Ruobin Gong

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Appointments

2024/07– Associate Professor, Department of Statistics, Rutgers University
2018–24 Assistant Professor, Department of Statistics, Rutgers University
2022– Assistant Professor (status-only), Department of Statistical Sciences, University of Toronto

Education

2018 Ph.D., Statistics, Harvard University
2013 A.M., Statistics, Harvard University
2011 Hon. B.Sc. (high distinction), Psychology (specialist) & Statistics (major), University of Toronto

Publications

Refereed Journal Articles

Schervish, M. J., Seidenfeld, T., Kadane, J. B., Gong, R., and Stern, R. B. (2024). When no price is right. *The Review of Symbolic Logic*, pages 1–43. [doi]

Di Bello, M. and Gong, R. (2023). Informational richness and its impact on algorithmic fairness. *Philosophical Studies*. [doi]

Craiu, R. V., Gong, R., and Meng, X.-L. (2023). Six statistical senses. *Annual Review of Statistics and Its Application*, 10(1):699–725. [doi]

Gong, R. (2022). Exact inference with approximate computation for differentially private data via perturbations. *Journal of Privacy and Confidentiality*, 12(2). [doi]

Gong, R. (2022). Transparent privacy is principled privacy. *Harvard Data Science Review*, Special Issue 2. [doi]

Gong, R., Kadane, J. B., Schervish, M. J., Seidenfeld, T., and Stern, R. (2022). Learning and total evidence with imprecise probabilities. *International Journal of Approximate Reasoning*, 151:21–32. [doi]

- Extended version of Gong, R., Kadane, J. B., Schervish, M. J., and Seidenfeld, T. (2021). Total evidence and learning with imprecise probabilities. In *Proceedings of the Twelfth International Symposium on Imprecise Probability: Theories and Applications (ISIPTA'21)*, volume 147 of *Proceedings of Machine Learning Research*, pages 161–168. [link]

Gong, R. and Meng, X.-L. (2021). Judicious judgment meets unsettling updating: dilation, sure loss, and Simpson's paradox (with discussion). *Statistical Science*, 36(2):169–190. [doi]

- Rejoinder, same issue, 210-214. [doi]

Jacob, P. E., Gong, R., Edlefsen, P. T., and Dempster, A. P. (2021). A Gibbs sampler for a class of random convex polytopes (with discussion). *Journal of the American Statistical Association*, 116(535):1181–1192. [doi]

- Rejoinder, same issue, 1211-1214. [doi]

Gong, R., Kadane, J. B., Schervish, M. J., Seidenfeld, T., and Stern, R. B. (2021). Deceptive credences. *Ergo, an Open Access Journal of Philosophy*, 7. [doi]

Refereed Conference Proceedings

Bailie, J. and Gong, R. (2023). Differential privacy: General inferential limits via intervals of measures. In *Proceedings of the Thirteenth International Symposium on Imprecise Probabilities: Theories and Applications (ISIPTA'23)*, volume 215 of *Proceedings of Machine Learning Research*, pages 11–24. [link]

Caprio, M. and Gong, R. (2023). Dynamic precise and imprecise probability kinematics. In *Proceedings of the Thirteenth International Symposium on Imprecise Probabilities: Theories and Applications (ISIPTA'23)*, volume 215 of *Proceedings of Machine Learning Research*, pages 72–83. [link]

Dharangutte, P., Gao, J., Gong, R., and Yu, F.-Y. (2023). Integer subspace differential privacy. *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI-23)*, 37(6):7349–7357. [doi]

Ju, N., Awan, J., Gong, R., and Rao, V. (2022). Data augmentation MCMC for Bayesian inference from privatized data. *Advances in Neural Information Processing Systems (NeurIPs'22)*, 35:12732–12743. [link]

Gao, J., Gong, R., and Yu, F.-Y. (2022). Subspace differential privacy. *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI-22)*, 36(4):3986–3995. [doi]

Gong, R. and Meng, X.-L. (2020). Congenial differential privacy under mandated disclosure. In *Proceedings of the 2020 ACM-IMS on Foundations of Data Science Conference (FODS'20)*, pages 59–70. [doi]

