

Renato Berlinghieri

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Education

- 2021 – Present **Massachusetts Institute of Technology** – Cambridge, MA
PhD in Electrical Engineering and Computer Science
Advisor: Tamara Broderick. Minor in mathematics
Expected graduation data: May 2026
- 2019 – 2021 **Bocconi University** – Milan, Italy
MSc in Data Science and Business Analytics
Supervisors: Igor Prünster and Antonio Lijoi
GPA: 30/30 – Final grade: 110/110 cum laude (graduated rank 1 of my class)
- 2016 – 2019 **Bocconi University** – Milan, Italy
BSc in Economics, Management and Computer Science
GPA: 30/30 – Final grade: 110/110 cum laude (graduated rank 1 of my class)
Study abroad at UC San Diego (Winter 2019). Major in mathematics. Term GPA: 4.0/4.0

Experience

- 2025 – Summer **Flatiron Institute, Center for Computational Mathematics** - New York City, NY
Research Intern
- 2023 – Summer **Apple Inc.** - Seattle, WA
Machine Learning Research Intern, Health AI
- 2020 – 2021 **BayesLab, Bocconi Institute for Data Science and Analytics (BIDSA)** - Milan, Italy
Visiting Student Research Assistant
- 2018 – Summer **Morgan Stanley** - London, UK
Software Engineering Intern

In Preparation & Under Review

* = equal contribution

- 2025 **Berlinghieri, R.***; Shen, Y.*; Broderick, T. “[Oh SnapMMD! Forecasting stochastic dynamics beyond the Schrödinger bridge’s end](#)”. Under review. arXiv:2505.16082.
- 2025 **Berlinghieri, R.***; Burt, D. R.*; Giani, P.; Fiore, A.; Broderick, T. “[Are Hourly PM2.5 Forecasts Sufficiently Accurate to Plan Your Day? Individual Decision Making in the Face of Increasing Wildfire Smoke](#)”. Under review. arXiv:2409.05866.
- 2025 Burt, D. R.; **Berlinghieri, R.**; Broderick, T. “[Wrong Model, Right Uncertainty: Spatial Associations for Discrete Data with Misspecification](#)”. In preparation. arXiv:2509.01776.

Publications

- 2025 Burt, D. R.*; **Berlinghieri, R.***; Bates, S.; Broderick, T. “[Smooth Sailing: Lipschitz-Driven Uncertainty Quantification for Spatial Association](#)”. To appear in *The Thirty-Ninth Annual Conference on Neural Information Processing Systems* (NeurIPS 2025).

- 2025 Shen, Y.*; **Berlinghieri, R.***; Broderick, T. “Multi-marginal Schrödinger Bridges with Iterative Reference Refinement”. In *International Conference on Artificial Intelligence and Statistics (AISTATS 2025)* [Oral, top 2% of submissions].
- 2023 **Berlinghieri, R.**; Trippe, B. L.; Burt, D. R.; Giordano, R.; Srinivasan, K.; Özgökmen, T.; Junfei, X.; Broderick, T. “Gaussian processes at the Helm (holtz): A more fluid model for ocean currents”. In *International Conference on Machine Learning 2023 (ICML 2023)*.
- 2023 **Berlinghieri, R.**; Krajbich, I.; Maccheroni, F.; Marinacci, M.; Pirazzini, M. “Measuring utility with diffusion models”. In *Science Advances* 9 (34).
- 2022 Jing, B.*; Corso, G.*; **Berlinghieri, R.**; Jaakkola, T. “Subspace diffusion generative models”. In *European Conference on Computer Vision 2022 (ECCV 2022)*.

Workshop Publications

- 2025 Burt, D. R.; **Berlinghieri, R.**; Broderick, T. “Wrong Model, Right Uncertainty: Spatial Associations for Discrete Data with Misspecification”. To appear in *NeurIPS 2025 AI4Science Workshop*. [Spotlight]
- 2025 **Berlinghieri, R.***; Shen, Y.*; Broderick, T. “Beyond Schrödinger Bridges: A Least-Squares Approach for Learning Stochastic Dynamics with Unknown Volatility”. In *ICLR 2025 Frontiers in Probabilistic Inference Workshop and 7th Symposium on Advances in Approximate Bayesian Inference (AABI 2025)*.
- 2024 Shen, Y.*; **Berlinghieri, R.***; Broderick, T. “Learning a vector field from snapshots of unidentified particles rather than particle trajectories”. In *ICLR 2024 Workshop on AI4DifferentialEquations in Science*.
- 2023 **Berlinghieri, R.**; Trippe, B. L.; Burt, D. R.; Giordano, R.; Srinivasan, K.; Özgökmen, T.; Junfei, X.; Broderick, T. “Gaussian processes at the Helm(holtz): A more fluid model for ocean currents”. In *ICLR 2023 Workshop on Physics for Machine Learning*.
- 2022 **Berlinghieri, R.**; Trippe, B. L.; Burt, D. R.; Giordano, R.; Srinivasan, K.; Özgökmen, T.; Junfei, X.; Broderick, T. “Gaussian processes at the Helm(holtz): A better way to model ocean currents.”. In *NeurIPS 2022 Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems*. [Contributed Talk]

Awards and scholarships

- 2025 Panasonic Well AI for Health graduate fellowship
- 2024 ISBA World Meeting travel award
- AGU Annual Meeting 2023 outstanding student presentation award (OSPA)
- 2023 Bayesian Nonparametrics Networking Workshop 2023 travel award
- EnviBayes Workshop on Complex Enviromental Data 2023 travel award
- 36th New England Statistics Symposium best student poster award
- 28th Annual LIDS Student Conference best presentation award
- 2022 Travel award for NeurIPS 2022 (provided by *NeurIPS Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems* organizers)
- ISBA world meeting best poster award for the category BayesComp/j-ISBA
- BAYSM Microsoft award for best contributed talk
- 2019 – 2021 Bocconi graduate merit award
- 2016 30th International Championship for Mathematical and Logical games.
Category L2: 2nd national place (Milan, May), 6th international place (Paris, August)
- 2016 5th place at National Final for Team Maths Olympics Games, team captain.
- 2015 Bronze medal at National Final, Maths Olympics Game.
- 2014 1st national place at Mathematical Modelling competition (Perugia, category intermediate).
- 2014 7th place at National Final for Team Maths Olympics Games, team captain.

