Suzanne M Thornton, PhD

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Other Publications https://independent.academia.edu/SuzanneThornton

Education:

Graduate Education: **Ph.D**., Statistics.

Thesis title: Advanced computing methods for statistical inference
Thesis advisor: Minge Xie
Rutgers, The State University of New Jersey; New Brunswick, NJ, 2014 - 2019

Undergraduate: **B.S.,** Statistics. *Summa Cum Laude*

Thesis title: Geometric ergodicity of Gibbs sampler for a hierarchical random effects model: Re-explained.
Thesis advisor: James Hobert.
University of Florida, Gainesville, FL, 2010 - 2014
B.S., Mathematics.
University of Florida, Gainesville, FL, 2010 - 2014

Professional Experience:

PREP Research Scientist, George Washington University, National Institute of Standards and Technology Affiliate, Gaithersburg, MD, Oct 2024 – Present.
PREP Postdoctoral Assistant, George Washington University, National Institute of Standards and Technology Affiliate, Gaithersburg, MD, Jan 2024 – Sept 2024.
Assistant Professor, Mathematics and Statistics Department, Swarthmore College, Swarthmore, PA, 2020 – 2023.
Visiting Assistant Professor, Mathematics and Statistics Department, Swarthmore College, Swarthmore PA, 2019 – 2020.
Part-time Statistical Consultant, Office of Statistical Consulting, Rutgers University, New Brunswick, NJ, 2016 – 2019.

Publications:

Papers

- **Thornton S**, Pintar A, Stavis S, *et al*. Semi-parametric Bayesian Measurement Error Model for Nanoparticles, 2026 (*in proceedings*).
- Aeppli A, Arthur-Dworschack WJ, Belov K, Berry CM, Bothwell T, Folz A, Fortier TM, Grogan T, Hassan YS, Hu ZZ, Hume D, Hunt BD, Kim K, Koepke A, Lee D, Liebrant DR, Lewis B, Ludlow AD, Marshall MC, Nardelli NV, Ranganath H, Castillo DAR, Sherman JA, Siegel JL, **Thornton S**, Warfield W, Ye J. (2025) Atomic clock frequency ratios with fractional uncertainty $\leq 3.2 \times 10^{-18}$. *Physical Review Letters*. https://doi.org/10.48550/arXiv.2512.21428 (*in press*)
- **Thornton S**, Li W, Xie M. Approximate Confidence Distribution Computing. *The New England Journal of Statistics in Data Science* 2023 Jul;1(2):270-282. https://doi.org/10.51387/23-NEJSDS38
- **Thornton S**. and Xie M. An Exploration of Parameter Duality in Statistical Inference. *Philosophy of Science.* 2023. 1-18. https://doi.org/10.1017/psa.2023.174
- Choi H, Detyniecki K, Bazil C, **Thornton S**, Crosta P, Tolba H, Muneeb M, Hirsch LJ, Heinzen EL, Sen A, Depondt C, Perucca P, Heiman GA; EPIGEN Consortium. Development and Validation of a Predictive Model of Drug-resistant Genetic Generalized Epilepsy. *Neurology*. 2020 Oct 13;95(15):e2150-e2160. https://www.neurology.org/doi/10.1212/WNL.0000000000010597
- Michael H, **Thornton S**, Xie M, Tian L. Exact Inference on the Random-effects Model for Meta-analyses with Few Studies. *Biometrics*. 2019 Jun;75(2):485-493. https://doi.org/10.1111/biom.12998

Books and Proceedings

- Tractenberg RE, LaLonde D, **Thornton S**. (2025) *The Mastery Rubric for Statistics and Data Science: Promoting Coherence and Consistency in Data Science Education and Training*. In, D. Frischemeier & M. H. Wilkerson (co-Ed.). *Rethinking Statistics, Probability & Data Science Education: Bridging Theory and Classroom Practice*, Springer ICME Monograph. Preprint available at https://doi.org/10.48550/arXiv.2308.08004 (*in press*)
- **Thornton S**. (2024) *Lost in Translation: The Categorization of Multidimensional Constructs in the Human Sciences.* Proceedings of the 2024 Joint Statistical Meetings, Portland, OR. American Statistical Association, pp. 333-444. https://doi.org/10.5281/zenodo.13929791
- **Thornton S** and Xie M. (2024) *Bridging Bayesian, Frequentist and Fiducial Inferences using Confidence Distribution*. In, J. O. Berger, X. L. Meng, N. Reid, & M. Xie (co-Ed.). *Handbook on Bayesian, Fiducial and Frequentist (BFF) Inferences.* Chapman & Hall/CRC Handbooks of Modern Statistical Methods, New York. Preprint available at https://doi.org/10.48550/arXiv.2012.04464
- Tractenberg RE and **Thornton S**. (2023) *Facilitating the Integration of Ethical Reasoning into Quantitative Courses: Stakeholder Analysis, Ethical Practice Standards, and Case*

