

Silvia Metelli

Marie Skłodowska-Curie Individual Fellow
Université Paris Cité

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[personal website](#), [professional page](#), [GitHub](#)

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 Paris Cité Research Assistant Professor, 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, 2018
MRes Degree, Mathematical Sciences, 2014, *Distinction*

University of Padua

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

University of Florence

MSc in Statistical Sciences, 2012, *summa cum laude*, *publication recommended* GPA:30/30
BSc in Statistics, 2010, *summa cum laude*, GPA:30/30

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: Modelling departures from normality in network meta-analysis.

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

S. Metelli, D. Mavridis, P. Créquit, A. Chaimani. Bayesian model-based outlier detection in network meta-analysis. *Journal of the Royal Statistical Society Series A*, 2023 [To Appear].

S. Metelli and A. Chaimani. NMAstudio web-application: A brief tutorial. *Research Square*, <https://dx.doi.org/10.21203/rs.3.rs-2151038/v1>.

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.

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

T. Evrenoglou, S. Metelli, J.S. Thomas, S. Sifis, R.M. Turner, S. Leucht and A. Chaimani. Sharing information across patient subgroups to draw conclusions from sparse treatment networks. *Submitted*.

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, P. Bhuyan 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 et al. 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 Google, Health and Technology, London, UK
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 University, Mailman School of Public Health, Grand Challenge, 2022 - Pilot study "AI-Priority": AI tools to prevent multimorbidity progression (\$ 176 000) (Co-Investigator)
French National Research Agency, 2022 - Integrating multiple sources of evidence for optimised comparative effectiveness research (€ 375 000) (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 2015 - Travel grant (£1000)

FUNDING

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

OTHER ACTIVITIES

Peer Review: Technometrics, IEEE/ACM Transactions on Networking, Research Synthesis Methods, American Journal of Epidemiology, BMC Medicine, American Journal of Epidemiology, BMC Medicine & more

Mentor: Selected as a mentor for [LeadTheFuture \(LTF\)](#) and [WiML Mentorship](#), mentorship programmes for highly-selected STEM students (LTF acceptance rate < 20%)

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

Cloud platforms: Heroku, Google BigQuery

Distributed computing: Apache Hadoop