Gong, R. (2019). Simultaneous inference under the vacuous orientation assumption. In *Proceedings of the Eleventh International Symposium on Imprecise Probabilities: Theories and Applications (ISIPTA'19)*, volume 103 of *Proceedings of Machine Learning Research*, pages 225–234. [link]

Technical Communications

Cui, Y., Gong, R., Hannig, J., and Hoffman, K. (2023). Technical comment on "policy impacts of statistical uncertainty and privacy". *Science*, 380(6648):eadf9724. [doi]

Gong, R. and Xie, M. (2019). Discussion on prior-based Bayesian information criterion (PBIC) by MJ Bayarri, James O. Berger, Woncheol Jang, Surajit Ray, Luis R. Pericchi, and Ingmar Visser. *Statistical Theory and Related Fields*, 3(1):35–36. [doi]

Book Chapters

Gong, R. (2024). Dempster-Shafer theory for statistical inference. In Berger, J., Meng, X.-L., Reid, N., and Xie, M., editors, *Handbook of Bayesian, Fiducial and Frequentist Inferences*. CRC Press

Awan, J. A. and Gong, R. (2024). Statistical inference and differential privacy. In Drechsler, J., Kifer, D., Reiter, J., and Slavković, S., editors, *Handbook of Sharing Confidential Data Differential Privacy, Secure Multiparty Computation, and Synthetic Data*. CRC Press

Gong, R., Kadane, J. B., Schervish, M. J., Seidenfeld, T., and Stern, R. B. (2022). The value provided by a scientific explanation. In Augustin, T., Cozman, F. G., and Wheeler, G., editors, *Reflections on the Foundations of Probability and Statistics: Essays in Honor of Teddy Seidenfeld*. Springer. [doi]

Preprints

Bailie, J. and Gong, R. (2024). General inferential limits under differential and pufferfish privacy. [arXiv]

Dharangutte, P., Gao, J., Gong, R., and Wang, G. (2024). Differentially private range queries with correlated input perturbation. [arXiv]

Bailie, J. and Gong, R. (2023). The five safes as a privacy context. Technical report

Bailie, J., Gong, R., and Meng, X.-L. (2023). Can swapping be differentially private? A refreshment stirred, not shaken. [link]

Chen, Y., Gong, R., and Xie, M. (2020). Geometric conditions for the discrepant posterior phenomenon and connections to Simpson's paradox. [arXiv]

Editorials, Reviews, Opinions

Committee on Economic Statistics (2023). Implications of new privacy protection methods for economic research. Summary of AEAStat working session at the 2023 ASSA meeting, American Economic Association. [link]

Gong, R., Groshen, E. L., and Vadhan, S. (2022). Harnessing the known unknowns: Differential privacy and the 2020 Census. *Harvard Data Science Review*, Special Issue 2. [doi]

- HDSR Podcast, Episode 18 (Podbean/Apple/Spotify)

Gong, R. (2022). David Kennard (director). John Cleese's wine for the confused. written by David Kennard and John Cleese. produced by Victoria Simpson. distributed by InCA Productions, 2004, 42 min. *Journal of Wine Economics*, 17(3):259–261. [doi]

Sound the Gong - IMS Bulletin

Gong, R. (2024). Dial ρ for regulation (and B for bitcoin). *IMS Bulletin*, 53(2). [link]

Gong, R. (2023). Why ChatGPT is like Botox. *IMS Bulletin*, 52(5). [link]

Gong, R. (2023). The laws of the jungle: Data science edition. *IMS Bulletin*, 52(1). [link]

Gong, R. (2022). In defense of an Explicandum. *IMS Bulletin*, 51(7). [link]

Gong, R. (2022). Ruobin Gong interviews Claire McKay Bowen. *IMS Bulletin*, 51(3). [link]

Gong, R. (2021). Going remote and back again: Lessons learned. *IMS Bulletin*, 50(6). [link]

Gong, R. (2021). Back on the road. *IMS Bulletin*, 50(3). [link]

Gong, R. (2020). Now, your information is beyond Enigmatic. *IMS Bulletin*, 49(2). [pdf]

Gong, R. (2018). There's fun in thinking just one step more. *IMS Bulletin*, 47(8). [pdf]

