

Dr. Filippo Pagani

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Date of birth: 28/09/1988

Background

Interested in Statistics, Probability, Numerical Analysis, Stochastic Processes, Uncertainty Quantification.
Working on Markov chain Monte Carlo (MCMC) methods, on both theory and applications.

Employment History

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| Sep 2020 – Present | Research Associate, MRC Biostatistics Unit, University of Cambridge (Cambridge, UK)
Part of the EPSRC grant Bayes4health . Postdoc affiliate at Trinity College .
Working on efficient MCMC methods for clustering and variable selection on biomedical data, and on Piecewise Deterministic Markov Processes for MCMC. |
| Sep 2016 – Sep 2020 | Teaching Assistant, University of Manchester (Manchester, UK)
Taught courses on Mathematics and Statistics at the Department of Mathematics. |
| Jul 2015 – Sep 2015 | Consultant, Bip (Milan, IT)
IT consultant, working in the Data Center Operations of a big player in the telecommunications industry. Following topics of Data Center Management, Big Data and IT Strategy & Transformation. |
| May 2015 – Jul 2015 | Global Business Development Manager, ABB (Milan, IT)
Business Development of the Solar segment in the Product Group Machinery Controls and Automation. Coordinating global and local sales, factory, stock and marketing. Sales responsible at global level. |
| Jan 2015 – May 2015 | Area Manager Austria, ABB (Milan, IT)
Business Development and sales responsibility for the Helsinki factory in Austria for the Machinery Drives product family. |
| Sep 2012 – Jul 2015 | Global Analyst, ABB (Milan, IT)
Market Analysis and Forecast. Direct data collection from the local sales units through a Customer Relationship Management tool of my own design and implementation, and presentation of the analysis to both technical and non-technical audience. |

Education

- Sep 2016 – Sep 2020 **University of Manchester (Manchester, UK)**
PhD in Applied Mathematics.
Thesis: [ZigZag-based Markov chain Monte Carlo for sampling from challenging posterior distributions](#)
- Sep 2015 – Sep 2016 **University of Manchester (Manchester, UK)**
MSc in Statistics (Main Statistics path), First Class honours.
- Sep 2010 – Oct 2013 **L. Bocconi University (Milan, IT)**
MSc in Economics and Social Sciences (ESS), Major in Econometrics and Statistics.
(Sep 2011 – Jan 2012) **Mannheim Universität (Mannheim, DE)**
Erasmus Program – MSc in Economics.
- Sep 2007 – Sep 2010 **L. Bocconi University (Milan, IT)**
BA in Management (CLEAM), Major in Economics and Statistics.
(Jan 2010 – Feb 2010) **ISB, Indian School of Business (Hyderabad, IN)**
Campus Abroad Program.

Publications List

- Pagani F**, Wiegand M, Nadarajah S. (2021) An n-dimensional Rosenbrock distribution for Markov chain Monte Carlo testing. *Scand J Statist.* 2022; 49: 657– 680. Published
- Overton CE, et al. (2022) EpiBeds: Data informed modelling of the COVID-19 hospital burden in England. *PLOS Computational Biology* 18(9): e1010406. Published
- Funk S, et al. (2020) Short-term forecasts to inform the response to the Covid-19 epidemic in the UK. Submitted
- Pagani F**, et al. (2020) The NuZZ: Numerical Zig-Zag sampling for General Models. In revision
- Pagani F**, Cotter S, House T. (2023) FiZZ: Firefly Zig-Zag for Efficient Exact Subsampling. In preparation
- Kirk P, **Pagani F**, Richardson S. (2023) Bayesian outcome-guided multi-view mixture models with applications in molecular precision medicine. In preparation
- Heimersheim S, et al. (2023) Model-independent measurement of global 21-cm signal: gaussian processes vs flexknot. In preparation
- Corbella A, et al. (2023) Adaptive Gibbs Sampler for Mixture Models. In preparation

