



# Francesca Panero

## *Curriculum Vitae*

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4rd (last!) year PhD student in Statistics at the University of Oxford, under the supervision of Prof. F. Caron and Prof. J. Rousseau, graduating at the beginning of 2022. I work on three research streams: networks models, privacy assessment and fair machine learning. On the network side, I am working on a spatial model for sparse networks based on Bayesian nonparametric techniques and on modeling multiscale networks for brain connectome data. On the privacy side, I am interested in the estimation of disclosure risk arising in the publication of data under privacy constraints. Finally, I am working on linear and generalised linear regression models to achieve the fairness requirement of statistical parity through ridge regression techniques.

## Education

- Feb – Mar 2020 **Visiting researcher at IDSIA, Lugano, Switzerland.**  
Working with Dr Marco Scutari
- Feb – Mar 2020 **Visiting student at Duke University, Durham, North Carolina (USA).**  
Working with David Dunson's group
- Oct 2017 – Present **DPhil student in Statistical Science (OxWaSP: Oxford - Warwick Statistical Programme), University of Oxford.**  
Expected graduation date: January 2022
- Oct 2015 – Jul 2017 **Senior Allievo, Allievi Honors Program, Collegio Carlo Alberto, Moncalieri, Italy.**  
Master in Statistics and Applied Mathematics *with distinction*
- Sep 2015 – Jul 2017 **M.Sc. in Stochastics and Data Science, Università di Torino, Italy.**  
Final grade: 110/110 *cum laude*
- Sep 2012 – Jul 2015 **Junior Allievo, Allievi Honors Program, Collegio Carlo Alberto, Moncalieri, Italy.**  
Diploma Allievi in Economics *with distinction*
- Sep 2012 – Oct 2015 **Laurea in Matematica (Bachelor in Mathematics), Università di Torino, Italy.**  
Final grade: 110/110 *cum laude*

## Publications and Preprints

- 2021 **Optimal disclosure risk assessment**, *The Annals of Statistics*, 49.2: 723-744..  
F. Camerlenghi, S. Favaro, Z. Naulet, F. Panero. arXiv:1902.05354
- 2019 **On sparsity, power-law and clustering properties of graphex processes.**  
F. Caron, F. Panero, J. Rousseau. arXiv:1708.03120

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## Working papers

- 2021 **Achieving Fairness with a Simple Ridge Penalty.**  
M. Scutari, F. Panero, M. Proissl.
- 2021 **Sparse spatial random graphs.**  
F. Caron, F. Panero, J. Rousseau.
- 2021 **Bayesian nonparametric disclosure risk assessment**, *submitted*.  
F. Panero, T. Rigon, S. Favaro

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## Talks and posters

- Jun 2021 **Department of CS, University of the Italian Speaking Switzerland (USI)**, *seminar*.  
Sparse spatial random graphs
- Apr 2021 **Young Statisticians Europe (YSE)**, *seminar*.  
Sparse spatial random graphs
- Mar 2021 **School of Mathematical Sciences, University of Nottingham**, *seminar*.  
Sparse spatial random graphs
- Dec 2020 **CMStatistics**, *contributed session*.  
Sparse spatial random graphs
- Aug 2020 **Duke Graduate Summer Talks**.  
Sparse spatial random graphs
- Dec 2019 **CMStatistics**, *invited session*.  
Optimal disclosure risk assessment
- Jul 2019 **Bocconi Summer School in Advanced Statistics and Probability**, *poster*.  
Sparse spatial random graphs
- Jun 2019 **Bayesian Nonparametrics 2019**, *poster*.  
Sparse spatial random graphs
- Jun 2019 **Italian Statistical Society 2019**, *invited session*.  
Optimal disclosure risk assessment
- Mar 2019 **Workshop on Machine Learning, Computational Statistics and Applications, Amazon Development Centre Germany**, *poster*.  
Sparse spatial random graphs
- Jun 2018 **2018 ISBA World Meeting**, *poster*.  
Optimal disclosure risk assessment

