
EDUCATION

Ph.D. Computer Science **University of Rochester** **2015-present**

- Advisor: Ji Liu. GPA: 4.00/4.00.

B.S. Physics **University of Science and Technology of China** **2011-2015**

- Yan Jici Talent Program in Physics.
- GPA: 4.08/4.30. Ranking: 1/63 (Class 003) and 3/264 (School of the Gifted Young).

EMPLOYMENT

Research Summer Intern **IBM Thomas J. Watson Research Center** **May 2017-August 2017**

- Research on large scale parallel optimization for machine learning. Specifically, the theory and implementation of asynchronous decentralized stochastic gradient descent.

Visiting Student Researcher **Stanford University** **July 2014-August 2014**

- Advisor: Zhi-Xun Shen.
- Research on local electron spin resonance (local ESR) apparatus building.

Volunteer Research Assistant **Hefei National Laboratory for Physical Science at Microscale** **2013-2015**

- Advisor: Tao Wu.
- Research on high temperature superconductor with nuclear magnetic resonance (NMR).

AWARDS & HONORS

- **2017**
 - NIPS Travel Award
- **2015**
 - NIPS Travel Award
 - Outstanding Undergraduate of University of Science and Technology of China
 - Honorary Rank of Academic Achievement of the Grade 2011 Undergraduates
 - Honor of Graduating from Yan Jici Talent Program in Physics
- **2014**
 - National Scholarship
- **2013**
 - National Scholarship
 - 1st Prize of 5th China Undergraduate Mathematical Contest (Anhui division)
 - Grand Prize of USTC Research Oriented Physics Experiment Competition
 - 2nd Prize of USTC Undergraduate Mathematical Contest
- **2012**
 - National Encouragement Scholarship
 - 1st Prize of 4th China Undergraduate Mathematical Contest (Anhui division)
 - 2nd Prize of “USTC Star” Forum LOGO Design Competition
- **2011**
 - USTC Scholarship for Outstanding Freshman

PUBLICATIONS

Xiangru Lian, Wei Zhang, Ce Zhang, and Ji Liu. “Asynchronous Decentralized Parallel Stochastic Gradient Descent”. In: *arXiv preprint arXiv:1710.06952* (2017) (*Research project during my internship at IBM*)

Xiangru Lian, Ce Zhang, Huan Zhang, Cho-Jui Hsieh, Wei Zhang, and Ji Liu. “Can Decentralized Algorithms Outperform Centralized Algorithms? A Case Study for Decentralized Parallel Stochastic Gradient Descent”. In: *Advances in Neural Information Processing Systems*. 2017 (**Oral paper**)

Xiangru Lian, Mengdi Wang, and Ji Liu. “Finite-sum Composition Optimization via Variance Reduced Gradient Descent”. In: *International Conference on Artificial Intelligence and Statistics*. 2017

Yang You*, Xiangru Lian*, Ji Liu, Hsiang-Fu Yu, Inderjit Dhillon, James Demmel, and Cho-Jui Hsieh. “Asynchronous Parallel Greedy Coordinate Descent”. In: *Advances in Neural Information Processing Systems*. 2016 (* means equal contribution)

Xiangru Lian, Huan Zhang, Cho-Jui Hsieh, Yijun Huang, and Ji Liu. “A Comprehensive Linear Speedup Analysis for Asynchronous Stochastic Parallel Optimization from Zeroth-Order to First-Order”. In: *Advances in Neural Information Processing Systems*. 2016

Wei Zhang, Suyog Gupta, Xiangru Lian, and Ji Liu. “Staleness-aware Async-SGD for Distributed Deep Learning”. In: *International Joint Conference on Artificial Intelligence*. 2016

Xiangru Lian, Yijun Huang, Yuncheng Li, and Ji Liu. “Asynchronous parallel stochastic gradient for nonconvex optimization”. In: *Advances in Neural Information Processing Systems*. 2015, pp. 2719–2727 (**Spotlight paper**)

Yongping Wu, Dan Zhao, Xiangru Lian, Xiufang Lu, Naizhou Wang, Xigang Luo, Xianhui Chen, and Tao Wu. “NMR evidence for field-induced ferromagnetism in $(Li_{0.8}Fe_{0.2})OHFeSe$ superconductor”. In: *Physical Review B* 91.12 (2015), p. 125107

PROFESSIONAL SERVICES

Reviewer

- 2017: BIT Numerical Mathematics, IEEE Transactions on Knowledge and Data Engineering (TKDE).
- 2016: NIPS.

Invited Talks

- 2017: IBM T.J. Watson Research Center, Optimization for AI: *Accelerating Deep Learning via Decentralized Parallel Optimization*
- 2015: NIPS 3min spotlight talk: *Asynchronous Parallel Stochastic Gradient for Nonconvex Optimization*

Teaching Assistant

- 2017: CSC484 – Advanced Algorithms.
- 2016: CSC282 – Design and Analysis of Efficient Algorithms.

LANGUAGES AND TECHNOLOGIES

Proficient Java, TypeScript, Python, C, Clojure, Groovy.

Familiar Racket, Julia, C++, Ruby, Emacs Lisp, \LaTeX , SQL, Shell, LabVIEW, Mathematica, C#, Matlab, Lua.

Frameworks PyTorch, CNTK, Spring, Angular 2, Hibernate.