
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-present**

- Research on large scale optimization for machine learning.

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

- **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 Price of “USTC Star” Forum LOGO Design Competition
- **2011**
 - USTC Scholarship for Outstanding Freshman

PUBLICATIONS

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*. 2017. eprint: arXiv:1705.09056

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**)

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.
- 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.

Familiar with Racket, Julia, C++, Ruby, Emacs Lisp, L^AT_EX, SQL, Shell, LabVIEW, Mathematica, C#, Matlab, Lua.

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

COURSEWORK

- **Graduate Coursework with Grade A+:** Advanced Algorithms, Computational Complexity.
- **Graduate Coursework with Grade A:** Machine Vision, Machine Learning, PhD Research in CSC (2016 Spring, 2016 Fall, 2017 Spring), Problem Seminar, Dynamic Lang. & Soft. Dev., Big Data Analytics, Operating Systems.
- **Undergraduate Coursework with Grade A+:** Computer Programming A, Linear Algebra B1, Mathematical Analysis B2, Thermal Physics, A General Survey of Astrophysics, Advanced Calculus, Function of Complex Variable A, Probability and Statistics B, Optics, Theoretical Mechanics A, Appreciation and Creation of Ceramic Art, Ordinary Differential Equations, Mathematical Physics Equations A, Fundamentals of Electronic Technology (2), Atomic Physics, Electrodynamics, Karate, Computational Methods B, Computational Physics A, Quantum Mechanics A, Mechanics, Electronic Circuits Experiment I, Thermodynamics and Statistical Physics A.

- **Undergraduate Coursework with Grade A:** Chemical Principles B, Electromagnetism A, Basic Principles of Marxism, Fundamentals of Electronic Technology (1,3), College Physics Experimentation (II,III,IV), Sanda, Introduction to Chinese Important Thoughts, Mathematical Analysis B1, Solid State Physics A, Physics Specialized Basal Experiment, Introduction to Modern Atomic and Molecular Physics.
- **Other Undergraduate Coursework:** A-: Secondary English Reading and Writing, Experiment of General Chemistry, Moral Cultivation and Law Foundation, Advanced English Listening and Speaking, Advanced English Reading and Writing, Experiments in Physics I, Data Structures and Database. B+: Basic Physical Education, Essentials of Chinese Modern History, Volleyball. B: Secondary English Listening and Speaking. Pass: Military Theory, Physics Forum, Practice on Chinese Important Thoughts.