

Qian Qin

Contact Information

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Education

August 2019 PhD in Statistics, University of Florida (Advisor: James P. Hobert)
May 2017 MStat in Statistics, University of Florida
July 2014 BS in Physics, Peking University
BEcon in Economics (double major), Peking University

Professional Experience

August 2019 to Present Assistant Professor, University of Minnesota TC, School of Statistics

Grants

PI, “Large sample analysis of Markov chain Monte Carlo methods in Bayesian statistics from a frequentist perspective”. National Science Foundation DMS-2112887, 2021-2024.

Papers

Qin, Q. (2023+). Geometric ergodicity of trans-dimensional Markov chain Monte Carlo algorithms, *arXiv* preprint.

Li, H., Qin, Q. and Jones, G. L. (2023+). Convergence analysis of data augmentation algorithms for Bayesian robust multivariate linear regression with incomplete data, *arXiv* preprint.

Qin, Q. (2023+). Analysis of two-component Gibbs samplers using the theory of two projections, *arXiv* preprint.

Qin, Q. and Wang, G. (2023+). Spectral telescope: Convergence rate bounds for random-scan Gibbs samplers based on a hierarchical structure, *Annals of Applied Probability*, to appear.

Qin, Q. and Hobert, J. P. (2022). Geometric convergence bounds for Markov chains in Wasserstein distance based on generalized drift and contraction conditions, *Annales de l’Institut Henri Poincaré (B) Probabilités et Statistiques*, **58**: 872-889.

Qin, Q. and Jones, G. L. (2022). Convergence rates of two-component MCMC samplers, *Bernoulli*, **28**: 859-885.

Jones, G. L. and Qin, Q. (2022). Markov chain Monte Carlo in practice, *Annual Review of Statistics and Its Application*, **9**: 557-578.

Qin, Q. and Hobert, J. P. (2022). Wasserstein-based methods for convergence complexity analysis of MCMC with applications, *Annals of Applied Probability*, **32**: 124-166.

Qin, Q. and Hobert, J. P. (2021). On the limitations of single-step drift and minorization in Markov chain convergence analysis, *Annals of Applied Probability*, **31**: 1633-1659.

Qin, Q., Hobert, J. P. and Khare, K. (2019). Estimating the spectral gap of a trace-class Markov operator, *Electronic Journal of Statistics*, **13**: 1790-1822.

Qin, Q. and Hobert, J. P. (2019). Convergence complexity analysis of Albert and Chib's algorithm for Bayesian probit regression, *Annals of Statistics*, **47**: 2320-2347.

Qin, Q. and Hobert, J. P. (2018). Trace-class Monte Carlo Markov chains for Bayesian multivariate linear regression with non-Gaussian errors, *Journal of Multivariate Analysis*, **166**: 335-345.

Hobert, J. P., Jung, Y. J., Khare, K. and Qin, Q. (2018). Convergence analysis of MCMC algorithms for Bayesian multivariate linear regression with non-Gaussian errors, *Scandinavian Journal of Statistics* **45**: 513-533.

Seminar Talks

"Spectral telescope: Convergence rate bounds for random-scan Gibbs samplers based on a hierarchical structure". Rutgers University, Piscataway, NJ, US, October 26, 2022; University of Cincinnati, virtual, November 1, 2022; Warwick University, virtual, March 10, 2023.

"Gibbs samplers with two components: Convergence rate and asymptotic variance". UP-STAT 2022 Hybrid Conference, virtual, May 4, 2022; ICASA 2022 Applied Statistics Symposium, Gainesville, FL, US, June 21, 2022; ICASA 2022 China Conference, virtual, June 30, 2022; CMStatistics, virtual, December 19, 2022.

"Analysis of two-component Gibbs samplers using the theory of two projections". Rutgers University-Camden, Camden, NJ, USA, February 18, 2022; University of Bristol, virtual, March 18, 2022; Purdue University, virtual, March 25, 2022; Pennsylvania State University, State College, PA, USA, March 31, 2022; Renmin University of China, virtual, April 22, 2022.

"Convergence Rates of Two-Component MCMC Samplers". ISBA 2021, virtual, June 28, 2021.

"Limitations of single-step drift and minorization in convergence analysis of Markov chains". Joint Statistical Meeting 2020, pre-recorded, August 3, 2020; MCQMC 2020, pre-recorded, August 10, 2020.

"Geometric convergence bounds for Markov chains in Wasserstein distance". Guangxi Normal University, Guilin, Guangxi, China, December 30, 2019; Bayes Comp, Gainesville, FL, USA, January 10, 2020.

"Convergence complexity analysis of MCMC". CMStatistics, London, UK, December 16, 2019. IISA 2021 Conference, virtual, May 20, 2021.

"Convergence complexity analysis of Albert and Chib's algorithm". Joint Statistical Meetings, Vancouver, BC, Canada, August 1, 2018.

"Estimating the spectral gap of a trace-class Markov operator". LMS-EPSRC Durham Symposium: Markov processes, mixing times and cutoff, Durham, UK, July 28, 2017.

Posters

“Analysis of two-component Gibbs samplers using the theory of two projections”. IMS New Researchers Conference, George Mason University, Fairfax, VA, USA, August 4, 2022.

“Estimating the spectral gap of a trace-class Markov operator”. Statistics, Monte Carlo, and so much more: a conference in honor of Charlie Geyer, University of Minnesota, Minneapolis, MN, USA, April 6, 2018.

Teaching Experience

STAT 5102: Theory of Statistics II, University of Minnesota TC, Spring 2023.

STAT 5101: Theory of Statistics I, University of Minnesota TC, Fall 2022.

STAT 8111: Mathematical Statistics I, University of Minnesota TC, Fall 2021, Fall 2022.

STAT 4102: Theory of Statistics II, University of Minnesota TC, Spring 2020 (online), Spring 2021 (online), Fall 2021, Spring 2022.

STAT 4101: Theory of Statistics I, University of Minnesota TC, Fall 2019, Fall 2020 (online).

STA 4321: Introduction to Probability, University of Florida, Summer 2019.

STA 3024: Introduction to Statistics II, University of Florida, Spring 2017.

Professional Services

Scientific committee member, EAC-ISBA conference 2023, Qingdao, Shandong, China, June 2023.

Scientific organizing committee member, 2023 IRSA Conference - The Fast and the Curious: Modern Markov Chain Monte Carlo, Minneapolis, MN, USA, May 2023.

Updated on August 2, 2023.