Studies. In, H. Doosti (Ed.). *Ethics in Statistics*. Cambridge, UK: Ethics International Press. Originally published (verbatim) in Proceedings of the 2022 Joint Statistical Meetings, Washington, DC. American Statistical Association, pp. 1493-1519. Preprint available at http://arxiv.org/abs/2401.01973

Other Professional Activities:

Leadership Role

- *Interim Co-Lead of ClockWISE Data Repository*. Advancing Statistical Methods for Next-Generation Clock Networks, 2026.

Invited Lectures

- *Approximate confidence distribution computing*. Villanova University, Villanova, PA, December 2019.
- *Statistical computing with confidence distributions*. Icahn School of Medicine at Mount Sinai, New York City, NY, April 2019.
- *Introduction to Common Statistical Methods*. Rutgers Center for Cell Biology and Neuroscience Weekly Seminar, Piscataway, NJ, 2016.

Abstracts for Conference Papers and Presentations (*organizer/co-organizer)

- Copeland C, Gutierrez S, Liddle JA, Madison A, Maheshwari M, Oo W, Pintar A, Salem M, Stavis S, **Thornton S**, Trimble C, Westly D. (2024, December) *Nanoplastic Standards: From Uncertain Hazards Toward Know Quantities*. NIST Circular Economy Symposium, Gaithersburg, MD.
- Berger J, Glymour C, Mayo-Wilson C, **Thornton S**, Mayo D. (2022, November) Invited panelist in *Multiplicity, Data-Dredging, and Error Control*. Individual presentation titled *The Duality of Parameters and the Duality of Probability*. The 28th Biennial Meeting of the Philosophy of Science Association, Session DAJNQ4097. Pittsburgh, PA.
- Corliss D, Sinco BR, **Thornton S**, Warner, S, Asher JL. (2022, August) *Data-Driven Ethics as Statistical Practice.* Topic contributed panel, Joint Statistical Meetings, Abstract #322960, Session 59. Washington, D.C.
- Corliss D, Parker, D, Sharp J, Shilane D, **Thornton S**. (2021, February) Invited panelist in *Ethics Panel: Data and Analytic Issues in the Age of COVID-19*. Conference on Statistical Practice, Abstract #304217. Virtual (due to coronavirus pandemic).
- Auerbach J, Cipolli W, Corliss D, Evans D, **Thornton S**, Tractenberg RE, Carver R. (2020, July) Invited panelist *in Balderdash, codswallop, and malarkey: A panel*. Joint Statistical Meetings, Abstract #309691, Session 551. Virtual (due to coronavirus pandemic).
- Benn E, Green B, Martinez W, Miller J, Ott M, **Thornton S**.* (2019, October) *Conference Within a Conference: A Forum for Sharing a Research and Education Agenda*. WSDS Conference, Abstract #306457. Bellevue, WA.

- **Thornton S**, Li W, Xie M. (2017, June) Invited speaker for *Urging a paradigm change: New developments on statistical inferences*. Individual presentation titled *Approximate Confidence Distribution Computing: A likelihood-free method with statistical guarantees*. International Chinese Statistical Association Applied Statistics Symposium, Session 142. Chicago, IL.
- **Thornton S**, Xie M. (2017, June) Speaker in *New developments in fusion learning and statistical inferences*. Individual presentation titled *Approximate Confidence Distribution Computing*. First International Conference on Econometrics and Statistics, Abstract #0834, Session EO210. Hong Kong University of Science and Technology, Hong Kong.

