Laura D'Angelo

Department of Economics, Management and Statistics
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⌂ *laura-dangelo.github.io*

CURRENT POSITION

Postdoctoral researcher in Statistics (From Dec 2021)
Department of Economics, Management and Statistics
University of Milano Bicocca
Supervisor: Prof. Bernardo Nipoti

EDUCATION

PhD in Statistics
Oct 2018 – Nov 2021; defense on May 4, 2022
Department of Statistical Science, University of Padova
- Thesis: "Bayesian modeling of calcium imaging data"
- Supervisor: Prof. Antonio Canale
- Co-supervisor: Prof. Michele Guindani

Master's Degree in Statistics
Oct 2015 – Nov 2017
Department of Statistical Science, University of Padova
- Thesis: "Bayesian nonparametric models: applications in insurance"
- Supervisor: Prof. Antonio Canale
- Final mark: 110/110 *cum laude*

Bachelor's Degree in Statistics, Economics and Finance
Oct 2012 – Sep 2015
Department of Statistical Science, University of Padova
- Thesis: "Covariate-specific area under the ROC curve"
- Supervisor: Prof. Gianfranco Adimari
- Final mark: 110/110 *cum laude*

VISITING PERIODS

University of California, Irvine; Department of Statistics.
Irvine, California; USA.
Jan 2020 – Nov 2020
Supervisor: Prof. Michele Guindani

AWARDS

- ISBA Poster Award, ISBA 2022
- Junior travel award, ISBA 2022
- Best Student/Postdoc Contributed Paper Award, ISBA 2021

WORK EXPERIENCE

Data analyst at BIP, Milano, Italy (Jan 2018 – Sep 2018).

- Bayesian modeling
- Model-based clustering
- Computational statistics

Working papers and ongoing projects

- D'Angelo L., Nipoti B. and Ongaro A. (2024+) "Dependent Dirichlet processes via thinning" (ongoing project).

- D'Angelo L., Canale A., and Guindani M. (2024+) "Clustering activation patterns of spatially-referenced neurons" (ongoing project).

- Denti F. and D'Angelo L. (2024+) "The generalized nested common atoms model" (under review).

- Denti F. and D'Angelo L. (2024+) "SANba: An R package for Bayesian clustering of distributions via shared atoms nested models" (ongoing project).

Articles in peer-reviewed journals and conference proceedings

- D'Angelo L. and Denti F. (2024) "A finite-infinite shared atoms nested model for the Bayesian analysis of large grouped data". *Bayesian Analysis*, 1–34.
  DOI: 10.1214/24-BA1458

- D'Angelo L., Nipoti B. and Ongaro A. (2024) "Two-level clustering of patients and hospitals via thinned dependent Dirichlet process mixtures", in *Book of Short Papers SIS 2024*, Springer (in press).

- D'Angelo (2024) "Exploring the challenges of the analysis of the Allen Brain Observatory dataset", in *Advances in Neural Data Science* (proceedings of the Data Research Camp 2022), Springer (in press).

- D'Angelo L. and Canale A. (2023) "Efficient posterior sampling for Bayesian Poisson regression". *Journal of Computational and Graphical Statistics*, 32(3), 917–926.
  DOI: 10.1080/10618600.2022.2123337.

- D'Angelo L., Canale A., Yu Z. and Guindani M. (2023) "Bayesian nonparametric analysis for the detection of spikes in noisy calcium imaging data". *Biometrics*, 79(2), 1370–1382. DOI: 10.1111/biom.13626.

- D'Angelo L. (2023) "A comparison of computational approaches for posterior inference in Bayesian Poisson regression", in *Book of Short Papers SIS 2023*, Springer, 903–907, ISBN: 9788891935618AAVV.

- D'Angelo L. and Denti F. (2023) "Bayesian analysis of Amazon's best-selling books via finite nested mixture models", in *Book of Short Papers SIS 2023*, Springer, 1117-1120, ISBN: 9788891935618AAVV.

- D'Angelo L. (2022) "Bayesian nonparametric clustering of spatially-referenced spike train data", in *Book of Short Papers SIS 2022*, 514-519, Springer, ISBN: 9788891932310.

- Denti F., D'Angelo L. and Guindani M. (2022) "Bayesian approaches for capturing the heterogeneity of neuroimaging experiments", in *Book of Short Papers SIS 2022*, Springer, 17–29, ISBN: 9788891932310.

- D'Angelo L. and Canale A. (2021) Contributed Discussion on: "Centered Partition Processes: Informative Priors for Clustering", in Bayesian Analysis, 16(1), 356–358.

- D'Angelo L., Canale A., Yu Z. and Guindani M. (2021) "Detection of neural activity in calcium imaging data via Bayesian mixture models", in *Book of Short Papers SIS 2021*, Springer, 745–750, ISBN: 9788891927361.

- D'Angelo L. (2019) "Model based clustering in group life insurance via Bayesian nonparametric mixtures", in *Book of Short Papers SIS 2019*, Springer, 781–786, ISBN: 9788891915108.

SOFTWARE

- D'Angelo L. and Denti F. (2023) "SANple: Fitting Shared Atoms Nested Models via Markov Chains Monte Carlo", *R package*,
  URL: https://CRAN.R-project.org/package=SANple

- Denti F. and D'Angelo L. (2023) "SANvi: Fitting Shared Atoms Nested Models via Variational Bayes", *R package*,
  URL: https://CRAN.R-project.org/package=SANvi

- D'Angelo L. (2021) "bpr: Fitting Bayesian Poisson Regression", *R package*,
  URL: https://CRAN.R-project.org/package=bpr

TEACHING EXPERIENCE

- Lecturer: Statistical Modelling (32 hours). A.Y. 2024/2025, B.Sc. in Artificial Intelligence, inter-university course of the Universities of Milano-Bicocca, Milano Statale and Pavia.

