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.

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

2023 – Summer

Apple Inc.
Machine Learning Research intern, Health AI
I investigated the applicability of Generative Flow Networks to solve a discrete combinatorial optimization problems relevant for Apple Health AI team.

2021 – Present

MIT Laboratory for Information & Decision Systems (LIDS)
Research assistant. Advisor: Tamara Broderick.
Developing machine learning and Bayesian statistics methodology for modeling, inference, and evaluation of applied and theoretical problems.

2020 – 2021

BayesLab, Bocconi Institute for Data Science and Analytics (BIDSA)
Visiting student research assistant. Mentors: Igor Prünster and Antonio Lijoi.
I focused on Bayesian nonparametric models using completely random measures, and in particular how we can measure model dependence using optimal transport/Wasserstein distance.

2018 – 2020

Bocconi University Department of decision sciences
Intern research assistant. Supervisor: Massimo Marinacci.
I developed methodology for neuroeconomics using statistical models for decision making and simulations (in *Julia* and *Python*).

Publications & Preprints

2023

"Gaussian processes at the Helm (holtz): A more fluid model for ocean currents." In *International Conference on Machine Learning 2023.* (Berlinghieri, R.; Trippe, B. L.; Burt, D. R.; Giordano, R.; Srinivasan, K.; Özgökmen, T.; Junfei, X.; Broderick, T.)

"Measuring utility with diffusion models." Science Advances 9 (34), 2023. (Berlinghieri, R.; Krajbich, I.; Maccheroni, F.; Marinacci, M.; Pirazzini, M.)

2022

"Subspace diffusion generative models." In *European Conference on Computer Vision 2022.* (Jing, B.*; Corso, G.*; Berlinghieri, R.; Jaakkola, T.)

Awards and scholarships

2023	Bayesian Nonparametrics Networking Workshop 2023 travel award
2023	EnviBayes workshop on complex enviromental data 2023 travel award
2023	36th New England Statistics Symposium best student poster award
2023	28th Annual LIDS Student Conference best presentation award for the Optimization and Algorithms session
2022	Complementary travel grant for NeurIPS 2022 (*provided by NeurIPS Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems' organizers*)
2022	ISBA best poster award for the category BayesComp/j-ISBA
2022	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)*
2014	1st national place at Mathematical Modelling competition (Perugia, category intermediate).

Talks, poster sessions and conference presentations

- AGU Annual Meeting. San Francisco, CA. December 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Invited talk @ physics-informed machine learning session]

- Bayesian Nonparametrics Networking Workshop 2023. Melbourne, December 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Poster]

- EnviBayes workshop on complex enviromental data 2023. Fort Collins CO, September 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Poster]

- International Conference on Machine Learning. Honolulu HI, July 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Poster]

- Approximation Methods in Bayesian Analysis Workshop. CIRM Marseille, June 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Contributed Talk, Poster]

- NESS 2023. Boston MA, June 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Contributed Talk, Poster]

- MIT Machine Learning Advances Symposium. Cambridge MA, May 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Spotlight talk]

- 28th Annual LIDS Student Conference. Cambridge MA, February 2023. *"Gaussian processes at the Helm(holtz): A more fluid model for ocean currents."* [Contributed talk]

- NeurIPS Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems. New Orleans LA, December 2022. *"Gaussian processes at the Helm(holtz): A better way to model ocean currents."* [Contributed talk]

- 13th International Conference on Bayesian Nonparametrics (BNP13). Puerto Varas, Chile, October 2022. *"Gaussian processes at the Helm(holtz): A better way to model ocean currents."* [Contributed talk]

- World Meeting of the International Society for Bayesian Analysis (ISBA 2022). Montreal, Canada, July 2022. *"Gaussian processes at the Helm(holtz): A better way to model ocean currents."* [Poster session]

- Bayesian Young Statisticians Meeting (BAYSM 2022). Montreal, Canada, June 2022. *"Gaussian processes at the Helm(holtz): A better way to model ocean currents."* [Contributed talk]

- MIT Statistics and Data Science Conference (SDSCon), Cambridge MA, April 2022. *"Gaussian processes at the Helm(holtz): A better way to model ocean currents."*

Leadership, mentorship, and extra-curricular activities

- *Co-President*, EECS Graduate Student Association, MIT.
- Board member of MITaly, the Italian association at MIT.
- MIT Graduate application assistant program (GAAP) *mentor* - this program is designed for providing assistance during grad school application to underrepresented groups.
- Mentor and former mentee of *LeadTheFuture*, a leading mentorship non-profit organization for Italian students in STEM, with acceptance rate below 20%.
- Former President and co-founder of *Computational Society for Bocconi Students* – the first student society at Bocconi University interested in Computer Science and Statistics.
- Former course representative, student Ambassador, and member of the *MSc in Data Science committee* at Bocconi University - active participation in planning courses' structure and mentoring activities for incoming BSc and MSc students.
- Junior tutor for nation-wide *Olympiads of mathematics workshops*. Main activities: teaching algebra, combinatorics, and number theory lectures. Select exercises and organise competitions' simulations.

Skills

- *Softwares and programming languages*: Python (proficient), R (familiar), Julia (familiar), C/C++ (basic), LaTeX, Git.
- *Theory*: Bayesian modeling, machine learning, probability theory, stochastic processes.
- *Languages*: English (fluent), Italian (native), Spanish (basic).