Xiaoyu Li

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Education

- **Boston University** — Boston, MA
  Ph.D. Student in System Engineering; GPA: 4.0/4.0 — *Sep. 2018 – Present*
- **Stony Brook University** — Stony Brook, NY
  Ph.D. Student in Applied Mathematics; GPA: 3.74/4.0 — *Aug. 2016 – Aug.2018*
- **University of Science and Technology of China (USTC),** — Hefei, China
  B.S. in Applied Mathematics; GPA: 3.64/4.0 — *Aug. 2012– June 2016*

Research Interest

My interests lie in optimization and machine learning. I'm interested in both theoretical justification and real-world applications. In particular, I am interested in **Stochastic Optimization**, **Machine Learning** and **Online Learning**.

Publications

Xiaoyu Li, Francesco Orabona. On the Convergence of Stochastic Gradient Descent with Adaptive Stepsizes. In: *The 22nd International Conference on Artificial Intelligence and Statistics, AISTATS. 2019*
Xiaoyu Li, Zhenxun Zhuang, Francesco Orabona. Exponential Step Sizes in Non-Convex Optimization. *In Submission https://arxiv.org/abs/2002.05273*

Technical Skills

- **Programming Languages**: Matlab, Python, C/C++
- **Deep Learning Package**: PyTorch

Working Expreience

- **Research Intern, Nokia Bell Labs**
  Dimensioning of Neural Networks *Mentor: Carl Nuzman* — *June 2019 - Aug. 2019*
  - Study the size of Neural Network especially the width when approximate different functions, respectively
  - Simulate the function with Matlab.

Research Experience

- **Research Assistant, Boston University & Stony Brook University**
  Stochastic Optimization and Machine Learning *Advisor : Francesco Orabona* — *Oct 2017 - Present*
  - Give theoretical guarantees to existing popular-used algorithms which have no theoretical understanding, such as Generalized AdaGrad in the **non-convex** setting.
  - Propose new machine learning algorithms in terms of stochastic optimization, with the theoretical analysis.
  - Implement the algorithms to compare their performances with existing popular algorithms.
- **Research Assistant, Stony Brook University**
  Optimization and Design of Supercomputer Network Topologies — *June 2017 - Aug. 2017*
  - Design parallelized simulated annealing using C and C++ with MPI to optimize regular graphs.
  - Manage to improve computing performance of cluster using optimized graphs as network topology.
- **Undergraduate Exchange Student Research, National Tsing-Hua University**
  Comparisons of Probability Structure of Extended Poisson Distributions with Over-dispersion — *July 2015 - Aug. 2015*
  - Compare the probability structure of four extended Poisson Models with character of over-dispersion in terms of flexibility and application range.

Teaching Experience

- **Teaching Assistant, Stony Brook Unviersity** Fundamental of Computing; 2017 Fall
- **Teaching Assistant, Stony Brook Unviersity** Elements of Statistics; 2016 Fall & 2017 Spring
- **Undergrad Teaching Assistant, USTC** Single Variable Calculus; 2015 Fall

Honors and Awards

- **Honorable Mentioned** Mathematical Contest in Modeling; 2015
- **Outstanding Student Scholarship** USTC; 2014-2015, 2013-2014, 2012-2013