Niccolo Anceschi, Ph.D.

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Current Position

Oct 2022 - Present   **Postdoctoral Associate in Statistics**, Duke University

Research Area: Development of novel statistical methods for inferring latent structure in high-dimensional, complex, and structured data

Mentors: Amy Herring *&* David Dunson

Education

Sep 2018 - Jan 2023   **Ph.D. in Statistics** with honors *(cum laude)*, Bocconi University

Topic: High-dimensional Bayesian inference for binary data

Advisors: Daniele Durante *&* Giacomo Zanella

Oct 2014 - Apr 2017   **M.Sc. in Physics** with honors *(cum laude)*, University of Milan

Topic: Emergence of biodiversity and the definition of species in ecological communities

Advisors: Samir Suweis *&* Jorge Hidalgo (Padua University)

Aug 2014 - Sep 2014   **Visiting Student**, Colorado University

Research Project at Soft Materials Research Center

Oct 2010 - Apr 2014   **B.Sc. in Physics**, University of Milan

Topic: Liquid-Crystal phases in racemic mixtures of DNA oligomers

Advisors: Alberto Vailati *&* Tommaso Bellini

Work Experience

Jun 2017 - Jul 2018   **Pricing Analyst**, brumbrum S.p.A.

Job Description: Development of efficient and robust algorithms for competitive data-driven asset pricing, based on highly-noisy data

Industry: Used Car e-commerce

Research Interests

Bayesian Methods and Computation, Dimensionality Reduction, High-dimensional Regression, Mixed-measurement Data, Approximate Inference & Scalable Computations. Current focus includes methodological advancements with high-impact applications in chemical exposures (e.g. in firefighters), ecology (species distribution modeling), and precision medicine (multi-omics data).

Teaching Interests

Statistics, Data Analysis, Machine Learning, Programming, Algorithms

Publications

‣ Anceschi N., Fasano A., Durante D. & Zanella G. (2023) Bayesian conjugacy in probit, tobit, multinomial probit and extensions: a review and new results, *Journal of the American Statistical Association, 118 (542), 1451-1469*

‣ Anceschi N., Hidalgo J., Plata. C., Bellini T., Maritan A. & Suweis S. (2019) Neutral and niche forces as drivers of species selection, *Journal of Theoretical Biology, 483, 109969*

Submitted Papers

‣ Anceschi N., Ferrari F., Mallick H. & Dunson D. (2024+) Bayesian joint additive factor models for multiview learning, *arXiv:2406.00778*

‣ Anceschi N., Fasano, A., Franzolini B. & Rebaudo G. (2024+) Scalable expectation propagation for generalized linear models, *arXiv:2407.02128*

‣ Poworoznek E., Anceschi N. Ferrari F. & Dunson D. (2021) Efficiently resolving rotational ambiguity in Bayesian matrix sampling with matching, *arXiv:2107.13783*

Working Papers

‣ Anceschi N., Rigon T., Durante D. & Zanella G. - Optimal lower bounds for logistics likelihoods, *(preparing to submit)*

‣ Anceschi N., Stolf F., Tikhonov G., Ovaskainen O. & Dunson D. - Enhanced borrowing for modeling rare species occurrences: tree-structured factor models.

‣ Mauri L., Anceschi N., & Dunson D. - Fast and accurate factor pre-estimation for multi-study data.

‣ Kulkarni S, Anceschi N., Ferrari F & Mallick H. - Realistic simulator for multiomics data for reliable testing of novel methodologies.

Refereed Conference Proceedings

‣ Anceschi N., Fasano, A. & Rebaudo G. (2023) Expectation propagation for the smoothing distribution in dynamic probit. Bayesian Statistics, *New Generations New Approaches - BAYSM 2022*

‣ Fasano, A., Anceschi N., Franzolini, B. & Rebaudo G. (2023) Efficient computation of predictive probabilities in probit models via expectation propagation, *Book of Abstracts and Short Papers - CLADAG 2023*, 449-452

‣ Fasano A., Rebaudo G. & Anceschi N. (2022) Bayesian inference for the multinomial probit model under Gaussian prior distribution, *Book of short papers - SIS 2022*, 871–876

Editorial Work

Ad-hoc reviewer:
‣ *Biometrics*
‣ *Computational Statistics and Data Analysis*
‣ *Journal of Computational and Graphical Statistics*
‣ *Statistics and Public Policy*

Teaching

- Course Instructor, *B.Sc. course* The Mathematics of Regression, Duke University *(AY 2024/2025)*
- Teaching Assistant, *B.Sc. course* Statistics, Università degli studi di Bergamo *(AY 2021/2022)*
- Teaching Assistant, *B.Sc. course* Computer Science II, Bocconi University *(AY 2020/2021, 2021/2022)*
- Teaching Assistant, *B.Sc. course* Theoretical Computer Science, Bocconi University *(AY 2019/2020)*

Conferences Presentations

Jul 2024	ISEC International Statistical Ecology Conference *(Swansea, UK)* [Contributed Talk]
Jul 2024	ISBA World Meeting of the International Society of Bayesian Analysis *(Venice, IT)* [Invited Talk]
May 2024	PIC International Congress of Combustion By-Products and their Health Effects *(Durham, US)* [Poster]
Dec 2023	CMStats Computational and Methodological Statistics *(Berlin, DE)* [Invited Talk - virtual]
Aug 2023	JSM Joint Statistical Meetings *(Toronto, CA)* [Contributed Talk]
Jun 2023	IISA International Indian Statistical Association Conference *(Golden, US)* [Invited Talk]
Apr 2023	LiPH Laboratory of Interdisciplinary Physics, *University of Padua (Padua, IT)* [Invited Seminar]
Jun 2022	ISBA World Meeting of the International Society of Bayesian Analysis *(Montréal, CA)* [Poster]
Apr 2022	BNP Networking Event of the Bayesian Nonparametric Section of ISBA *(Nicosia, CY)* [Contributed Talk]
Jun 2021	ISBA 15th World Meeting of the International Society of Bayesian Analysis *(virtual)* [Contributed Talk - Workshop ISBA@CIRM *(Marseille, FR)*]

Schools Attendance

Jul 2019	Random Graphs: Bocconi Summer School in Advanced Statistics and Probability *(Como, IT)*
Jul 2016	Summer School on Atomistic Simulation Techniques, SISSA *(Trieste, IT)*

Awards

- Travel Award, ISBA 2024 World Meeting
- Ph.D. Scholarship, Bocconi University, 2018-2022
- Travel Award, ISBA 2022 World Meeting
- Travel Award, BNP 2022 Networking Event

Memberships & Affiliations

- American Statistical Association (*ASA*)
- International Society for Bayesian Analysis *(ISBA)*
- Italian Statistical Society *(SIS)*
- Bayesian Learning Laboratory *(BayesLab) at Bocconi Institute for Data Science and Analytics (BIDSA)*

Other Skills

- Programming: *R, C, C++, Python, Mathematica*
- Languages: *English (fluent), Italian (native speaker)*

Hobbies

Rock Climbing, Skiing, Hiking, Reading, Bartending