Ruohan Zhan

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EDUCATION

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

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

RESEARCH EXPERIENCE

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

- used basis functions to approximate a two-dimensional function with shape constraint;
- computationally-practically extrapolated it to a three-dimensional case to satisfy online data processing;
- 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 expanding marginal functions according to piecewise cubic polynomial basis;
- based on selected grids, we could estimate corresponding loglikelihood with given model parameters in the search path 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;
- tight frames are adaptively learned 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)

Split Bregman Iteration(SBI) and Linearized Split Bregman Iteration(L-SBI) Applied to Tuning Neural Network University of California, Los Angeles, advisors: Prof. Stanley Osher, Prof. Yuan Yao. *06/2016-09/2016*

- formulated a loss function with equation constrains for SBI and L-SBI applied to neural network;
- extrapolated SBI for binary classification to algorithms including LSBI for binary classification, SBI and LSBI for multi-class classification;
- talked in Level Set Seminar in Department of Mathematics, UCLA hosted by Prof. Stanley Osher.

COMPUTATIONAL SKILLS

- Programming languages: MATLAB, C, Python, HTML, LaTeX;

SELECTED HONORS

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