Qi Lei

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EDUCATION

University of Texas at Austin, TX, United States August 2014 - Present

- *Ph.D., Oden Institute for Computational Sciences and Engineering*
- Advisors: Inderjit S. Dhillon, Center for Big Data Analytics; Alexandros G. Dimakis, Wireless Networking & Communications Group.

Institute for Advanced Studies September 2019 - Present

- Visiting Graduate Student for the "Special Year on Optimization, Statistics, and Theoretical Machine Learning"
- Mentor: Jason D. Lee

Simons Institute May 2019 - August 2019

- Research Fellow for the Foundations of Deep Learning Program

Zhejiang University, Zhejiang, China August 2010 - May 2014

- *B.S., School of Mathematics (with honors)*, Chu Kochen Honors (GPA 3.92/4.0, rank 1^{st})
- Advisor: Qunsheng Peng, State Key Lab of CAD&CG.

PUBLICATIONS

1. **Qi Lei**, Jiacheng Zhuo, Constantine Caramanis, Inderjit S. Dhillon, Alexandros G. Dimakis. "Primal-Dual Block Frank-Wolfe", *To appear in NeurIPS 2019*
2. **Qi Lei**, Ajil Jalal, Inderjit S. Dhillon, Alexandros G. Dimakis. "Inverting Deep Generative models, One layer at a time", *To appear in NeurIPS 2019*
3. **Qi Lei**, Jinfeng Yi, Roman Vaculin, Lingfei Wu, Inderjit S. Dhillon. "Similarity Preserving Representation Learning for Time Series Analysis", *The 28th International Joint Conference on Artificial Intelligence (IJCAI), 2019*
4. **Qi Lei**, Lingfei Wu, Pin-Yu Chen, Alexandros G. Dimakis, Inderjit S. Dhillon, Michael Witbrock. "Discrete Adversarial Attacks and Submodular Optimization with Applications to Text Classification", *Systems and Machine Learning (sysML), 2019* (covered by Nature Story)
5. Zhewei Yao, Amir Gholami, **Qi Lei**, Kurt Keutzer, Michael W. Mahoney. "Hessian-based Analysis of Large Batch Training and Robustness to Adversaries", *Neural Information Processing Systems (NIPS), 2018*
6. Jiong Zhang, **Qi Lei**, Inderjit S. Dhillon. "Stabilizing Gradients for Deep Neural Networks via Efficient SVD Parameterization", *International Conference of Machine Learning (ICML), 2018*
7. Hsiang-fu Yu, Cho-Jui Hsieh, **Qi Lei**, Inderjit S. Dhillon. "A Greedy Approach for Budgeted Maximum Inner Product Search", *Neural Information Processing Systems (NIPS), 2017*
8. **Qi Lei**, Enxu Yen, Chao-yuan Wu, Inderjit S. Dhillon, Pradeep Ravikumar. "Doubly Greedy Primal-Dual Coordinate Methods on Sparse Empirical Risk Minimization", *International Conference of Machine Learning (ICML), 2017*

9. Rashish Tandon, **Qi Lei**, Alexandros G. Dimakis, Nikos Karampatziakis, Gradient Coding: Avoiding Stragglers in Distributed Learning, *International Conference of Machine Learning (ICML), 2017*
10. **Qi Lei**, Kai Zhong, Inderjit S. Dhillon. "Coordinate-wise Power Method", *Neural Information Processing System(NIPS), 2016*
11. Arnaud Vandaele, Nicolas Gillis, **Qi Lei**, Kai Zhong, Inderjit S. Dhillon. "Coordinate Descent Methods for Symmetric Nonnegative Matrix Factorization", *IEEE Transactions on Signal Processing*, 64.21 (2016): 5571-5584

AWARDS and RECOGNITIONS

- Simons-Berkely Research Fellowship Simons Institute, 2019 summer
- Meritorious Winner(First Prize) for The Mathematical Contest in Modeling (MCM) COMAP, 2014
- Gold medal (5^{th} place) in China Girls Math Olympiad (CGMO, an international competition with a proof-based format similar to the International Math Olympiad) China, 2009
- The National Initiative for Modeling and Simulation Research Fellowship ($225K for four years) UT Austin, 2014-2018
- Rising Star Participant (An Academic Career Workshop for Women in EECS) UIUC, 2019
- First Prize for CMC (the Mathematics competition of Chinese College Student) China, 2012
- First Prize for National Olympiad in Informatics in Provinces (NOIP) China, 2007(perfect score),2008

PATENTS

- "Method and System for General and Efficient Time Series Representation Learning via Dynamic Time Warping."
  Q. Lei, J. Yi, R. Vaculin, and W. Sun
- "Real-Time Cold Start Recommendation and Rationale within a Dialog System". **Q. Lei**, J. Yi, R. Vaculin, M. Pietro

INDUSTRY EXPERIENCE

Facebook/Photo&Video Search June 2018 - September 2018
- Explore offline/online evaluation gaps by estimating expected number of clicks based on historical logging data.

Amazon/A9 Product Search May 2017 - August 2017
- Inline search suggestions: use deep learning methods to learn the embeddings of user input texts and possible suggestions.

Amazon Web Services (AWS Deep Learning Team) January 2017 - April 2017
- Documentations for MXNet: a deep learning framework designed for both efficiency and flexibility.

IBM Thomas J. Watson Research Center May 2016 - October 2016
- Partnered with one of the largest American financial companies on a challenge problem of predicting its clients' propensity of trading options
- Create World of Watson Session recommendation system:
  `https://myibm.ibm.com/events/wow/watson/`

PROGRAMMING SKILLS

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

Familiar with Deep Learning packages(Pytorch, Tensorflow, Theano, MXNet)