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## Work Experience

- Oct 2018 – **Tutor and TA in Applied Statistics**, *Department of Statistics, University of Oxford*.  
present Marking and showing solutions to problem sheets for 3rd year students of the BA in Mathematics.
- Apr 2019 – **Tutor in Preliminary of Statistics and Data Science and Applied Statistics**, *University of Oxford*.  
Jun 2019 Hertford College and Exeter College tutor.
- Sept 2012 – **Private student tutor in Mathematics and Physics**, *Torino*.  
Aug 2017 Tutoring high school and middle school students.
- April 2015 – **Collaboration project with DB&B Consulting**, *Torino*.  
July 2015 Thesis in collaboration with *DB&B Consulting*, risk management company.

- Aug. 2015 – **Internship, Accounting office RSM**, Torino.  
Sept. 2015 Working on voluntary disclosures.  
Sept. 2014 **Speaker at the conference “Mathematics, Physics and Music”**, Torino.  
Lecturer for Alfaclass summer school of Mathematics, Fondazione CRT.

## Scholarship and Awards

- Sept. 2017 – **EPSRC full scholarship (4 years)**, *Oxford*.  
present Scholarship covering salary, university fees and college fees.  
Sept. 2012 – **Allievi Honors Program full scholarship, Collegio Carlo Alberto**, *Moncalieri (TO)*.  
Jul. 2017 Scholarship covering university fees.  
Aug. 2016 **Scholarship for summer school “Applied Bayesian Statistics”**, *Como*.  
Summer school “Bayes, Big Data, and the Internet” held by Dr. Steven Scott, Google.  
Awarded according to merit criteria.

## Summer Schools

- Jul. 2019 **Bocconi Summer School in Advanced Statistics and Probability**, *Como*.  
Random Graphs and Complex Networks: Structure and Function.  
Remco van der Hofstad (Eindhoven University of Technology, NL), Shankar Bhamidi (University of North Carolina, USA)  
Aug. 2016 **Summer school “Applied Bayesian Statistics”**, *Como*.  
Bayes, Big Data, and the Internet.  
Dr. Steven Scott, Director of Statistics Research at Google  
Sept. 2013 **Alfaclass summer school of Mathematics**, *Università degli Studi di Torino*.  
Fondazione CRT, Diderot Project

## Skills

### Languages

- English** Fluent in speaking and writing  
**TOEFL exam** (Oct. 2016): 109/120  
**French** Good speaking and writing skills  
**DELFB1 exam** (Feb. 2012): 92/100  
**Italian** Native speaker

### Computer Skills

Advanced: R, Python (NumPy, SciPy, PyCharm environment),  $\text{\LaTeX}$   
Intermediate: GitHub, MATLAB, Microsoft Windows and Office (ECDL)  
Basic: HTML, SAS, SQL, C++, CUDA

### Other Skills

**GRE exam** (Sept. 2016):  
Quantitative 170/170, Verbal 156/170, Analytical Writing 3.5.

## Extra-Curricular Activities

- Organization** Committee member of EquiStats, discussion group on the themes of equality, diversity and inclusion in the Department of Statistics, Oxford. I co-organised the discussions around diverse hiring practices and fairness in machine learning. Co-organizer of the R Users Group in Oxford. Member of the committee at St. Peter's College Boat Club and Middle Common Room. Member of the Green Team in the Statistics Department, Oxford.
- Volunteering** Tutor for A-levels students in Mathematics from disadvantaged school in Oxford. French and English teacher and children entertainer in Gabon and Congo (08/2011, 08/2013). Experiences with refugees in Southern Italy (summer 2015 and 2016).
- Music** Playing piano. Conducting and singing in choirs. Co-founder of StatsChoir, Oxford.
- Sport** Rowing at college level at University of Oxford (2018-2020). Yoga. Synchronized swimming.