Abstracts for Conference Posters (*corresponding author)

- **Thornton S*** and Pintar A. (2026, March) *A Bayesian Solution for Nanoparticle Measurement Error*. ITL Science Day 2025, Gaithersburg, MD.
- **Thornton S***, Windover D, Katz M, Cordova I, Villarrubia J, Stavis S, Pintar A. (2026, February) *Hybrid Metrology: Nothing if not Consistent*. SPIE Advanced Lithography + Patterning, San Jose, CA.
- **Thornton S*** and Tractenberg RE. (2022, November) *Stewardship and Stakeholders: Making ethical quantitative practice practical*. Philosophy of Science Symposium, Pittsburgh, PA.
- **Thornton S*** and Xie M. (2016, December) Invited Poster, *Approximate confidence distribution computing: An effective likelihood-free computing method with statistical guarantees.* 72nd Annual Deming Conference on Applied Statistics, Atlantic City, NJ.
- **Thornton S*** and Xie M. (2016, September) *Approximate Confidence Distribution Computing*. Workshop on Higher-Order Asymptotics and Post-Selection Inference, St. Louis, MI.

Institutional Funding:

NIST	IMS	2026	$6343000
NIST	BTF Research Award	2025	$144000
NIST	BTF Seeker Award	2025	$50000
NIST	Critical Travel Stipends	2024 – 2026	$8100
Swarthmore College	Lang Center Engaged Research	2021 – 2022	$11100
Swarthmore College	Faculty Travel Fund	2021 – 2022	$2687
Swarthmore College	NCFDD Faculty Success Program	2021	$3950
Swarthmore College	Faculty Research Support Grant	2019 – 2022	$4750
Rutgers University	Assistant Professional Development Fund	2016 – 2019	$2759
Rutgers University	Conference Travel Support	2015	$823

Teaching:

Swarthmore College

Mathematical Statistics I (STAT061)	Fall 2022
Statistical Methods II (STAT021)	Spring 2022, Spring 2021, Fall 2020, Fall 2019

Statistical Methods I (STAT011) Spring 2023, Fall 2021, Spring 2020

Rutgers University

Regression Analysis (STAT 463/563) Fall 2017, Summer 2015

Mentoring: (*co-mentor)

Shikha Shrestra, Swarthmore College Summer 2022
Sponsored by the Lang Center for Civic and Social Responsibility.

Haron Mwangangi Kalii and Nancy Vu, Swarthmore College 2021 – 2022
Interdisciplinary Research Group in collaboration with the Assistance Coordination Unit (international).

Nancy Vu, Swarthmore College Summer 2021
Sponsored by the Lang Center for Civic and Social Responsibility.

Xoe Porterfield, Swarthmore College Summer 2019
Undergraduate Research Assistant studying statistical survey methodology.

Ryan Gross*, Rutgers University Summer 2018
Rutgers Center for Discrete Mathematics & Theoretical Computer Science REU.

Service:

National

Volunteer for the Peaty Greene Program
Math tutor with an emphasis in GRE prep 2023

ASA Education Council
Appointed Isolated Statisticians representative 2020 – 2023

Undergraduate Statistics Project Competition
Volunteer Judge 2020

International

Reviewer for *Statistical Analysis and Data Mining* 2024
Reviewer for *The American Statistician* 2022
Reviewer for *Synthese* 2021
Reviewer for the *Journal of the American Statistical Association* 2019

Honors and Awards:

Rutgers Presidential Fellowship 2015 – 2019
Presidential Fellowships are awarded to the most highly qualified candidates admitted to the Rutgers Graduate School.

International Chinese Statistical Association Student Paper Award 2018
Awarded for the paper entitled *Approximate confidence distribution computing: an effective likelihood-free method with statistical guarantees*.

The 31st New England Statistics Symposium IBM Watson Research Center Student Research Award 2017

In honor of outstanding research in the field of Statistics and Probability presented at the 31st New England Statistics Symposium at the University of Connecticut, Storrs, CT.

Deming Scholar Award 2016

Award presented at the 72nd annual Deming Conference on Applied Statistics to foster and recognize a select number of outstanding graduate students who are helping their statistics/biostatistics department.

Rutgers Excellence Fellowship 2014 – 2015

Fellowships offered only to a limited number of students at Rutgers, who demonstrate outstanding qualifications.