

Silvia Metelli

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My [personal website](#), My [professional page](#), My [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 nonparametric latent feature models and clustering techniques. I am also interested in novel visualisation techniques for complex data.

CURRENT POSITION

Marie Skłodowska-Curie Individual Fellow, Nov 2020 - present
Dynamic comparative effectiveness research

PREVIOUS POSITIONS

Research Assistant Professor, Université de Paris, Nov 2019 - Oct 2020

Postdoctoral Research Associate, The Alan Turing Institute & Imperial College London,
March 2018 - Oct 2019, *Monitoring complex systems with rare high-consequence events*

External Consultant, Jinn Capital, London, Dec 2016 - Sept 2017,
Machine Learning models for time-series data

EDUCATION

Ph.D, Statistics (award date: 1 October 2018)
Department of Mathematics - Statistics Section,
Imperial College London, 2014 - 2018,
Supervisor: Professor Nicholas A. Heard

MRes Degree, Mathematical Sciences
Distinction
Imperial College London, 2013 - 2014

Short Advanced Course, Survival Analysis
Statistical Science PhD School, University of Padua, June 2012

Master of Science, Statistical Sciences
Thesis: Bayesian Estimation with INLA for logistic multilevel models,
110/110 cum laude - publication recommended
University of Florence, 2010 - 2012

Bachelor of Science, Statistics
Thesis: Estimation methods for discrete multilevel models,
110/110 cum laude
University of Florence, 2007 - 2010

VISITING EXPERIENCES

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

TEACHING

Teaching Assistant, Imperial College London, Dept. Mathematics, 2014 - 2017

Teaching assistant for the following courses: *Probability & Statistics I*, *Probability & Statistics II*, *Statistical Modelling I*, *Statistical Modelling II*, *Python*, *MATLAB*.

Teaching Lecturer, École Normale Supérieure Paris-Saclay, March 2021

Teaching at the course “Biostatistics” of M2 MVA (Mathématiques/Vision Apprentissage).

Topics covered: statistics for dynamic treatment regimes and just-in-time adaptive interventions

Teaching Lecturer, Université de Paris, October 2021

Teaching at the course “Advanced Biostatistics”, 3rd year students of the Faculty of Medicine

SUPERVISION OF STUDENTS

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

Feb 2021 - July 2021: 1 master student, Master in Public Health - Big Data in Health, University of Paris. Project: Clinical prediction models for routinely collected intensive care unit data.

PUBLICATIONS

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

S. Claudiani, S. Metelli, R. Kamvar, R. Szydło *et al.* A Predictive Score for Successful Treatment Free Remission in Chronic Myeloid Leukemia (CML). *Submitted (extended version)*.

S. Metelli, A. Chaimani. An interactive tool for network meta-analysis visualization. *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)

2021 *Society of Research Synthesis Methods Meeting*, SRSM, Jul 2021, Virtual from Bern, SW
2020 *Cochrane Colloquium*, Oct 2020, Toronto, CA (accepted for oral presentation, cancelled for Covid-19)
2020 *International Society Conference of Clinical Biostatistics, ISCB41*, 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 and 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

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 Skłodowska-Curie Individual Fellowship application (certificate 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 of the years 2011-2012, University of Florence, 2012
Merit and Productivity-based Award - University of Florence, 2010-2012

GRANTS

Marie Skłodowska-Curie Individual Fellowship 2020 - European Commission (€ 184 707.84)
IEEE-ISI Student Travel Grant - Mobility grant IEEE-ISI 2016 (\$500)
Santander Mobility Grant - Travel grant for the year 2014-15 (£1000)

FUNDING

Full PhD scholarship - Four year studentship, Imperial College London, Dept. Mathematics
Visiting PhD scholarship - Advanced Computing Solutions, 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