

Matteo Pedone


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RESEARCH INTERESTS

Theory and Methods: Statistical Modeling, Variable Selection, Bayesian Nonparametrics, Statistical Computing; Adaptive Clinical Trials.

Applications: Microbiome, Nutrition, Precision Medicine.

POSITION

University of Florence, **Research Fellow** (November 2021 - Today)

EDUCATION

University of Florence, Ph.D. **Statistics** (November 2018 - May 2022)

Thesis Title: Covariate-dependent Bayesian Models for Heterogeneous Populations.

Advisor: F.C. Stingo, *Co-Advisor:* R. Argiento

University of Florence, M.S. **Statistical Sciences** (2015 - 2018)

University of Perugia, B.S. **Economics** (2012 - 2015)

PUBLICATIONS

Statistics papers

1. A. Avalos-Pacheco, V. Ballerini, **M. Pedone**, P. Müller. Discussion on: Causal Inference Under Mis-Specification: Adjustment Based on the Propensity Score by Stephens D. A., Nobre W. S., Moodie E. E. M., and Schmidt A. M. *Bayesian Analysis*, In press, 2023+
2. **M. Pedone**, A. Amedei, and F. C. Stingo. Subject-specific dirichlet-multinomial regression for multi-district microbiota data analysis. *Ann. Appl. Statist.*, 17(1):539–559, 2023

Preprints

1. **M. Pedone**, R. Argiento and F.C. Stingo. A Bayesian nonparametric approach to personalized treatment selection. *Submitted*, 2022 [[arXiv](#)]

Cross disciplinary papers

1. S. Baldi, M. Menicatti, G. Nannini, E. Niccolai, E. Russo, F. Ricci, M. Pallecchi, F. Romano, **M. Pedone**, G. Poli, D. Renzi, A. Taddei, A. S. Calabrò, F. C. Stingo, G. Bartolucci, and A. Amedei. Free fatty acids signature in human intestinal disorders: Significant association between butyric acid and celiac disease. *Nutrients*, 13(3-742), 2021
2. E. Niccolai, E. Russo, S. Baldi, F. Ricci, G. Nannini, **M. Pedone**, F. C. Stingo, A. Taddei, M. N. Ringressi, P. Bechi, A. Mengoni, R. Fani, G. Bacci, C. Fagorzi, C. Chiellini, D. Prisco, M. Ramazzotti, and A. Amedei. Significant and conflicting correlation of IL-9 with prevotella and bacteroides in human colorectal cancer. *Frontiers in Immunology*, 11:3345, 2021

Conference Abstracts and Proceedings

1. **M. Pedone**, R. Argiento, and F. C. Stingo. Bayesian nonparametric predictive modeling for personalized treatment selection. In *International Conference on Bayesian Young Statistician Meeting*, pages 101–109. Springer, 2022
2. **M. Pedone** and F. C. Stingo. Subject-specific Bayesian Hierarchical Model for Microbiome Data Analysis. *13th International Conference of the ERCIM (European Research Consortium for Informatics and Mathematics) Working Group on Computational and Methodological Statistics (Virtual CMStatistics 2020)*, 2020
3. **M. Pedone** and F. C. Stingo. Subject-specific Bayesian hierarchical model for compositional data analysis. *Book of Short Papers SIS 2020*, 2020
4. **M. Pedone** and F. C. Stingo. Soft thresholding Bayesian variable selection for microbiome data analysis. *Smart Statistics for Smart Applications - Book of Short Papers SIS 2019*, 2019

PRESENTATIONS

Invited Presentations

- A Bayesian nonparametric approach to personalized treatment selection. CluB PMx² final Workshop, Turin (Italy) *February 24, 2023*.—

Contributed Presentations

- Soft thresholding Bayesian variable selection for microbiome data analysis. SIS2019, Milan (Italy) (*June 19, 2019*).—
- Subject-specific Bayesian hierarchical model for microbiome data analysis. BAYSM:O, **online** (*November 17, 2020*).—
- Subject-specific Bayesian Hierarchical Model for Microbiome Data Analysis. CMSTATISTICS 2020, **online** (*December 21, 2020*).—
- Subject-specific Dirichlet-Multinomial Regression for Multi-District Microbiota Data Analysis. ISBA 2021, **online** (*June 30, 2021*).—
- Bayesian nonparametric predictive modeling for personalized treatment selection. BAYSM 2021 **online** (*September 3, 2021*).—
- Bayesian nonparametric predictive modeling for personalized treatment selection. IBS

2021 **online** (*September 24, 2021*).— • A Bayesian nonparametric approach to personalized treatment selection. ICSDS 2022, Florence (Italy) *December 15, 2022*.—

Poster Presentations

• Exploring soft thresholding approach for Bayesian variable selection. COSTNET ECTE, **LMU Munich**, Munich (Germany) (*February 12, 2019*).— • Subject-specific Dirichlet–Multinomial Regression for Multi-District Microbiota Data Analysis. ISBA 2021 **online** (*July 1, 2021*).— • Bayesian Nonparametric Predictive Model for Personalized Treatment Selection in Cancer Genomics. ISBA 2022 Montréal (Canada) (*June 29, 2022*).—

Invited Seminars

• A Bayesian nonparametric approach to personalized treatment selection. **University of Florence**, Florence (Italy) (*October 28, 2022*).— • A Bayesian nonparametric approach to personalized treatment selection. **Fondazione Pisana per la Scienza**, Pisa (Italy) (*March 23, 2023*).—

GRANTS

Bayesian Methods for Clinical and Observational Studies (BayesMeCOS) February 2023 - January 2025.

PI: Dr. V. Ballerini (236.000 euros)

TEACHING & SUPERVISION

Teaching Assistant, *MSc course in Bayesian Data Analysis* - University of Florence (2021)

Teaching Assistant, *MSc course in Bayesian Data Analysis* - University of Florence (2023)

Principal Instructor, *BSc course in Statistics* - University of Siena (6 CFU) (2023)

Co-supervisor, D. Fabbri, *MSc thesis Statistics and Data Science* - University of Florence (2022, jointly with F.C. Stingo) —

SCIENTIFIC MEMBERSHIPS AND SERVICE TO PROFESSION

Affiliations

ISBA, j-ISBA, IMS.

Referee

Annals of Applied Statistics (1) — Stat (1) — Chapter for *Springer* book (1)

Organization

Session Organized at BAYSM:O, 2020.— **Volunteer** at ICSDS 2022.—

Committee Member for Master Degree

Laurea Magistrale in Statistica e Data Science, Florence, October 10, 2022

🎓 HONORS & AWARDS

- Ph.D. Scholarship with specific research topic: *Data Science*. Department of Statistics, Computer Science, Applications “G. Parenti”, Progetto Ministeriale “Dipartimenti di Eccellenza 2018-2022”, University of Florence.
- Honorable mention for the best talk in Applications and Computation, BAYSM2021 Meeting
- Junior Travel Support to attend ISBA World Meeting 2022, Montreal, Canada (500\$)

</> COMPUTER SKILLS

Programming: R, C/C++, Stan

Version Control: Git/GitHub

Cloud Platform: Google Cloud Platform (Compute Engine)

OS: Linux, Windows

Updated April 27, 2023.

“In compliance with the Italian legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.”

Perugia, April 27, 2023