

# Ruiyi Yang

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POSITION	<b>Princeton University</b> , Princeton, NJ. <ul style="list-style-type: none"><li>• Postdoctoral Research Associate, Program in Applied and Computational Mathematics. Supervisor: Amit Singer.</li></ul>	Aug 2022–present
EDUCATION	<b>University of Chicago</b> , Chicago, IL. <ul style="list-style-type: none"><li>• Ph.D. in Computational and Applied Mathematics. Advisor: Daniel Sanz-Alonso.</li></ul> <b>University of California, Los Angeles</b> , Los Angeles, CA. <ul style="list-style-type: none"><li>• B.S. in Mathematics. College Honors Program.</li></ul>	Sep 2017–Jun 2022  Sep 2013–Jun 2017
PUBLICATIONS AND PREPRINTS	(Authors are ordered alphabetically in all papers.) <ol style="list-style-type: none"><li>1. Amit Singer and Ruiyi Yang. Alignment of Density Maps in Wasserstein Distance. <i>Submitted</i>, 2023. Preprint available at <a href="https://arxiv.org/abs/2305.12310">https://arxiv.org/abs/2305.12310</a>.</li><li>2. Hwanwoo Kim, Daniel Sanz-Alonso, and Ruiyi Yang. Optimization on Manifolds via Graph Gaussian Processes. <i>Submitted</i>, 2022. Preprint available at <a href="https://arxiv.org/abs/2210.10962">https://arxiv.org/abs/2210.10962</a>.</li><li>3. 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.</li><li>4. 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.</li><li>5. Bryon Aragam and Ruiyi Yang. Uniform consistency in nonparametric mixture models. <i>The Annals of Statistics</i> 51(1):362-390, 2023.</li><li>6. 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.</li><li>7. Daniel Sanz-Alonso and Ruiyi Yang. The SPDE approach to Matérn fields: Graph representations. <i>Statistical Science</i> 37(4):519-540, 2022.</li><li>8. 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.</li><li>9. 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.</li></ol>	
AWARDS	<ul style="list-style-type: none"><li>• Travel Award, SIAM Conference on Uncertainty Quantification</li><li>• 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></li><li>• Travel Award, SIAM Conference on Computational Science and Engineering.</li><li>• Travel Award, SIAM Conference on Mathematics of Data Science.</li><li>• Travel Award, GTDAML Graduate Student Conference.</li></ul>	2022 2021 2021 2020 2019

TALKS	• Optimization on Manifolds via Graph Gaussian Processes. <span style="float: right;">Mar 2023</span> New Jersey Institute of Technology Statistics Seminar.
	• Unlabeled Data Help in Graph-Based Bayesian Semi-Supervised Learning. <span style="float: right;">Sep 2022</span> 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. <span style="float: right;">Aug 2022</span> 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. <span style="float: right;">Apr 2022</span> SIAM Conference on Uncertainty Quantification, Atlanta GA. Minisymposium: “New Developments in Gaussian Processes”.
	• Matérn Gaussian Fields on Graphs: Theory and Applications. <span style="float: right;">Aug 2021</span> Joint Statistical Meetings (Virtual). Topic-contributed Session: “Algorithms for Threat Detection”.
	• Graph-Based Methods for Bayesian Elliptic Inverse Problems on Manifold. <span style="float: right;">Mar 2021</span> SIAM Conference on Computational Science and Engineering (Virtual). Minisymposium: “Data-Driven Scientific Computing”.
	• Graph-Based Approximation of Matérn Gaussian Fields. <span style="float: right;">Feb 2021</span> University of Wisconsin-Madison Statistics Seminar (Virtual).
	• Graph-Based Methods for Inverse Problems on Manifolds and Point Clouds. <span style="float: right;">Jun 2020</span> SIAM Conference on Mathematics of Data Science (Virtual). Minisymposium: “Bridging Data Assimilation with Data-driven analysis”.
	• Local Regularization of Noisy Point Clouds. <span style="float: right;">Jun 2019</span> GTDAML Graduate Student Conference, The Ohio State University.
	TEACHING EXPERIENCE
• University of Chicago Teaching Assistant <span style="float: right;">Fall 2021</span> – CAAM 31440: Applied Analysis.	
– CAAM 31210: Applied Functional Analysis. <span style="float: right;">Fall 2018, 2019, Winter 2021, 2022</span>	
– STAT 24300: Numerical Linear Algebra. <span style="float: right;">Fall 2020</span>	
– CAAM 31511: Monte Carlo Simulation. <span style="float: right;">Spring 2020, 2022</span>	
– STAT 31700: Introduction to Probability Models. <span style="float: right;">Winter 2020</span>	
– CAAM 31450: Applied Partial Differential Equations. <span style="float: right;">Spring 2019</span>	
– CAAM 31220: Partial Differential Equations. <span style="float: right;">Winter 2019</span>	
SKILLS	Matlab, Python, R.