Alessia Caponera

Personal Data

Place and Date of Birth: Rome | December 5th, 1992
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Academic Positions

October 2020 – Present	Postdoctoral Researcher **École Polytechnique Fédérale de Lausanne** In the research team of Prof. Victor Panaretos
December 2019 – September 2020	Postdoctoral Researcher **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 and Bernoulli

Service to University

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

Teaching Experience

AY 2020 – 2021 Teaching assistant for the course
Fall *Probabilités et statistique* (Prof. Matthieu Wilhelm)
Bachelors in Mechanical and Electrical Engineering, École Polytechnique Fédérale de Lausanne

AY 2019 – 2020 Lecturer for the following courses:
Spring *Probabilità e statistica* (30h/60h) shared with Dr. Francesco Iafrate (30h/60h)
Spring *Laboratorio di statistica* (30h)
Bachelor in Mechanical Engineering, Sapienza University of Rome
Spring *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 Teaching assistant for the following courses:
Fall *Statistica di base* (Prof. Valeria Sambucini)
Bachelor in Statistics, Sapienza University of Rome
Fall *Statistical Methods in Data Science and Laboratory* (Prof. Pierpaolo Brutti)
M.Sc. in Data Science, Sapienza University of Rome

AY 2017 – 2018 Teaching assistant for the following courses:
Fall *Statistica di base* (Prof. Valeria Sambucini)
Bachelor in Statistics, Sapienza University of Rome
Fall *Laboratory of Statistical Decisions* (Prof. Fulvio De Santis)
M.Sc. in Statistics and Decisions, Sapienza University of Rome
Spring *Inferenza statistica* (Prof. Luca Tardella)
Bachelor in Statistics, Sapienza University of Rome

AY 2016 – 2017 Teaching assistant for the course
Spring *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. (2021) *SPHARMA approximations for stationary time series on the sphere.* Statistical Inference for Stochastic Processes. DOI:10.1007/s11203-021-09244-6

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., Durastanti, C. (2021) *Parametric estimation for functional autoregressive processes on the sphere.* Submitted for publication. arXiv:2107.08900

Conference Proceedings and Book Chapters

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

Scholarships and Funding

	Sapienza University funding "Progetti di Ricerca (Piccoli, Medi) - Progetti Medi"
AY 2019 – 2020	*Trattamento dell'incertezza: identificabilità, campi aleatori* (PI: Prof. Barbara Vantaggi)
	Sapienza University funding "Progetti per Avvio alla Ricerca"
AY 2018 – 2019	*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

Conferences and Seminars

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

Autorizzo la pubblicazione ai sensi del D.Lgs. n. 33/2013 “Riordino della disciplina riguardante gli obblighi di pubblicità, trasparenza e diffusione di informazioni da parte delle pubbliche amministrazioni” e acconsento all’utilizzo delle informazioni ivi contenute ai sensi del D.L. n. 196/2003 “Codice in materia di protezione dei dati personali”.