

# Ruiyi Yang

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CONTACT INFORMATION	Fine Hall 215, Washington Road Princeton University, Princeton, NJ 08544.	E-mail: ry8311@princeton.edu Website: <a href="https://ruiyiyang.github.io">https://ruiyiyang.github.io</a>
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. 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>2. Nicolás García Trillos, Daniel Sanz-Alonso, and Ruiyi Yang. Mathematical Foundations of Graph-Based Bayesian Semi-Supervised Learning. <i>To appear in Notices of the American Mathematical Society</i>, 2022. Preprint available at <a href="https://arxiv.org/abs/2207.01093">https://arxiv.org/abs/2207.01093</a>.</li><li>3. 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>4. Bryon Aragam and Ruiyi Yang. Uniform consistency in nonparametric mixture models. <i>Submitted</i>, 2021. Preprint available at <a href="https://arxiv.org/abs/2108.14003">https://arxiv.org/abs/2108.14003</a>.</li><li>5. 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>6. 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>7. 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>8. 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	<ul style="list-style-type: none"> <li>• Unlabeled Data Help in Graph-Based Bayesian Semi-Supervised Learning. SIAM Conference on Mathematics of Data Science, San Diego CA. Sep 2022 Minisymposium: “Graph-Based Methods in Low-Label Rate Machine Learning”.</li> <li>• Graph-Based Approximation of Matérn Gaussian Fields. IMSI Workshop on Expressing and Exploiting Structure in Modeling, Theory, and Computation with Gaussian Processes, Chicago IL. Aug 2022</li> <li>• Balancing Numerical and Statistical Accuracy in the SPDE Approach to Gaussian Processes. SIAM Conference on Uncertainty Quantification, Atlanta GA. Apr 2022 Minisymposium: “New Developments in Gaussian Processes”.</li> <li>• Matérn Gaussian Fields on Graphs: Theory and Applications. Joint Statistical Meetings (Virtual). Aug 2021 Topic-contributed Session: “Algorithms for Threat Detection”.</li> <li>• Graph-Based Methods for Bayesian Elliptic Inverse Problems on Manifold. SIAM Conference on Computational Science and Engineering (Virtual). Mar 2021 Minisymposium: “Data-Driven Scientific Computing”.</li> <li>• Graph-Based Approximation of Matérn Gaussian Fields. University of Wisconsin-Madison Statistics Seminar (Virtual). Feb 2021</li> <li>• Graph-Based Methods for Inverse Problems on Manifolds and Point Clouds. SIAM Conference on Mathematics of Data Science (Virtual). Jun 2020 Minisymposium: “Bridging Data Assimilation with Data-driven analysis”.</li> <li>• Local Regularization of Noisy Point Clouds. GTDAML Graduate Student Conference, The Ohio State University. Jun 2019</li> </ul>
TEACHING EXPERIENCE	<ul style="list-style-type: none"> <li>• University of Chicago Guest Lecturer – CAAM 31440: Applied Analysis. Fall 2021</li> <li>• University of Chicago Teaching Assistant – 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</li> </ul>
SKILLS	Matlab, Python, R.