to maximize return at each time step, with given limited wealth distributed among a group of financial products.

RELEVANT RESEARCH EXPERIENCE

Data-driven Nonparametric Option Pricing with Shape Constraints
National University of Singapore, advisors: Prof. Zuowei Shen and Prof. Steven Kou   *10/2016-present*

- used Hilbert basis to approximate option pricing formula with respect to strike and time to maturity, under constraints of monotonically decreasing and convexity in strike

- extended the daily fitting to a time series fitting with integration of stock price

- achieved more accurate estimation and less overfitting on empirical data

Adaptive Interpolation for Marginal Maximum Likelihood Estimation of Stochastic Volatility Model
Peking University, advisor: Prof. Chenxu Li   *03/2017-06/2017*

- proposed an adaptive grid selecting algorithm to choose segment points for piecewise cubic polynomial expansion of marginal transition density

- used stationary distribution and uniform approximation precision to determine the range and density of segment points respectively

- based on selected grids, we could successfully find local smooth minimum for marginal maximum loglikelihood estimation

CT Image Reconstruction by Spatial-Radon Domain Data-Driven Tight Frame Regularization
Peking University, advisor: Prof. Bin Dong   *09/2015-01/2016*

- developed a CT image reconstruction model which combines the joint sparsity in reconstructed CT image domain and interpolated projection image domain

- learned data-driven tight frames to provide optimal sparse approximations

- wrote a MATLAB package for CT image restoration including wavelet transformation, tight frame learning

- First Author, accepted by SIAM Journal on Imaging Sciences, 9(3), 1063-1083, 2016

COMPUTATIONAL SKILLS

- Python, MATLAB, C, HTML, LaTeX

SELECTED HONORS

- National Scholarship, Minister of Education, China   *10/2016*
- Finalist of the 2016 Mathematical Contest in Modeling, COMAP   *04/2016*
- Qualcomm Global Scholars Award(18 female students in China)   *12/2015*