

# Silvia Metelli

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Marie Skłodowska-Curie Individual Fellow  
Université de Paris

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## RESEARCH INTERESTS

A broad interest in dynamic network analysis (applications spanning from healthcare to cybersecurity), network meta-analysis and dynamic treatment regimes for personalised medicine. Specific interests include multivariate mixed models, Bayesian nonparametrics and clustering techniques. I am also interested in novel and interactive visualisations of complex data.

## EMPLOYMENT

**Université de Paris** Research Assistant Professor, then Marie-Curie Individual Fellow, 2020 - present  
**The Alan Turing Institute & Imperial College London** PostDoc, 2018 - 2020  
**Jinn Capital** External Consultant, London, Dec 2016 - Sept 2017  
**Los Alamos National Lab** Researcher, Advanced Computing Solutions, Los Alamos, US, 2015

## EDUCATION

### Imperial College London

Ph.D, Statistics, Department of Mathematics, 2014 - 2018  
MRes Degree, Mathematical Sciences, 2013 - 2014, *Distinction*

### University of Padua

Short Advanced Course in Survival Analysis, Statistical Science PhD School, June 2012

### University of Florence

MSc in Statistical Sciences, 2010 - 2012, *summa cum laude*, *publication recommended*  
BSc in Statistics, 2007 - 2010, *summa cum laude*

## TEACHING

### École Normale Supérieure Paris-Saclay

(2021) Taught courses in “Biostatistics”, MSc Mathématiques/Vision Apprentissage  
topics covered: statistics for dynamic treatment regimes and mobile health

### Université de Paris

(2021) Taught courses in “Advanced Biostatistics”, 3rd year students, Faculty of Medicine  
(2021) Taught courses in “Advanced Meta-analysis”, “Network meta-analysis”,  
MSc in Public Health in Comparative Effectiveness Research

### Imperial College London, Dept. Mathematics

(2014 - 2017) Teaching assistant for: *Probability & Statistics I*, *Probability & Statistics II*,  
*Statistical Modelling I*, *Statistical Modelling II*, *Python*, *MATLAB*

## SUPERVISION OF STUDENTS

Sept 2022 - present: 1 student (co-supervisor), PhD student, University of Paris. Project: Meta-analysis and network meta-analysis for non-normal random-effects.

Jan - July 2022: 1 student (co-supervisor), MSc CER in Public Health, University of Paris. Project: Meta-analysis methods relaxing the random-effects normality assumption.

Feb - July 2021: 1 student, MSc in Big Data in Health, University of Paris. Project: Clinical prediction models for routinely collected ICU data: an application to critical care MIMIC-III data.

June - Sept 2019: 1 student, Undergraduate Research Opportunity Programme student, BSc in Mathematics, Imperial College London. Project: Random forests for classification of network data.

## SELECTED PUBLICATIONS

- E. Charitakis, [S. Metelli](#), L.O. Karlsson et al. Comparing efficacy and safety in catheter ablation strategies for atrial fibrillation: a network meta-analysis. *BMC Medicine*, 20 (1), 1-13, 2022.
- R. Guelimi, [S. Metelli](#), J.L. Bee, et al. Network meta-analysis: methodological points for readers, authors and reviewers. *British Journal of Dermatology*, 186, 6, 2022.
- E. Charitakis, [S. Metelli](#), L.O. Karlsson et al. Comparing efficacy and safety in catheter ablation strategies for paroxysmal atrial fibrillation: a network meta-analysis of randomized controlled trials. *Diagnostics*, 12 (2), 433.
- [S. Metelli](#), D. Mavridis, P. Créquit, A. Chaimani. Bayesian model-based outlier detection in network meta-analysis. *arXiv preprint arXiv:2109.06559*.
- T. Evrenoglou, [S. Metelli](#) and A. Chaimani. Introduction to meta-analysis. In: Piantadosi S., Meinert C.L. (eds) *Principles and Practice of Clinical Trials*. Springer, Cham. 2021.
- [S. Metelli](#) and A. Chaimani. Challenges in meta-analyses with observational studies. *Evidence-Based Mental Health*, 23 (2), 83-87, 2020.
- [S. Metelli](#) and N.A. Heard. On Bayesian New Edge Prediction and Anomaly Detection in Computer Networks. *The Annals of Applied Statistics*, 13 (4), 2586-2610, 2019.
- S. Claudiani, [S. Metelli](#), R. Kamvar, R. Szydlo, A. Khan et al. Introducing a Predictive Score for Successful Treatment Free Remission in Chronic Myeloid Leukemia (CML). *Blood*, 134, 26, 2019.
- [S. Metelli](#). New Edge Activity and Anomaly Detection in a Large Computer Network. *PhD Thesis*, Imperial College London, 2018.
- [S. Metelli](#) and N.A. Heard. Model-based clustering and new edge modelling in large computer networks. *Proceedings of the IEEE Intelligence and Security Informatics Conference (ISI)*, 91-96, 2016.
- L. Grilli, [S. Metelli](#)\* and C. Rampichini. Bayesian estimation with integrated nested Laplace approximation for binary logit mixed models. *Journal of Statistical Computation and Simulation*, 85 (13), 2718-2726, 2015. (\*co-first author)
- [S. Metelli](#) and N.A. Heard. Modelling new edge formation in a computer network through Bayesian variable selection. *Proceedings of the IEEE Joint Intelligence and Security Informatics Conference (JISIC)*, 272-275, 2014.

