Xi He

837 Cedar Hill Drive, Allentown, PA 18109
(484)633-8040, xih314@lehigh.edu, www.xihey.com

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

Participant *Intel Corporation,* Santa Clara, CA, USA.

- ***Large-scale Distributed Optimization in Deep Neural Networks:*** Implemented various of standard approaches to train deep neural network and applied distributed high performance computing technique for acceleration. Fall 2015

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

- ***Deep Learning via HF approach:*** Proposed new Hessian-Free type of algorithm by exploring negative curvature of deep learning model, which guarantees to reach local optimality instead of sticking at critical point. Summer 2015

- ***Portfolio Credit Risk:*** Developed optimization models to measure default risk of a portfolio by using normal copula model and importance samp÷ling techniques to attain more reliable and stable prediction. 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, Pattern Recognition, Lehigh University.

- ***Question*** & ***Answer System:*** Designed competitive Q&A system to attain up to 39.5% accuracy by detecting Apache Lucene and Natural Language Toolkit, etc. Fall 2015

- ***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, Optimization in Machine Learning, 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. Fall 2015

Integer Programming, Nonlinear Programming Lehigh University.

- ***Mixed binary problem solver:*** Implemented a Python software package to address mixed binary programming problem with branch and cut method. Spring 2014

- ***Nonlinear optimization solver:*** Developed a well-optimized MatLab package for unconstrained nonlinear optimization with various of Nonlinear Optimization techniques (SD, Newton, CG, BFGS/DFP, TR, etc.). Spring 2015

Skills

Programming: C++ (MPI, OpenMP), Matlab, R, Python (Spark), Mathematica
Others: AMPL, CPLEX, MOSEK, Gurobi, Shell Script, Html, LaTeX, Mac OS, Linus, Windows

Publications

[1] Dual Free Adaptive Mini-Batch SDCA for Empirical Risk Minimization, with Martin Takáč. Under Review by ICML 2016.

[2] Dual Free SDCA for Empirical Risk Minimization with Adaptive Probabilities, with Martin Takáč. Accepted by OptML@NIPS 2015.

[3] Estimating Portfolio Loss Probabilities with Optimal Risk Loading Coefficients and Fixed Dependency among Obligors, with Amit Chakraborty, Ioannis Akrotirianakis. Available online.

[4] A Method with Parameter for Solving the Spectral Radius of Nonnegative Tensor, with Yiyong Li, Qingzhi Yang. Submitted.