

Xiaoyu Li

PH.D STUDENT IN SYSTEM ENGINEERING

111 Cummington Mall, Boston, MA 02215, U.S.

☎ (+1) 631-590-9061 | ✉ xiaoyuli@bu.edu | 🌐 <https://xiaoyuli94.github.io> | 🐦 @xyli94 | 🏠 Xiaoyu Li

Education

Boston University

PH.D. CANDIDATE IN SYSTEM ENGINEERING **ADVISOR:** FRANCESCO ORABONA

Boston, MA

Sep. 2018 – Present

Stony Brook University (SBU)

PH.D. CANDIDATE IN APPLIED MATHEMATICS **ADVISOR:** FRANCESCO ORABONA

Stony Brook, NY

Aug. 2016 – Aug. 2018

University of Science and Technology of China (USTC),

B.S. IN APPLIED MATHEMATICS

Hefei, China

Aug. 2012– June 2016

Work Experience

Nokia Bell Labs

MACHINE LEARNING RESEARCH INTERN

Murray Hill, NJ

June 2019 - Aug. 2019

- Provide tight theoretical bound for the dimension of Neural Networks on the classification of Gaussian Mixture Models, based on random construction.
- Implement stochastic simulation and validate the theoretical findings using Matlab.

Research Experience

Optimal Lab, Boston University & Stony Brook University

RESEARCH ASSISTANT

Boston, MA & Stony Brook, NY

Oct 2017 - Present

- *Topic:* Stochastic Optimization and Machine Learning
- Provide theoretical understanding to existing popular-used algorithms which have no theoretical backup, such as Generalized AdaGrad and SGD with cosine and exponential stepsizes in the non-convex setting.
- Propose novel stochastic optimization methods for machine learning, with theoretical support.
- Implement the algorithms to compare their performances with existing popular algorithms.

Stony Brook University

RESEARCH ASSISTANT

Stony Brook, NY

June 2017 - Aug. 2017

- *Topic:* Optimization and Design of Supercomputer Network Topology.
- Design parallelizable method using C and C++ with MPI to optimize regular graphs.
- Manage to improve computing performance of cluster using optimized graphs as network topology.

National Tsing-Hua University

UNDERGRADUATE EXCHANGE STUDENT RESEARCHER

Hsingchu, Taiwan

June 2015 - Aug. 2015

- *Topic:* Comparisons of Probability Structure of Extended Poisson Distributions with Over-dispersion
- Compare the probability structure of four extended Poisson Models with character of over-dispersion in terms of flexibility.

Publications and Preprints

On the Last Iterate Convergence of Momentum Methods.

XIAOYU LI, MINGRUI LIU, FRANCESCO ORABONA. *arXiv Preprints*

arXiv

February 2020

A High Probability Analysis of Adaptive SGD with Momentum.

XIAOYU LI, FRANCESCO ORABONA. *ICML Workshop on Beyond First Order Methods in ML Systems, 2020.*

Virtual

July 2020

A Second look at Exponential and Cosine Step Sizes: Simplicity, Convergence, and Performance

XIAOYU LI*, ZHENXUN ZHUANG*, FRANCESCO ORABONA. *arXiv Preprints*

arXiv

February 2020

On the Convergence of Stochastic Gradient Descent with Adaptive Stepsizes.

XIAOYU LI, FRANCESCO ORABONA. *International Conference on Artificial Intelligence and Statistics (AISTATS), 2019.*

Napa, Japan

April 2019

Technique Skills

Programming Languages: Matlab, Python, C/C++(MPI) **Deep Learning Package:** PyTorch

Academic Service

- 2021 **Reviewer**, The 38th International Conference on Machine Learning (ICML)
- 2021 **Reviewer**, The Ninth International Conference on Learning Representations(ICLR)
- 2020 **Reviewer**, The 34th Conference on Neural Information Processing Systems (NeurIPS)
- 2020 **Reviewer**, The 37th International Conference on Machine Learning (ICML)
- 2020 **Reviewer**, The 23rd International Conference on Artificial Intelligence and Statistics (AISTATS)
- 2019 **Reviewer**, The 33th Conference on Neural Information Processing Systems (NeurIPS)

Teaching Experience

- 2017 **Graduate Teaching Assistant, SBU**, Fundamental of Computing *Stony Brook, NY*
- 2016, 2017 **Graduate Teaching Assistant, SBU**, Elements of Statistics *Stony Brook, NY*
- 2015 **Undergrad Teaching Assistant, USTC**, Elements of Statistics *Hefei, China*

Honors & Awards

- 2015 **Honorable Mentioned**, Mathematical Contest in Modeling
- 2012-2015 **Outstanding Student Scholarship**, USTC *Hefei, China*