

# Ruqi Zhang

## Education

- 2016–2021 **PhD, Statistics; Special MS, Computer Science**, *Cornell University, Ithaca, NY.*  
(expected) Advisor: Christopher De Sa, Committee Members: Thorsten Joachims, Giles Hooker  
GPA: 3.97/4.00
- 2012–2016 **BS, Mathematics and Applied Mathematics**, *Renmin University of China, Beijing, China.*  
GPA: 3.82/4.00
- 2015 **Exchange Student, Mathematics and Computer Science**, *University of Helsinki, Finland.*  
GPA: 5/5

## Research Interests

I am interested in building scalable, reliable and efficient probabilistic models for machine learning and data science. Currently, I focus on developing fast and robust inference methods with theoretical guarantees and their applications with modern model architectures, such as deep neural networks, on real-world big data.

## Publications

- [1] **Asymptotically Optimal Exact Minibatch Metropolis-Hastings.**  
Neural Information Processing Systems (NeurIPS), 2020  
**Spotlight, acceptance rate 2.96%**  
*Ruqi Zhang, A. Feder Cooper, Christopher De Sa*
- [2] **AMAGOLD: Amortized Metropolis Adjustment for Efficient Stochastic Gradient MCMC.**  
Artificial Intelligence and Statistics (AISTATS), 2020  
*Ruqi Zhang, A. Feder Cooper, Christopher De Sa*
- [3] **Cyclical Stochastic Gradient MCMC for Bayesian Deep Learning.**  
International Conference on Learning Representations (ICLR), 2020  
**Oral, acceptance rate 1.85%**  
*Ruqi Zhang, Chunyuan Li, Jianyi Zhang, Changyou Chen, Andrew Gordon Wilson*
- [4] **Poisson-Minibatching for Gibbs Sampling with Convergence Rate Guarantees.**  
Neural Information Processing Systems (NeurIPS), 2019,  
**Spotlight, acceptance rate 2.43%**  
*Ruqi Zhang, Christopher De Sa*
- [5] **Meta-Learning for Variational Inference.**  
Symposium on Advances in Approximate Bayesian Inference (AABI), 2019  
*Ruqi Zhang, Yingzhen Li, Christopher De Sa, Sam Devlin, Cheng Zhang*
- [6] **Large Scale Sparse Clustering.**  
International Joint Conference on Artificial Intelligence (IJCAI), 2016  
*Ruqi Zhang, Zhiwu Lu*

## Work Experience

- 6/2020–8/2020 **Research Intern**, *Microsoft Research New England.*  
Mentors: Nicolo Fusi, Rishit Sheth  
Project: Hyperparameter Schedules Optimization. One paper in progress.

6/2019– **Research Intern**, *Microsoft Research Cambridge, UK*.

8/2019 Mentors: Cheng Zhang, Yingzhen Li, Sam Devlin

Project: Meta-learning and reinforcement learning for variational inference. One paper in AABI and one paper in progress.

## Code Repositories

2020 <https://github.com/ruqizhang/csgmcmc>. PyTorch code for MCMC methods in Bayesian deep learning (over 70 stars/forks)

2020 <https://github.com/ruqizhang/tunamh>. A library in Julia for minibatch Metropolis-Hastings methods

2020 <https://github.com/ruqizhang/amagold>. PyTorch code for an unbiased stochastic gradient MCMC

2019 <https://github.com/ruqizhang/pgibbs>. Julia code for a minibatch Gibbs sampling method

## Talks

### **Asymptotically Optimal Exact Minibatch Metropolis-Hastings.**

Spotlight talk in Rising Stars in Data Science Workshop at University of Chicago, January 2021

Spotlight presentation at NeurIPS, December 2020

### **Cyclical Stochastic Gradient MCMC for Bayesian Deep Learning.**

Oral presentation at ICLR, April 2020

### **Poisson-Minibatching for Gibbs Sampling with Convergence Rate Guarantees.**

Spotlight presentation at NeurIPS, December 2019

## Teaching

Cornell Teaching Assistant, ILRST 5050, Statistics at Work, Fall 2018

Teaching Assistant, STSCI 2100, Introductory Statistics, Spring 2018

Teaching Assistant, MATH 3110, Introduction to Analysis, Spring 2017

Teaching Assistant, STSCI 3110, Probability Models and Inference for the Social Sciences, Fall 2016, Fall 2017, Fall 2020

## Service

Reviewer NeurIPS 2018, 2019, 2020; ICML 2019, 2020; ICLR 2019, 2020, 2021; AISTATS 2020, 2021; AAAI 2020; UAI 2019; AABI 2019, 2020; ICBINB@NeurIPS 2020

## Awards

2020 Spotlight Rising Star in Data Science at University of Chicago

2020 NeurIPS Top 10% Reviewers Award

2019 NeurIPS Travel Grant

2013-2015 Academic Outstanding Scholarship, Renmin University of China

2015 Exchange Students Scholarship, University of Helsinki

## Technical Skills

Programming Languages Python, Julia, C/C++, Matlab, R

Deep Learning Pytorch, Tensorflow