Silvia Metelli

Université de Paris
CRESS, INSERM

silvia.metelli@u-paris.fr
Phone: +33 (0)656809829
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 Skołodowska-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 "Biostatisics" 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 couse "Advanced Biostatisics", 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 student, Master in Public Health - Big Data in Health, University of Paris.
Project: Clinical prediction models for routinely collected ICU data: an application to the MIMIC-III database.

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