Invited Talks, Panels, and Discussions

2024 JSM 2024: *Reinforcing the Data Science Foundation: A Joint Adventure of Philosophers and Statisticians*, Portland, OR

WNAR/IMS/Graybill Annual Meeting, Colorado State University

Privacy Law Scholars Conference (commentator), Georgetown University Law Center

NYC Privacy Day, New York University

Department of Statistics, Rutgers University

2023 Department of Statistical Science, Duke University

The 5^{th} Annual Symposium on Applications of Contextual Integrity, York University, Toronto, Canada

JSM 2023: *Novel Alternatives to MCMC and Approximate Bayesian Inference*, Toronto, Canada

JSM 2023: *Statistical Privacy in the 21st Century: Census and Consensus* (panel), Toronto, Canada

The 10^{th} International Purdue Statistics Symposium, *New Developments in the Foundations of Statistics*, Purdue University

Privacy Law Scholars Conference (commentator), University of Colorado, Boulder

New England Statistics Symposium, Boston University

Conference on Recent Advances in Statistics and Data Science: *Celebration of Professors Regina Liu and Cun-Hui Zhang's Special Birthdays* (discussant), Rutgers University

Nokia Bell Labs, *DIMACS Spring Mixer*, Murray Hill, NJ

MSIS Department Seminar, Rutgers Business School, Newark, NJ

2022 Harvard Statistics Department Retreat, Cambridge, MA

JSM 2022: *BFF: Innovation in Statistical Foundations*, Washington, DC

Workshop on Differential Privacy and Statistical Data Analysis, Fields Institute, Toronto, Canada [video]

SIPTA Seminar: *Imprecise probabilities in modern data science: challenges and opportunities* [video]

IMS Annual Meeting: *New directions in theory and practice of formally private synthetic data*, London, UK

Seventh Bayesian, Fiducial and Frequentist Conference: *Computation for BFF*, Toronto, Canada

Conference on Advances in Bayesian and Frequentist Statistics: *Celebration of the 80^{th} Birthday of Professor William E. Strawderman* (discussant), Rutgers University

Foundations of Probability Seminar Panel Series, *Are the repeated sampling principle and Cournot's principle frequentist?* (panelist), Rutgers University

2021 CFE-CMStatistics 2021: *BFF: Topics in foundations of inference*, London, UK

Department of Mathematics and Statistics, University of Massachusetts Amherst

Center for Statistical Science, Tsinghua University, China

Department of Statistics, Purdue University

PSA 2020/2021: *Current Debates on Statistical Modeling and Inference*, Baltimore, MD

Inaugural Conference, *Epistemic Utility for Imprecise Probability*, University of Bristol, UK

Applied Statistics Workshop, Department of Government & IQSS, Harvard University

JSM: *Recent Developments in Differential Privacy* (virtual event)

ISIPTA 2021, Granada, Spain

IMS/HBS virtual workshop: *Crossing Disciplines: Studying Fairness, Bias, and Inequality in Management and Decision Sciences Research*

Boston Area Differential Privacy Seminar

BFF6.5: *Workshop on Bayesian, Fiducial, and Frequentist Statistical Inference* (virtual event)

2020 l'Ecole des sciences criminelles, Université de Lausanne, Switzerland

Department of Statistics, The University of Chicago

HMI Data, AI and Society Seminar, Australian National University, Australia

Department of Statistics and Actuarial Science, University of Waterloo, Canada

FODS2020: Plenary session on *Fairness, Privacy, Interpretability* (virtual event)

Statistical Data Privacy Group, Department of Statistics, Penn State University

OpenDP Community Meeting, Statistics Breakout Session Lightning Presentation (virtual event)

Signal and Information Processing Seminar Series, Rutgers University

United States Census Bureau, Suitland, MD

2019 Department of Statistical Science, University of Toronto

HDSR Symposium: *Differential Privacy for 2020 U.S. Census* (panelist), Harvard University
Department of Statistics, Columbia University
JSM: *Towards Perfect and Scalable Distributional Computation*, Denver, CO
ISIPTA 2019, Ghent, Belgium
SDSS: *Recent Developments in Lower Rank Learning for Complex Data*, Seattle, WA
New England Statistics Symposium, Hartford, CT
Sixth Bayesian, Fiducial and Frequentist Workshop (panelist), SAMSI, Durham, NC
Department of Mathematics and Statistics, Washington University in St. Louis
School of Statistics, University of Minnesota
Department of Statistics, University of California, Davis