- Lecturer: Statistical Modelling (32 hours). A.Y. 2023/2024, B.Sc. in Artificial Intelligence, inter-university course of the Universities of Milano-Bicocca, Milano Statale and Pavia.

- Teaching Assistant: Advanced Statistics (M.Sc. course in Statistics) and Mathematical Analysis 1 (B.Sc. course in Statistics). A.Y. 2016/2017, University of Padova.

CONFERENCE PRESENTATIONS

- Invited talk: "Uncovering the heterogeneity of the neuronal activity in calcium imaging studies via Bayesian mixture models"; *ISBA 2024*, Venezia, Italy; July 1 – 7, 2024.

- Invited talk: "Two-level clustering of patients and hospitals via thinned dependent Dirichlet process mixtures"; *SIS 2024*, Bari, Italy; June 17 – 20, 2024.

- Invited talk: "A Bayesian hierarchical mixture model for clustering Spotify's songs and artists"; *StaTalk 2023*, Roma, Italy; September 15 – 16, 2023.

- Contributed talk: "A comparison of computational approaches for posterior inference in Bayesian Poisson regression"; *SIS 2023*, Ancona, Italy; June 21 – 23, 2023.

- Invited talk: "Bayesian nonparametric clustering of spatially-referenced spike train data"; *SIS 2022*, Caserta, Italy; June 22 – 24, 2022.

- Discussant at the solicited session "Bayesian inference for complex random structures"; *SIS 2022*, Caserta, Italy; June 22 – 24, 2022.

- Contributed talk: "Bayesian nonparametric analysis for the detection of spikes in noisy calcium imaging data"; *JSM 2021* (online conference); August 8 – 12, 2021.

- Contributed talk: "Bayesian nonparametric analysis for the detection of spikes in noisy calcium imaging data"; *ISBA 2021* (online conference), June 23 – July 2; 2021.

- Contributed talk: "Detection of neural activity in calcium imaging data via Bayesian mixture models"; *SIS 2021* (online conference); June 21 – 25, 2021.

- Talk: "Efficient posterior sampling for Bayesian Poisson regression"; Junior session at the *Bayesian Nonparametrics for Complex Data, Concluding workshop*, University of Padova; January 24, 2020.

- Contributed talk: "Model based clustering in group life insurance via Bayesian nonparametric mixtures"; *SIS 2019*, Milano, Italy; June 12 – 14, 2019.

POSTER PRESENTATIONS

- "Finite-infinite nested priors for the segmentation of complex, large-scale grouped datasets"; *BAYSM 2024*, Venezia, Italy; June 29 – 30, 2024.
- "Clustering activation patterns of spatially-referenced neurons"; *Statistical methods and models for complex data*, Padova, Italy; September 21 – 23, 2022.
- "Clustering activation patterns of spatially-referenced neurons"; *ISBA 2022*, Montreal, Canada; June 27 – July 1, 2022.

SEMINARS

- "Analyzing the activation patterns and heterogeneity of the neuronal response via Bayesian mixture models"; seminar at the Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, Venezia, Italy; April 9, 2024.
- "Modeling grouped data via finite nested mixture models: an application to calcium imaging data"; seminar at Dipartimento di Statistica, Informatica, Applicazioni "Giuseppe Parenti", Università degli Studi di Firenze, Firenze, Italy; June 8, 2023.
- Two seminars during the MSc course "Temi e metodi di popolazione e società" (Dott. P. Belloni): "Introduzione ai modelli mistura Bayesiani" (Introduction to Bayesian mixture models) and "Modelli mistura gerarchici per il clustering di contenuti musicali" (Nested mixture models for clustering Spotify's songs and artists); Department of Statistics, University of Padova, Padova, Italy; May 8–9, 2023.
- "Analysis of calcium imaging data via finite nested mixture models"; seminar at the Department of Economics, University of Bergamo; April 4, 2023.
- "Analysis of calcium imaging data via nested mixture models"; seminar during the MSc course of Bayesian Statistics, Department of Mathematics, Politecnico di Milano; October 28, 2022.
- "Clustering activation patterns of spatially-referenced neurons"; virtual seminar at the Department of Statistics, ITAM, Mexico; September 2, 2022.
- Presentation of the topic and data description at the Data Research Camp, San Servolo Island, Venezia, Italy; July 12, 2022.
- Seminar on the use of Latex for scientific writing and bibliography management (April 23, 2021; 2.30 hours). M.Sc. course in Statistics, University of Padova.

WORKSHOPS

- Bayesian Nonparametrics for Complex Data, Concluding workshop. January 24, 2020; Department of Statistical Sciences, University of Padova, Padova, Italy.
- Data Research Camp, San Servolo Island, Venezia, Italy. July 2 – 5, 2019. 3-day meeting where groups of young scholars, advised by a senior researcher, were asked to develop innovative methods and models to analyze a common dataset.

SERVICE

Memberships

- International Society for Bayesian Analysis
- Società Italiana di Statistica

Referee for: (alphabetical order)
Biostatistics; Computational Statistics and Data Analysis; Journal of the Royal Statistical Society, Series C; Statistical Science; Statistics in Medicine.

COMPUTER SKILLS

- Languages: R, Rcpp (good); Python (basic).
- Other: Latex (good); GitHub (basic); HTML, CSS (basic).

LANGUAGES   Italian (native); English.

DATA
HACKATHONS
- June 27 – 28, 2017: First prize winner at Stats Under the Stars[3], Firenze, Italy.

Updated: September 23, 2024.