Invited Talks

Beyond Schrödinger Bridges for Learning Trajectories from Snapshot Samples

- January 2026 ICERM Nonparametric Bayesian Inference – Computational Issues Workshop, Providence, RI.
- December 2025 CFE–CMStatistics 2025, London, UK.

August 2025 [EcoSta 2025](#), Tokyo, Japan.

Multimarginal Schrödinger Bridges with Iterative Reference Refinement

January 2025 [Recent Developments in the Techniques of Bayesian Paradigm](#), Varanasi, India.

Gaussian processes at the Helm(holtz): A more fluid model for ocean currents

January 2024 [University of Cambridge AI4ER Seminar Series](#). Virtual.

December 2023 [AGU Annual Meeting](#), San Francisco, CA. [**Outstanding student presentation award**]

May 2023 [MIT Machine Learning Advances Symposium](#), Cambridge, MA. [Spotlight talk].

Contributed Talks & Posters

Multimarginal Schrödinger Bridges with Iterative Reference Refinement

May 2025 [AISTATS 2025](#), Phuket, Thailand. [Oral session]

September 2024 [Yale FDS: Recent Advances and Future Directions for Sampling](#), New Haven, CT. [Poster]

August 2024 [JSM 2024](#), Portland, OR. [Contributed talk]

June 2024 [BAYSM 2024](#), Venice, Italy. [Poster]

May 2024 [ICLR 2024 Workshop on AI4DifferentialEquations in Science](#), Vienna, Austria. [Poster]

Beyond Schrödinger Bridges: A Least-Squares Approach for Stochastic Dynamics with Unknown Volatility

April 2025 [AABI 2025](#), Singapore. [Poster]

April 2025 [LMRL @ ICLR 2025](#), Singapore. [Poster]

April 2025 [Frontiers in Probabilistic Inference @ ICLR 2025](#), Singapore. [Poster]

Gaussian processes at the Helm(holtz): A more fluid model for ocean currents

July 2024 [ISBA 2024](#), Venice, Italy. [Contributed talk]

June 2024 [Satellite workshop to ISBA](#), Lugano, Switzerland. [Poster]

December 2023 [BNP Networking Workshop 2023](#), Melbourne, Australia. [Poster]

September 2023 [EnviBayes 2023](#), Fort Collins, CO. [Poster]

July 2023 [ICML 2023](#), Honolulu, HI. [Poster]

June 2023 [NESS 2023](#), Boston, MA. [**Contributed talk & Poster – Best student poster award**]

February 2023 [28th Annual LIDS Student Conference](#), Cambridge, MA. [**Contributed talk – Best presentation award**]

December 2022 [NeurIPS 2022 GP Workshop](#), New Orleans, LA. [Contributed talk]

October 2022 [BNP13](#), Puerto Varas, Chile. [Contributed talk]

July 2022 [ISBA 2022](#), Montreal, Canada. [**Poster – Best poster award**]

June 2022 [BAYSM 2022](#), Montreal, Canada. [**Contributed talk – Best talk award**]

April 2022 [MIT SDSCon](#), Cambridge, MA. [Contributed Talk]

Can individuals use smoke forecasts for personal decision-making? A call to action

June 2024 [HAQAST Massachusetts](#), Cambridge, MA. [Poster]

Professional Service

Conference & Workshop reviewing

Neural Information Processing Systems – NeurIPS (2025)

International Conference on Artificial Intelligence and Statistics – AISTATS (2023, 2024, 2025, 2026)

International Conference on Learning Representations – ICLR (2026)

ICLR Learning Meaningful Representation of Life Workshop (2025)

ICLR Physics for Machine Learning Workshop (2023)

Journal reviewing

Journal of Machine Learning Research (JMLR)

Transaction of Machine Learning Research (TMLR)

Teaching	Teaching Fellow, MIT 6.7830 “Bayesian Modeling and Inference” (Spring 2025)
Leadership service	<p>Program Chair & Organizer, NeurIPS 2024 Workshop on Bayesian Decision-making and Uncertainty</p> <p>Co-organizer, Virtual Seminar Series on Bayesian Decision-making and Uncertainty (2024-Present)</p> <p>Co-President, EECS Graduate Student Association, MIT (2023)</p> <p>Organizer, reading group “<i>Optimal Transport for Everyone</i>”, MIT (2023)</p> <p>Board member, MITaly, Italian association at MIT (2021-Present)</p> <p>Course representative, student ambassador, and member of the <i>MSc in Data Science committee</i>, Bocconi University (2020-2021)</p> <p>President & co-founder, <i>Computational Society for Bocconi Students</i> (2018-2019)</p> <p>Team Captain for my high school math olympics games team. Led the team to first national finals in school history (2014). Best results: 5th (2016), 7th (2014).</p>
Other service	<p>GAAP mentor (MIT graduate application assistant program for underrepresented groups, 2021-2024)</p> <p>Mentor (and former mentee), LeadTheFuture (non-profit mentorship program for Italian students in STEM, 2021-Present)</p> <p>Junior tutor for <i>Olympiads of mathematics workshops</i> (algebra, combinatorics, number theory; selecting exercises; organizing simulations, 2017-2019)</p>