2018 Department of Statistics, George Washington University
Foundations of Probability seminar, Rutgers University
Department of Mathematical Sciences, New Jersey Institute of Technology
20^{th} IMS New Researchers Conference, Simon Fraser University
ICSA Applied Statistics Symposium, New Brunswick, NJ
Fifth Bayesian, Fiducial and Frequentist Conference, University of Michigan

2017 Department of Economics, Harvard University
JSM invited poster, Baltimore, MD
61^{st} World Statistics Congress, Marrakech, Morocco
Fourth Bayesian, Fiducial and Frequentist Workshop (panelist), Harvard University
Harvard Horizons Symposium, *the Virtue of the "Not Sure"*. [video/profile]

Grants

2022–25 Alfred P. Sloan Foundation, G-2022-17194: *Conducting Applied Research with Privacy-Protected Data: Exploring Methods and Approaches*. PI: V. J. Hotz, **Co-PI**: R. Gong, I. Schmutte. $ 368,892

2022–23 Alfred P. Sloan Foundation, G-2022-19314: *Workshop on the Analysis of Census Noisy Measurement Files and Differential Privacy*, **PI**: R. Gong, Co-PI: W. Su, L. Zhang. $ 49,979

2019–22 National Science Foundation, DMS-1916002 *Privacy-Preserving Bayesian Inference: Foundations and Extensions*, **PI**: R. Gong. $ 100,000

Editorial Service

Journal Editorship

2018– Associate Editor, Harvard Data Science Review
- Special Issue Co-Editor, *Differential Privacy and the Decennial Census*, 2022
- Special Theme Co-Editor, *Data Privacy Protection and the Conduct of Applied Research*, 2023+

2021– Contributing Column Editor, *Sound the Gong*, IMS Bulletin

2023– Associate Editor, Statistics and Public Policy

2023– Associate Editor, Journal of the American Statistical Association/The American Statistician: Reviews

2023 Special Issue Co-Editor, Journal of Privacy and Confidentiality, *2020 Census Noisy Measurements*

Conference Committees

2024 Organizer, The 6^{th} Annual Symposium on Applications of Contextual Integrity, Rutgers University [website]

2022-24 Organizer, NBER Workshop Series: *Data Privacy Protection and the Conduct of Applied Research: Methods, Approaches and their Consequences*
- Spring 2023, Cambridge, MA [website]
- Spring 2024, Washington, DC [website]

2023 Organizer, *Privacy and Data Governance: Implications for Statistical and Econometric Research*, Stevanovich Center for Financial Mathematics, University of Chicago

2023 Program committee and poster prize committee, ISIPTA 2023, Oviedo, Spain

2023 Session organizer and chair, JSM Invited Panel: *Statistical Privacy in the 21st Century: Census and Consensus*, Toronto, Canada

2023 Session organizer, New England Statistics Symposium, *A Private Refreshment on Statistical Principles and Senses*, Boston, MA

2023 Organizing committee, ASSA 2023 Annual Meeting Working Session: *Implications of New Data Privacy Protection Methods for Economic Research*, New Orleans, LA

2022 Organizer, *Workshop on the Analysis of Census Noisy Measurement Files and Differential Privacy*, New Brunswick, NJ [website]

2022 Program committee, Seventh Bayes, Fiducial and Frequentist Statistics Conference (BFF7), Toronto, Canada

2021 Program committee, AIES 2021, virtual conference

2021 Program committee and poster prize committee, ISIPTA 2021, Granada, Spain

2021 Program committee, BELIEF 2021, Shanghai, China

2019 Program committee, ISIPTA 2019, Ghent, Belgium

2019 Organizing committee co-chair, Sixth Bayesian, Fiducial and Frequentist Workshop (BFF6), SAMSI, Durham, NC

2018 Session organizer, ICSA Applied Statistics Symposium: *Statistical Inference for Discrete and Categorial Data*, New Brunswick, NJ

