Silvia Metelli

Marie Skołodowska-Curie Individual Fellow
Université de Paris

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personal website, professional page, GitHub

RESEARCH INTERESTS

A broad interest in dynamic network analysis (applications spanning from healthcare to cyber-security), 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 & Marie Skołodowska-Curie Individual Fellow, 2020 - present

Université de Paris The Alan Turing Institute & Imperial College London PostDoc, 2018 - 2020

Jinn Capital External Consultant, London, Dec 2016 - Sept 2017

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*

VISITING EXPERIENCES

Los Alamos National Laboratory Visiting Researcher, Advanced Computing Solutions, Los Alamos, New Mexico, US, June - Aug 2015

TEACHING

École Normale Supérieure Paris-Saclay
(2021) Taught courses in "Biostatisics", MSc Mathématiques/Vision Apprentissage
topics covered: statistics for dynamic treatment regimes and mobile health

Université de Paris
(2021) Taught courses in"Advanced Biostatisics", 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

(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 MIMIC-III.

(June - Sept 2019) 1 student, Undergraduate Research Opportunity Programme student, BSc

in Mathematics, Imperial College London. Project: Random forests for classification of computer network data.

SELECTED PUBLICATIONS

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*. To Appear.

R. Guelimi, S. Metelli, J.L. Bee, et al. Network meta-analysis: methodological points for readers, authors and reviewers.*British Journal of Dermatology*. To Appear.

S. Metelli, D. Mavridis, P. Créquit, A. Chaimani. Bayesian model-based outlier detection in network meta-analysis. *Submitted*.

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

E. Charitakis, S. Metelli, L.O. Karlsson et al. Comparing efficacy and safety in catheter ablation strategies for atrial fibrillation: a network meta-analysis of randomized controlled trials. *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, A. Chaimani. NMAstudio: a fully interactive tool for producing and visualising network meta-analysis. *Working Paper*.

S. Metelli, A. Chaimani. Novel software tools for producing and visualising network meta-analysis in Python. *Working Paper*.

S. Metelli, A. Chaimani. A novel framework to disentangle interactions between components of complex interventions in network meta-analysis. *Working Paper*.

S. Metelli *et al.* Using dynamic network approaches for the study of temporal multi-morbidity trajectories. *Working Paper*

CONFERENCES and WORKSHOPS (contributed talks)

2022 ESMARConf - R conference, Feb 2022, Virtual worldwide
2021 Society of Research Synthesis Methods Meeting, SRSM, 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
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

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 Skołodowska-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

Marie Skołodowska-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, Frontiers in Public Health & several medical journals
Mentor: LeadTheFuture (leadthefuture.tech) mentor

TECHNICAL SKILLS

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