

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 <i>Methodological Statistics</i> Sapienza University of Rome Thesis: <i>Statistical Inference for Spherical Functional Autoregressions</i> Under the joint supervision of Prof. Pierpaolo Brutti and Prof. Domenico Marinucci
AY 2015 – 2016	Master <i>Mathématiques, Informatique, Décision et Organisation</i> Paris Dauphine University Thesis: <i>Evidence Estimation of State Space Models: Sequential Monte Carlo² and Chib's Method</i> Advisor: Prof. Christian P. Robert
OCTOBER 2014 – OCTOBER 2016	Master of Science in <i>Statistics and Decisions</i> (double degree) Sapienza University of Rome 110 cum laude/110 Thesis: <i>Adaptive Smoothing Spline with Application to Seismic Data</i> Advisor: Prof. Pierpaolo Brutti
OCTOBER 2011 – JULY 2014	Bachelor's Degree in <i>Statistics, Economics and Society</i> 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. In press. arXiv:2009.13189
- 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

- Spoto, F., Caponera, A., Brutti, P. *Spherical autoregressive change-point detection with applications*. Preprint.

CONFERENCE PROCEEDINGS AND BOOK CHAPTERS

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

AY 2019 – 2020	Sapienza University funding “Progetti di Ricerca (Piccoli, Medi) - Progetti Medi” <i>Trattamento dell’incertezza: identificabilità, campi aleatori</i> (PI: Prof. Barbara Vantaggi)
AY 2018 – 2019	Sapienza University funding “Progetti per Avvio alla Ricerca” <i>Space-Time Spherical Random Fields and their Applications to Astrostatistics</i>
AY 2017 – 2018	<i>Estimating and Forecasting Earthquakes by Adaptive Smoothing Splines</i>
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

- JANUARY 2020
SEMINAR *Asymptotics and regularization in spherical functional autoregressive models*
held at 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 *Stein-Malliavin techniques for spherical functional autoregressions*
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
SEMINAR *Asymptotics for spherical functional autoregressions*
held at 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

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del D.P.R. 445/2000.

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".