Alessia CAPONERA

PERSONAL DATA

PLACE AND DATE OF BIRTH: Rome | December 5th, 1992
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ACADEMIC POSITIONS

OCTOBER 2020 – PRESENT	Postdoctoral Associate **École Polytechnique Fédérale de Lausanne** In the research team of Prof. Victor Panaretos
DECEMBER 2019 – SEPTEMBER 2020	Research Associate **University of Rome Tor Vergata** In the research team of Prof. Domenico Marinucci

EDUCATION

NOVEMBER 2016 – FEBRUARY 2020	Ph.D. in *Methodological Statistics* **Sapienza University of Rome** Thesis: *Statistical Inference for Spherical Functional Autoregressions* Under the joint supervision of Prof. Pierpaolo Brutti and Prof. Domenico Marinucci
AY 2015 – 2016	Master *Mathématiques, Informatique, Décision et Organisation* **Paris Dauphine University** Thesis: *Evidence Estimation of State Space Models: Sequential Monte Carlo^2 and Chib's Method* Advisor: Prof. Christian P. Robert
OCTOBER 2014 – OCTOBER 2016	Master of Science in *Statistics and Decisions* (double degree) **Sapienza University of Rome** 110 cum laude/110 Thesis: *Adaptive Smoothing Spline with Application to Seismic Data* Advisor: Prof. Pierpaolo Brutti
OCTOBER 2011 – JULY 2014	Bachelor's Degree in *Statistics, Economics and Society* **Sapienza University of Rome** 110 cum laude/110
2006 – 2011	High School Diploma **Liceo Scientifico B. Croce di Roma**

SERVICE TO PROFESSION

Elected member of the board (2018 – 2020) of the young group (y-SIS) of the Italian Statistical Society

Scientific committee of 50th Scientific Meeting of the Italian Statistical Society (SIS2020)

Referee service for Electronic Journal of Statistics, Bernoulli, Computational Statistics and Data Analysis

SERVICE TO UNIVERSITY

External supervisor of Master's student Federica Spoto (2020)
M.Sc. in Data Science, Sapienza University of Rome

TEACHING EXPERIENCE

AY 2021 – 2022 FALL	Teaching assistant for the course *Linear models* (Prof. Victor Panaretos) **Bachelor in Mathematics, Masters in Data Science and Digital Humanities, EPFL**
AY 2020 – 2021 FALL	Teaching assistant for the course *Probabilités et statistique* (Prof. Matthieu Wilhelm) **Bachelors in Mechanical and Electrical Engineering, EPFL**
AY 2019 – 2020 SPRING SPRING SPRING	Lecturer for the following courses: *Probabilità e statistica* (30h/60h) shared with Dr. Francesco Iafrate (30h/60h) *Laboratorio di statistica* (30h) **Bachelor in Mechanical Engineering, Sapienza University of Rome** *Hacking day on Statistical Inference for Spherical Functional Autoregressions* (2h, specialist lecture) **M.Sc. in Mathematics for Data Science, University of Trento**
AY 2018 – 2019 FALL FALL	Teaching assistant for the following courses: *Statistica di base* (Prof. Valeria Sambucini) **Bachelor in Statistics, Sapienza University of Rome** *Statistical Methods in Data Science and Laboratory* (Prof. Pierpaolo Brutti) **M.Sc. in Data Science, Sapienza University of Rome**
AY 2017 – 2018 FALL FALL SPRING	Teaching assistant for the following courses: *Statistica di base* (Prof. Valeria Sambucini) **Bachelor in Statistics, Sapienza University of Rome** *Laboratory of Statistical Decisions* (Prof. Fulvio De Santis) **M.Sc. in Statistics and Decisions, Sapienza University of Rome** *Inferenza statistica* (Prof. Luca Tardella) **Bachelor in Statistics, Sapienza University of Rome**
AY 2016 – 2017 SPRING	Teaching assistant for the course *Inferenza statistica* (Prof. Luca Tardella) **Bachelor in Statistics, Sapienza University of Rome**
2016 – 2019	Collaboration within the project "Piano Lauree Scientifiche" **Department of Statistical Sciences, Sapienza University of Rome** Main activities: – Tutoring service and remedial courses – *Alternanza Scuola Lavoro* for **Liceo scientifico Plinio Seniore di Roma** (2016/17, 2017/18) – *Verso l'Esame di Stato: Statistica e Probabilità* (2018/19) – *Convegno sui Licei Matematici* (2018/19)

Refereed Journals

Caponera, A., Durastanti, C. (2021+) *Parametric estimation for functional autoregressive processes on the sphere.* Theory of Probability and Mathematical Statistics, in press. arXiv:2107.08900

Caponera, A. (2021) *SPHARMA approximations for stationary time series on the sphere.* Statistical Inference for Stochastic Processes, vol. 24, pp. 609-634.

Caponera, A., Durastanti, C., Vidotto, A. (2021) *LASSO estimation for spherical autoregressive processes.* Stochastic Processes and their Applications, vol. 137, pp. 167-199.

Caponera A., Marinucci D. (2021) *Asymptotics for spherical functional autoregressions.* Annals of Statistics, vol. 49, no. 1, pp. 346-369.

