Alessandro Zito

Italy: +39 349-461-3584 | US: +1 984-528-0287 | azito@hsph.harvard.edu | Linkedin | GitHub | Website

HIGHLIGHT

Experienced statistician working as a postdoctoral fellow at Harvard University, Department of Biostatistics. Current line of work includes cancer detection algorithms and dimensionality reduction methods.

Ph.D. graduate in Statistics from Duke University. Great experience in applied and methodological research, with particular interests in DNA-related data, nonparametric methods, and high-dimensional statistics.

Extensive collaboration experiences both in industry and in research, including working with scientists outside the statistical field.

EXPERIENCE

Postdoctoral researcher — Boston, MA, USA
Harvard T.H. Chan School of Public Health - Department of Biostatistics — *Sep 2023 – current*
- Working with PI Dr. Jeff Miller and Dr. Giovanni Parmigiani on developing non-negative matrix factorization methods to understand DNA mutational patterns in cancer cells. Recent paper: ArXiv:2404.10974.
- Areas of research explored: Machine Learning, High-dimensional statistics, Dimensionality reduction methods, regression methods, mutational signature analysis

Intern Data Scientist — San Bruno, CA, USA
Google LLC, Youtube Data Science team — *May 2022 – Aug 2022*
- Implemented Bayesian hypothesis testing methods to evaluate platform experiments
- Designed a methodology to construct proxy metrics for long-term experiment outcome prediction based on Multivariate Bayesian Optimization algorithms and Gaussian processes. Follow up paper: ArXiv:2307.01000
- Coded up the two methodologies into two R packages for future internal usage

Intern Data Scientist — Milan, Italy
Generali Italia S.p.A., Advanced Analytics Solutions team. — *Jun 2018 – Jul 2019*
- Developed and implemented a Bayesian bandit algorithm recommendation system in Python via a Google Cloud Platform API to optimize a life insurance policy marketing campaign
- Implemented a drivers profiling model, migrated from the partner society MyDrive Solutions, using Python

EDUCATION

Duke University — Durham, NC, USA
Ph.D. in Statistical Science. Supervisor: Professor David B. Dunson — *Aug 2019 – Sep 2023*
- Research interests: Bayesian Methods, Bayesian Nonparametrics, Species Sampling Models, Ecology
- Funded by project Lifeplan, a European Research Council grant aiming at tracking global biodiversity.
- Dissertation: *Ecological modeling via Bayesian nonparametric species sampling priors* Link Slides

Bocconi University — Milan, Italy
Master's of Science in Economics and Social Sciences — *Sep 2016 – Mar 2019*
- Graduation grade: 110 cum laude / 110
- Thesis: *Conjugate Fractional Factorial Thompson Sampling via unified skew-normal*, with Daniele Durante

Bocconi University — Milan, Italy
Bachelor's of Science in Economics and Social Sciences — *Sep 2013 – Oct 2016*
- Graduation grade: 110 cum laude / 110
- Exchange program at The University of Chicago, Department of Economics, Fall 2015

PUBLICATIONS

Zito, A., Rigon., T. and Dunson, D. B. (2023), Bayesian nonparametric modelling of latent partitions via Stirling-gamma priors, *Bayesian Analysis.* In press. ArXiv.

Zito, A., Rigon., T., Ovaskainen, O. and Dunson, D. B. (2023), Bayesian modeling of sequential discoveries, *Journal of the American Statistical Association (T&M)*, 118:544, 2521-32, DOI:10.1080/01621459.2022.2060835

Zito, A., Rigon., T. and Dunson, D. B. (2023), Inferring taxonomic placement from DNA barcoding aiding in discovery of new taxa. *Methods in Ecology and Evolution.* 14, 529–42. DOI:10.1111/2041-210X.14009

Preprints

Zito, A. and Miller, J. W. (2024), Compressive Bayesian non-negative matrix factorization for mutational signature analysis, <u>ArXiv:2404.10974</u>, *under review*.

Lee, C. J., **Zito, A.**, Sang, H. and Dunson, D. B. (2024), Logistic-Beta Processes for Modeling Dependent Random Probabilities with Beta Marginals <u>ArXiv:2402.07048</u>, *under review*.

Richardson, L., **Zito, A.**, Greaves, D. and Soriano, J. (2023), Pareto Optimal Proxy Metrics, <u>ArXiv:2307.01000</u>, *under review*.

Software

Zito, A. (2023) `ConjugateDP`: Random number generator for the Stirling-gamma distribution. <u>GitHub</u>

Zito, A. (2022) `BayesANT`: Bayesian nonparametric taxonomic classifier for DNA barcoding sequences. <u>GitHub</u>

Zito, A., Rigon, T. (2021) `BNPvegan`: Bayesian nonparametric methods for ecology. <u>GitHub</u>

Skills

IT: R, Rcpp (Fluent), Python, Keras, Tensorflow, Git, Cluster computing via SLURM, SQL (Proficient)
Languages: Italian (Native), English (Fluent), Spanish (Proficient)

Awards

BEST Award for Ph.D. student research for the 2021/2022 academic year
Ph.D. Teaching Assistant of the Year Award for the 2020/2021 academic year
Best Student/Postdoc Contributed Paper Award at ISBA 2021 World meeting
Bocconi Merit Award scholarship for the 2016/2017 and 2017/2018 academic years

Other Achievements

Painter. Personal exhibitions at <u>Triennale di Milano</u> museum of arts and "Spazio Arte Tirabassi" art gallery. Winner of the 2018 "Looking for Art" contest in Milan.

Former **semi-professional actor** at "Proxima Res", Milan