

Ruiyi Yang

CONTACT INFORMATION	Fine Hall 215, Washington Road Princeton University, Princeton, NJ 08544.	E-mail: ry8311@princeton.edu Website: https://ruiyiyang.github.io
POSITION	Princeton University , Princeton, NJ. <ul style="list-style-type: none">• Postdoctoral Research Associate, Program in Applied and Computational Mathematics. Supervisor: Amit Singer.	Aug 2022–present
EDUCATION	University of Chicago , Chicago, IL. <ul style="list-style-type: none">• Ph.D. in Computational and Applied Mathematics. Advisor: Daniel Sanz-Alonso. University of California, Los Angeles , Los Angeles, CA. <ul style="list-style-type: none">• B.S. in Mathematics. College Honors Program.	Sep 2017–Jun 2022 Sep 2013–Jun 2017
PUBLICATIONS AND PREPRINTS	(Authors are ordered alphabetically in all papers.) <ol style="list-style-type: none">1. Daniel Sanz-Alonso and Ruiyi Yang. Gaussian Process Regression under Computational and Epistemic Misspecification. <i>Submitted</i>, 2023. Preprint available at https://arxiv.org/abs/2312.092252. Amit Singer and Ruiyi Yang. Alignment of Density Maps in Wasserstein Distance. <i>Submitted</i>, 2023. Preprint available at https://arxiv.org/abs/2305.12310.3. Hwanwoo Kim, Daniel Sanz-Alonso, and Ruiyi Yang. Optimization on Manifolds via Graph Gaussian Processes. <i>SIAM Journal on Mathematics of Data Science</i> 6(1):1-25, 2024.4. Bryon Aragam and Ruiyi Yang. Uniform consistency in nonparametric mixture models. <i>The Annals of Statistics</i> 51(1):362-390, 2023.5. Nicolás García Trillos, Daniel Sanz-Alonso, and Ruiyi Yang. Mathematical Foundations of Graph-Based Bayesian Semi-Supervised Learning. <i>Notices of the American Mathematical Society</i> 69(10):1717-1729, 2022.6. Daniel Sanz-Alonso and Ruiyi Yang. Finite element representations of Gaussian fields: Balancing numerical and statistical accuracy. <i>SIAM/ASA Journal on Uncertainty Quantification</i> 10(4):1323-1349, 2022.7. Daniel Sanz-Alonso and Ruiyi Yang. Unlabeled data help in graph-based semi-supervised learning: A Bayesian nonparametrics perspective. <i>Journal of Machine Learning Research</i> 23(97):1-28, 2022.8. Daniel Sanz-Alonso and Ruiyi Yang. The SPDE approach to Matérn fields: Graph representations. <i>Statistical Science</i> 37(4):519-540, 2022.9. John Harlim, Daniel Sanz-Alonso, and Ruiyi Yang. Kernel methods for Bayesian elliptic inverse problems on manifolds. <i>SIAM/ASA Journal on Uncertainty Quantification</i> 8(4):1414-1445, 2020.10. Nicolás García Trillos, Daniel Sanz-Alonso, and Ruiyi Yang. Local regularization of noisy point clouds: Improved global geometric estimates and data analysis. <i>Journal of Machine Learning Research</i> 20(136):1–37, 2019.	
AWARDS	<ul style="list-style-type: none">• Travel Award, SIAM Conference on Uncertainty Quantification.• Harper Dissertation Fellowship, University of Chicago. <i>In recognition of record or achievement and professional promise, one of University of Chicago's highest honors.</i>• Travel Award, SIAM Conference on Computational Science and Engineering.• Travel Award, SIAM Conference on Mathematics of Data Science.• Travel Award, GTDAML Graduate Student Conference.	2022 2021 2021 2020 2019

TALKS	<ul style="list-style-type: none"> • Optimization on Manifolds via Graph Gaussian Processes. Feb 2024 UC Davis MADDD Seminar (Virtual). • Optimization on Manifolds via Graph Gaussian Processes. Jan 2024 IMS Young Mathematical Scientists Forum—Applied Mathematics, Singapore. • Optimization on Manifolds via Graph Gaussian Processes. Mar 2023 New Jersey Institute of Technology Statistics Seminar (Virtual). • Unlabeled Data Help in Graph-Based Bayesian Semi-Supervised Learning. Sep 2022 SIAM Conference on Mathematics of Data Science, San Diego CA. Minisymposium: “Graph-Based Methods in Low-Label Rate Machine Learning”. • Graph-Based Approximation of Matérn Gaussian Fields. Aug 2022 IMSI Workshop on Expressing and Exploiting Structure in Modeling, Theory, and Computation with Gaussian Processes, Chicago IL. • Balancing Numerical and Statistical Accuracy in the SPDE Approach to Gaussian Processes. Apr 2022 SIAM Conference on Uncertainty Quantification, Atlanta GA. Minisymposium: “New Developments in Gaussian Processes”. • Matérn Gaussian Fields on Graphs: Theory and Applications. Aug 2021 Joint Statistical Meetings (Virtual). Topic-contributed Session: “Algorithms for Threat Detection”. • Graph-Based Methods for Bayesian Elliptic Inverse Problems on Manifold. Mar 2021 SIAM Conference on Computational Science and Engineering (Virtual). Minisymposium: “Data-Driven Scientific Computing”. • Graph-Based Approximation of Matérn Gaussian Fields. Feb 2021 University of Wisconsin-Madison Statistics Seminar (Virtual). • Graph-Based Methods for Inverse Problems on Manifolds and Point Clouds. Jun 2020 SIAM Conference on Mathematics of Data Science (Virtual). Minisymposium: “Bridging Data Assimilation with Data-driven analysis”. • Local Regularization of Noisy Point Clouds. Jun 2019 GTDAML Graduate Student Conference, The Ohio State University.
TEACHING EXPERIENCE	<ul style="list-style-type: none"> • Princeton University Course Instructor <ul style="list-style-type: none"> – MAT321/APC321 Numerical Analysis and Scientific Computing Fall 2023 • University of Chicago Guest Lecturer <ul style="list-style-type: none"> – CAAM 31440: Applied Analysis. Fall 2021 • University of Chicago Teaching Assistant <ul style="list-style-type: none"> – CAAM 31440: Applied Analysis. Fall 2021 – CAAM 31210: Applied Functional Analysis. Fall 2018, 2019, Winter 2021, 2022 – STAT 24300: Numerical Linear Algebra. Fall 2020 – CAAM 31511: Monte Carlo Simulation. Spring 2020, 2022 – STAT 31700: Introduction to Probability Models. Winter 2020 – CAAM 31450: Applied Partial Differential Equations. Spring 2019 – CAAM 31220: Partial Differential Equations. Winter 2019
SKILLS	Matlab, Python, R.