

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 multiomics data simulator 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

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

Schools Attendance

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

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