Xi He

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Objective

To purse a research internship position in data analysis.

Education

Ph.D. Industrial and System Engineering, Lehigh University, PA, USA. Aug 2014 - Present
B.S. & M.S. Mathematics, Nankai University, China. Sep 2008 - May 2014

Working Experience

Internship

Business Analytics and Monitoring, Siemens Corporation, Princeton, NJ, USA.

- ***Deep Learning via HF approach:*** By further exploring negative curvature of deep learning model, we propose new algorithm which make use of its approximated local Hessian Matrix information. Our new algorithm guarantees to reach local optimality instead of sticking at critical point and share faster convergence rate. Summer 2015

- ***Portfolio Credit Risk:*** Develop optimization models to measure default risk of a portfolio using normal copula model and importance sampling techniques. By fully utilizing dependency among obligors from Market, more reliable and stable prediction is proposed. Summer 2015

Research Assistant

Department of Industrial and Systems Engineering, Lehigh University, PA, USA.

- ***Dual Free SDCA algorithm with adaptive probability:*** Develop optimal probability distribution for dual free SDCA framework. Better performance is shown by take consideration of sub-optimality of each coordinate. Fall 2015

- ***Distributed Algorithms for Large-scale Optimization Problems:*** Propose asynchronous distributed algorithms for empirical minimization problem. Spring 2015

Teaching Assistant

Department of Industrial and Systems Engineering, Lehigh University, PA, USA.

- ***Applied Engineering Statistics*** Fall 2014 & Spring 2015

Selected Courses and Projects

Massive Data Mining, Lehigh University.
Pattern Recognition, Lehigh University.

- ***Digit Recognizer:*** Implemented a Matlab software package to compare various of classifier technologies (Support Vector Machine, Artificial Neural Network, Decision Tree, KKN) for character-image classification problem. Spring 2015

Computation Method, Lehigh University.

- ***Compressed Sensing:*** Using ℓ_1-regularized lasso model to recovery pictures with missing pixels. Multiple algorithms (ISTA, FISTA, GRPS) are implemented " in C++ and compared to figure out their performance. Fall 2015

Integer Programming, Lehigh University.

- ***Mixed binary problem solver:*** Implemented a Python software package to address mixed binary programming problem with branch and cut method. Spring 2015

Machine Learning, Andrew Ng (Stanford University), Coursera.
High Performance Scientific Computing, Randall J. LeVeque, Coursera.

Skills

Programming: C++, Matlab, R, Python, Mathematica
Others: AMPL, CPLEX, Shell Script, Html

Submitted Papers

[1] Dual Free SDCA for Empirical Risk Minimization with Adaptive Probabilities, with Martin Takáč.
[2] Estimating Portfolio Loss Probabilities with Optimal Risk Loading Coefficients and Fixed Dependency among Obligors, with Amit Chakraborty, Ioannis Akrotirianakis.
[3] A Method with Parameter for Solving the Spectral Radius of Nonnegative Tensor, with Yiyong Li, Qingzhi Yang.