## SUBMITTED and WORKING PAPERS

- S. Claudiani, [S. Metelli](#), R. Kamvar, R. Szydlo *et al.* A Predictive Score for Successful Treatment Free Remission in Chronic Myeloid Leukemia (CML). *Submitted (extended version)*.
- [S. Metelli](#) *et al.* On personalised timing of treatment in mobile health. *Working Paper*
- [S. Metelli](#), A. Chaimani. Disentangling interactions between components of complex digital health interventions. *Working Paper*.
- [S. Metelli](#), A. Chaimani. NMAstudio: a fully interactive tool for producing and visualising network meta-analysis. *Working Paper*.
- [S. Metelli](#), A. Chaimani. *nmastudio*: a new Python package and web-application for producing and visualising network meta-analysis in Python. *Working Paper*.

## CONFERENCES and WORKSHOPS (contributed talks)

- 2022 International Society Conference of Clinical Biostatistics, Aug. 21-25, Newcastle, UK
- 2022 Society of Research Synthesis Methods Meeting, SRSB, Jul 2022, Portland, US
- 2022 ESMARConf - R conference, Feb 2022, Virtual worldwide
- 2021 Society of Research Synthesis Methods Meeting, SRSB, Jul 2021, Virtual from Bern, SW
- 2020 Cochrane Colloquium, Oct 2020, Toronto, CA (cancelled for Covid-19)
- 2020 International Society Conference of Clinical Biostatistics, Aug. 23-27, Krakow, PL

*2018 Computational and Methodological Statistics, CMStatistics*, Dec. 14-16, Pisa, IT  
*2017 Statistical Data Science Workshop*, July 3-5, London, UK (poster)  
*2017 Data Science for Cyber-Security*, Sept. 25-27, London, UK  
*2016 Quick Fire talks*, Imperial College London, Nov. 4, London, UK  
*2016 IEEE Intelligence and Security Informatics Conference (ISI)*, Sept. 28-30, Tucson, AZ  
*2015 Quick Fire talks*, Imperial College London, Oct. 30, London, UK  
*2015 Dynamic Networks and Cyber Security Workshop*, June 22-24, Bristol, UK  
*2014 IEEE Joint Intelligence & Security Informatics Conference*, Sept. 24-26, The Hague, NL  
*2013 International Workshop on Statistical Modelling, IWSM*, July 7-11, Palermo, IT  
*2013 International Workshop on Simulation*, May 21-25, Rimini, IT

## INVITED TALKS

*2022 Cochrane Live Training Webinar Series*, Virtual worldwide  
*2019 2nd IMA and OR Society Conference on Mathematics of Operational Research*, Birmingham, UK  
*2019 Centre of Research in Epidemiology and Statistics Sorbonne Paris Cite*, Paris, FR  
*2019 Data Science Institute*, Imperial College London, London, UK

## INVITED WORKSHOPS

*2022 three-day workshop on network meta-analysis*, Invited speaker, May 25-27, Biarritz, FR

## DATA CHALLENGES

*2018 The Alan Turing Institute Data Study Group*, Dec. 10-14, London, UK

## AWARDS

**Seal of Excellence** - European Commission certificate of excellence for a Marie Skłodowska-Curie Individual Fellowship application (awarded to applications scoring 85% or above), 2019  
**Statistical Data Science Award** - Best poster award, Statistical Data Science UK, 2017  
**Graduation Prize Villa Favard** - Most original thesis, University of Florence, 2012  
**Merit and Productivity-based Award** - University of Florence, 2010 - 2012

## GRANTS

**Columbia Mailman School Grand Challenge**, 2022 - "AI-Priority" (\$ 176 000) (Co-Investigator)  
**Marie Skłodowska-Curie IF**, 2020 - (€ 184 707.84) (Principal Investigator)  
**IEEE-ISI Student Travel Grant**, 2016 - Mobility grant IEEE-ISI (\$500)  
**Santander Mobility Grant** 2014-2015 - Travel grant (£1000)

## FUNDING

**Full PhD scholarship** - Four year studentship, Imperial College London  
**Visiting PhD scholarship** - Los Alamos National Laboratory

## OTHER ACTIVITIES

**Peer Review**: Technometrics, IEEE/ACM Transactions on Networking, Research Synthesis Methods, American Journal of Epidemiology & several other epidemiological/medical journals  
**Mentor**: [LeadTheFuture](#) and [WiML Mentorship](#) mentor for STEM students  
**Societies**: member of Digital Medicine Society (DiME), Research Synthesis Methods Society (SRSM)

## TECHNICAL SKILLS

**Python, R**: Extensive experience (in order of proficiency)  
**Data Visualisation**: Gephi, Dash, Cytoscape, Heroku  
**Distributed computing**: Apache Hadoop