Manuscripts Under Review and In Preparation

Caponera, A., Fageot, J., Simeoni, M., Panaretos, V.M. (2021+) *Nonparametric estimation of covariance and autocovariance operators on the sphere.* Manuscript submitted for publication. arXiv:2112.12694

Caponera, A., Panaretos, V.M. (2021+) *On the rate of convergence for the autocorrelation operator in functional autoregression.* Manuscript submitted for publication. arXiv:2202.09287

Conference Proceedings and Book Chapters

Caponera, A., Fageot, J., Simeoni, M., Panaretos, V.M. (2021) *Sparsely observed functional data on the sphere.* In: CFE-CMStatistics 2021 Book of Abstracts. ISBN:978-9925-7812-5-6

Spoto, F., Caponera, A., Brutti, P. (2021) *Spherical autoregressive change-point detection with applications.* In: Book of Short Papers SIS 2021. ISBN: 9788891927361

Caponera, A. (2019) *Asymptotics and regularization in spherical functional autoregressive models.* In: CFE-CMStatistics 2019 Book of Abstracts. ISBN:978-9963-2227-8-0

Caponera A. (2019) *Stein-Malliavin techniques for spherical functional autoregressions.* In: Book of Abstracts. Second Italian Meeting on Probability and Mathematical Statistics. ISBN: 979-12-200-4788-3

Caponera, A., Denti, F., Rigon, T., Sottosanti, A., Gelfand, A. (2018) *Hierarchical spatio-temporal modeling of resting state fMRI data.* In: Studies in Neural Data Science (Canale, A., Durante, D., Paci, L., Scarpa, B., editors).

Caponera, A., Werner, M. J. (2018) *How robust is the skill score of probabilistic earthquake forecasts?.* In: Book of Short Papers SIS 2018. ISBN: 9788891910233

Caponera, A., Werner, M. J. (2017) *Understanding variability of models' time-averaged predictive skill in earthquake forecasting.* In: CFE-CMStatistics 2017 Book of Abstracts. ISBN: 978-9963-2227-4-2

Conferences and Seminars

December 2021 INVITED TALK	*Sparsely observed functional data on the sphere* presented at CFE-CMStatistics 2021 **University of London, online**
October 2021 INVITED SEMINAR	*Statistical inference for spherical functional autoregressions* held for the **Department of Mathematics and Statistics, Maynooth University** **online**
June 2021 INVITED WEBINAR WITH DISCUSSANT	*Asymptotics for spherical functional autoregressions* One World YoungStatS Webinar on Recent Advances in Functional Data Analysis **online**
January 2020 INVITED SEMINAR	*Asymptotics and regularization in spherical functional autoregressive models* held for the **School of Computer Science & Statistics, Trinity College Dublin**
December 2019 SESSION	*y-SIS: From methodology to applications* organized and chaired at CFE-CMStatistics 2019 **University of London**
December 2019 TALK	*Asymptotics and regularization in spherical functional autoregressive models* presented at CFE-CMStatistics 2019 **University of London**
August 2019 TALK	*Fluctuations of the information gain as skill score of probabilistic earthquake forecasts* presented at 11th International Workshop on Statistical Seismology **Hakone, Japan**
July 2019 TALK	*Asymptotics for spherical functional autoregressions* presented at European Meeting of Statisticians 2019 **University of Palermo**
June 2019 INVITED TALK TALK	*Stein-Malliavin techniques for spherical functional autoregressions* presented at Second Italian Meeting on Probability and Mathematical Statistics **Vietri sul Mare (SA), Italy** presented at 3rd Warsaw Summer School in Probability **University of Warsaw**
May 2019 INVITED SEMINAR	*Asymptotics for spherical functional autoregressions* held for the **Department of Mathematics, University of Rome Tor Vergata**
March 2019 TALK	*Asymptotics for spherical functional autoregressions* presented at StaTalk @ UniBO **University of Bologna**
June 2018 POSTER	*Hierarchical spatio-temporal modeling of resting state fMRI data* presented at ISBA 2018 World Meeting **University of Edinburgh**
June 2018 TALK	*How robust is the skill score of probabilistic earthquake forecasts?* presented at 49th Scientific Meeting of the Italian Statistical Society (SIS2018) **University of Palermo**
December 2017 TALK	*Understanding variability of models' time-averaged predictive skill in earthquake forecasting* presented at CFE-CMStatistics 2017 **University of London**
February 2017 POSTER	*Adaptive smoothing spline with application to seismic data* presented at SISBAYES 2017 meeting **Sapienza University of Rome**

Scholarships and Funding

AY 2019 – 2020	Sapienza University funding "Progetti di Ricerca (Piccoli, Medi) - Progetti Medi" *Trattamento dell'incertezza: identificabilità, campi aleatori* (PI: Prof. Barbara Vantaggi)
AY 2018 – 2019	Sapienza University funding "Progetti per Avvio alla Ricerca" *Space-Time Spherical Random Fields and their Applications to Astrostatistics*
AY 2017 – 2018	*Estimating and Forecasting Earthquakes by Adaptive Smoothing Splines*
June 2018	ISBA travel support for ISBA 2018 World Meeting **University of Edinburgh**
August 2017	LML Summer School 2017 scholarship **London Mathematical Laboratory**
AY 2015 – 2016	Erasmus+ scholarship **Paris Dauphine University**

Languages

Italian:	Mother tongue
English:	B2
French:	A2

Computer Skills

Operating Systems:	macOS, Windows
Languages and Software:	R, Python, Matlab, LaTeX, Microsoft Office