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, University of Colorado Boulder

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 for high-impact applications in precision medicine (multi-omics data), environmental health (e.g. chemical exposures in firefighters), neuroscience (brain connectome analysis), and ecology (species distribution modeling).

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*

Preprints

- Mauri L., Anceschi N., & Dunson D. (2025+) Spectral decomposition-assisted multi-study factor analysis, *arXiv:2502.14600*
- Anceschi N., Ferrari F., Mallick H. & Dunson D. (2024+) Bayesian joint additive factor models for multiview learning, *arXiv:2406.00778*
- Anceschi N., Rigon T., Zanella G. & Durante D. (2024+) Optimal lower bounds for logistic log-likelihoods, *arXiv:2410.10309*
- 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., Stolf F., Tikhonov G., Ovaskainen O. & Dunson D. - Enhanced borrowing for modeling rare species occurrences via tree-structured factor models.
- Kulkarni S, Anceschi N., Ferrari F & Mallick H. - Mimesis: realistic multi-omics data simulator for reliable validation 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

Public Softwares

R package **`jafar`** : R code for *Bayesian joint additive factor models for multiview learning*

GitHub repository **`EPglm`** : R code for *Scalable expectation propagation for generalized linear models*

Conference Presentations, Seminars & Schools

Invited

- Aug 2025 JSM Joint Statistical Meetings *(Nashville, US)*
- Mar 2025 ENAR Spring Meeting of the International Biometric Society *(New Orleans, US)*
- Jul 2024 ISBA World Meeting of the International Society of Bayesian Analysis *(Venice, IT)*
- Dec 2023 CMStats Computational and Methodological Statistics *(Berlin, DE)* [virtual]
- Jun 2023 IISA International Indian Statistical Association Conference *(Golden, US)*
- Apr 2023 LiPH Laboratory of Interdisciplinary Physics, *University of Padua (Padua, IT)*

Contributed

- Jul 2024 ISEC International Statistical Ecology Conference *(Swansea, UK)*
- Aug 2023 JSM Joint Statistical Meetings *(Toronto, CA)*
- Apr 2022 BNP Networking Event of the Bayesian Nonparametric Section of ISBA *(Nicosia, CY)*
- Jun 2021 ISBA@CIRM Workshop - Satellite event of the 15th World Meeting of the International Society of Bayesian Analysis *(Marseille, FR)*

Posters

- May 2024 PIC International Congress of Combustion By-Products and their Health Effects *(Durham, US)*
- Jun 2022 ISBA World Meeting of the International Society of Bayesian Analysis *(Montréal, CA)*

Schools

- 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)*
- Mar 2015 46th IFF Spring School on Functional Soft Matter *(Jülich, DE)*

Editorial Work

Ad-hoc reviewer:

- *Biometrics* - 2024 Excellent Referee Award
- *Computational Statistics and Data Analysis*
- *Journal of Computational and Graphical Statistics*
- *Statistics and Public Policy*

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++, Python, Mathematica, GitHub*
- Languages: *English (fluent)*, *Italian (native speaker)*