Teaching

- Jan 2022 **University of Cambridge**
MPhil Population Health Sciences – Advanced Biostatistics for HDS
- Feb 2017 – Jun 2019 **University of Manchester**
MATH48122 – Markov Chain Monte Carlo, Spring 2017
MATH19801 – Mathematics 0B1, Fall 2017, Leading Role
MATH48122 – Markov Chain Monte Carlo, Spring 2018
MATH49111 – Scientific Computing, Fall 2018
MATH48081 – Linear Models and Nonparametric Regression, Fall 2018
MATH48122 – Markov Chain Monte Carlo, Spring 2019

Supervision

- Jul 2022 – Sep 2022 **Summer internship**
Supervised a masters-level intern for 9 weeks on Piecewise Deterministic Markov Processes and numerical methods. More specifically, developing a more efficient integrator at the core of the Numerical Zig-Zag ([NuZZ](#)) algorithm.

Other Selected Activities

- Jun 2022 – Present **Secretary of the Trinity College Postdoctoral Society (Cambridge, UK)**
Part of the core committee of the [society](#), alongside the President and the Treasurer. Making decisions on budget, events, initiatives, and communications within and outside the society.
- Sep 2021 – Present **Masterclass Workshops**
Internal series of workshops ideated and organised by the postdocs of the grants [Bayes4health](#) and [CoSinES](#). Funded by the grants and hosted at the universities part of the grants, with the objective of reducing barriers to cross-collaboration between the researchers part of the group, and also with researchers part of adjacent groups.
- (May 2023) **Masterclass III: Optimal Transport (Coventry, UK)**
Consultant, transferring knowledge to the new main organiser.
- (Nov 2022) **Masterclass II: Variational Inference (Cambridge, UK)**
Main organiser. Had a larger budget than the previous edition, more attendees, hybrid attendance, and external speakers. See [article here](#).
- (Mar 2022) **Masterclass I: Sequential Monte Carlo (Bristol, UK)**
Main organiser. Managed the budget, developed contacts in the host university and with the speakers. See [article here](#).
- Sep 2021 **Bayes4health Postdoc Away Day (Cambridge, UK)**
Main organiser of the [Postdoc Away Day](#) at the Bayes4health [2021 Workshop](#).

Public Engagement

- April 2022 **Cambridge Science Festival (Cambridge, UK)**
Contributed to the online public engagement campaign of the MRC Biostatistics Unit.
- Jul 2017 **Making Maths in Manchester (Manchester, UK)**
Outreach program for college students sponsored by the University of Manchester.

Awards & Accolades

- Mar 2022 **University of Cambridge**
ISBA junior travel award for the [2022 ISBA World Meeting in Montreal](#).
- Nov 2017 **University of Manchester**
Faculty prize for best Applied Mathematics PhD First Year Report 2016/17.
- Sep 2017 Prize for best talk at the MRSC2017 ([Mathematics Research Students' Conference](#))
PhD conference.
- Sep 2016 Accolade from the Royal Statistical Society for graduating first of my class from my
MSc Statistics degree.

Conferences

- 2022 Heilbronn FRG meeting on Nonreversible Markov chains 2022, Invited Speaker
[Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing \(MCQMC 2022\)](#), Talk
[ISBA World Meeting in Montreal 2022](#), Poster
[Third Italian Meeting on Probability and Mathematical Statistics 2022](#), Talk in dedicated session
- 2021 [Measuring the Quality of MCMC Output 2021](#), Talk
[Where the Earth meets the Sky 2021](#), Invited Speaker
[Bayes4health workshop 2021](#), Talk
- 2019 [SIAM UKIE National Student Chapter 2019](#), Talk
- 2018 [Key UQ methodologies and motivating applications \[UNQW01\] 2018](#), Poster
- 2017 MRSC2017 ([Mathematics Research Students' Conference](#)), Talk