2017 Organizing committee, Fourth Bayesian, Fiducial and Frequentist Workshop (BFF4), Harvard University

Journal Peer Review

Bayesian Analysis ('20) · Electronic Journal of Statistics ('18) · Harvard Data Science Review ('19,'21,'22,'23) · International Journal of Approximate Reasoning ('19,'21,'22,'23) · Journal of the American Statistical Association ('18,'20,'21,'22) · Journal of Computational and Graphical Statistics ('20) · Journal of the Royal Statistical Society, Series B ('21) · Proceedings of the National Academy of Sciences ('21,'24) · Revstat ('19) · Science ('23) · Statistics and Public Policy ('23) · Statistical Science ('18,'19,'23, '24) · Statistica Sinica ('22,'23) · Synthese ('21) · TEST ('20,'21)

Conference Peer Review

NeurIPS 2023 · ISIPTA 2023 · AIES 2021 · ISIPTA 2021 · BELIEF 2021 · ISIPTA 2019

Other Peer Review

NASEM Consensus Study Report, *Assessing the 2020 Census: Final Report* ('23)
National Science Foundation ('24)

Professional Service

Professional Committees and Panels

2023 Committee, AEAStat Working Group, *Implications of New Data Privacy Protection Methods for Economic Research*
2021–22 Committee, Nominations, Institute of Mathematical Statistics
2020–21 Small Group Lead, Experts Group on Data Disclosure Avoidance, NASEM Committee on National Statistics

Departmental and University Services

2022 Moderator, Rutgers Research Ideation Forum on Machine Learning & Artificial Intelligence
2022 Internal Reviewer, Research Development, Rutgers University
2022, 24 Faculty Mentor, Rutgers Douglass WiSE Project SUPER Summer Research Program
2022, 24 Faculty Mentor, Rutgers DIMACS Research Experiences for Undergraduates Program
2022 Faculty Mentor, Rutgers Aresty Summer Science Research Program
2020–22 Faculty Panelist, Rutgers DIMACS Research Experiences for Undergraduates Program

Advising

Doctoral Students
- Kevin Eng (expected 2027)
- Donghyun Lee (expected 2027)

Doctoral Thesis Committee
- Yichen He (expected 2023, Advisor: Harry Crane)
- Yasa Syed (expected 2025, Advisor: Guanyang Wang)

Doctoral Qualifying Exam Committee
- Jiazhao Zhang (expected 2023, Advisor: Ying Hung)
- Yajie Duan (expected 2024, Advisor: Javier Cabrera)

Master's Students
- George Stefan (University of Toronto, 2022, Co-Advisor: Radu Craiu)

Master's Thesis Committee
- Adarsh Vijayaraghavan (Rutgers Business School, 2019, Advisor: Glenn Shafer)

Undergraduate Students
- Yuexin Zhang (class of 2023)
- Leah Ghazali (University of Richmond, class of 2024)
- Nami Jain (class of 2025)
- Thomas Chen (University of California, Berkeley, class of 2025)
- Kelly Xu (class of 2026)

Teaching

2022 – 23 Introduction to Bayesian Data Analysis (01:960:365)
2021 – 24 Bayesian Analysis (16:960:568)
2020 Byrne Seminar: *Statistical Privacy in the Digital World - from Netflix to the Census*
2019 – 20 Applied Time Series Analysis (16:960:565)
2018 – 20 Regression and Time Series (16:954:596)

Previous Appointments

2016–17 Pedagogy Fellow, Derek Bok Center for Teaching and Learning, Harvard University
2015 Research Fellow, Data Science for Social Good Fellowship, the University of Chicago
2012–13 Intern, Computational Radiology Lab, Boston Children's Hospital
2009-10 Research assistant, University of Toronto

Awards

2018 Arthur P. Dempster Award, Department of Statistics, Harvard University
2017 Harvard Horizons Scholar
2016–17 Harvard GSAS Merit Fellowship
2016 David K. Pickard Teaching Fellow Award, Harvard University
2015–16 Derek Bok Center Certificate of Distinction in Teaching, Harvard University
2013 Trainee Abstract Award, Organization for Human Brain Mapping
2011 Forrin Prize in Psychology, University of Toronto

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