Qi Lei

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EDUCATION

University of Texas at Austin August 2014 - Present

- *Ph.D., Institute for Computational Sciences and Engineering (GPA 3.96/4.0)*
- Advisor: Inderjit S. Dhillon, Center for Big Data Analytics
  - Related courses: Large-Scale Machine Learning, Convex Optimization, Randomized Algorithms, Numerical Analysis: Linear Algebra, Statistical and Discrete Methods in Scientific Computing, Methods of Applied Mathematics

Zhejiang University, Zhejiang, China August 2010 - May 2014

- *B.S., School of Mathematics* (GPA 3.92/4.0, rank 1^{st})
- Advisor: Qunsheng Peng, State Key Lab of CAD&CG
  - Related courses: Computer Graphics, Discrete Mathematics, Combinatorics, Object-Oriented Programming, Lab& Fundamentals of C Programming, Scientific Computing, Fundamentals of Logic and Computer Design

INDUSTRY EXPERIENCE

IBM Thomas J. Watson Research Center March 2016 - October 2016

- partnered with one of the largest American financial companies on a challenge problem of predicting its clients' propensity of trading options
- World of Watson Session recommendation system
  `https://myibm.ibm.com/events/wow/watson/`

PUBLICATIONS

1. **Qi Lei**, Kai Zhong, Inderjit Dhillon. "Coordinate-wise Power Method", *To appear in Neural Information Processing System(NIPS), 2016*
2. **Qi Lei**, Jinfeng Yi, Roman Vaculin, Inderjit Dhillon. "Similarity Preserving Representation Learning for Time Series Analysis", *Submitted for publication*
3. Rashish Tandon, **Qi Lei**, Alexandros G. Dimakis, Nikos Karampatziakis. "Gradient Coding", *To appear in ML Systems Workshop at NIPS, 2016*
4. Arnaud Vandaele, Nicolas Gillis, **Qi Lei**, Kai Zhong, Inderjit Dhillon. "Coordinate Descent Methods for Symmetric Nonnegative Matrix Factorization", *To appear in the IEEE Transactions on Signal Processing*, 2016
5. Hsiang-Fu Yu, Cho-Jui Hsieh, **Qi Lei**, Inderjit S. Dhillon. "A Greedy Approach for Budgeted Maximum Inner Product Search", *arXiv:1610.03317v1*
6. Jiazhou Chen, **Qi Lei**, Yongwei Miao, Qunsheng Peng, "Vectorization of Line Drawing Image based on Junction Analysis", *Science China Information Sciences*, 2014:1-14
7. Maria R. D'Orsogna, **Qi Lei**, Tom Chou, "First assembly times and equilibration in stochastic coagulation-fragmentation", *The Journal of Chemical Physics*, 2015: 143.1, 014112
8. Jiazhou Chen, **Qi Lei**, Fan Zhong, Qunsheng Peng, "Interactive Tensor Field Design Based on Line Singularities", *Proceedings of the 13th International CAD /Graphics*, 2013

SOFTWARE

ImagePro February 2012 - January 2013

- Developed a software in C++ that converts a picture to Van Gogh style paintings
- `http://users.ices.utexas.edu/~leiqi/imagePro/`

Vectorization February 2013 - December 2013

- Developed a software in C++ that converts a scanned or shot line drawing image into a vector graph
- `http://users.ices.utexas.edu/~leiqi/vectorization/`

RESEARCH EXPERIENCE

Coordinate-wise Power Method February 2015 - January 2016

- Proposed a coordinate-ascent version of the well-known power method for computing dominant eigenvector, one for general square matrices, one for symmetric matrices and provided theoretical guarantee for global convergence.
- Experiments show remarkable improvement(up to 20 times faster) over the standard method in a variety of cases, including dense and sparse matrices.

Doubly Greedy Primal Dual Coordinate Descent
December 2015 - Present

- Proposed a forward-backward algorithm in primal-dual coordinate descent for solving support vector machine

Biomathematics Department, UCLA July 2013 - September 2013

- Advisor: Prof. Tom Chou
- Used kinetic Monte-Carlo simulations on dynamic particle aggregation processes.
- Published paper: "First assembly times and equilibration in stochastic coagulation-fragmentation"

TEACHING EXPERIENCE

University of Texas at Austin, Texas, US Fall 2015

- Mathematical Methods in Applied Engineering and Sciences

AWARDS

- The National Initiative for Modeling and Simulation Research Fellowship UT Austin, 2014-2018
- Meritorious Winner(First Prize) for The Mathematical Contest in Modeling (MCM) COMAP, 2014
- The Excellence Scholarship(top honor) Zhejing Univ, 2014
- First Prize for Advanced Mathematics Competition China, 2012
- First Prize Scholarship & Merit Student Zhejiang Univ, 2010-2014
- Third Prize for ACM Programming Contest Zhejiang Univ, 2012
- First Prize for National Olympiad in Informatics in Provinces (NOIP) China, 2007(perfect score),2008
- Gold medal (5^{th} place) in Chinese Girl's Mathematical Olympiad (CGMO) China, 2009

PROGRAMMING SKILLS

C/C++(proficient), Python(proficient), Matlab(proficient), C#(prior experience)