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Research Interests: Bayesian nonparametric statistics, statistical modelling for network (graph) data, point processes, spatio-temporal statistics, representation learning, and explainability and interpretability in machine learning

Academic Positions

- 2023 – present, Lecturer in Statistics and Machine Learning, Department of Mathematics and Statistics, University of Cyprus (Approved maternity leave, 4 November 2024 â 6 April 2025.)
 - 2023 (August)–2026 (August), Honorary Lecturer, Department of Mathematics and Imperial-X Center for Artificial Intelligence, Imperial College London, U.K.
- 2022–2023, Lecturer, Department of Mathematics and Imperial-X Center for Artificial Intelligence, Imperial College London, U.K.
- 2022, Postdoctoral Researcher and Junior Research Fellow, University of Oxford, U.K.
 - Position under EPSRC funded project
 - Wolfson College Junior Fellowship
Statistical Machine Learning for spatiotemporal applications
 - Supervisor: Seth Flaxman
- 2021–2022, Postdoctoral Researcher in Statistics, Imperial College London, U.K.
 - Position under EPSRC funded project
Statistics with epidemiological applications, focus on COVID-19
 - Supervisor: Seth Flaxman and Samir Bhatt
- 2019, Visiting Researcher, Alan Turing Institute (National Institute of Data Science), U.K.
- 2018, Visiting Researcher, Courant Institute, New York University, U.S.A.

Industry Experience

- 2020, Machine Learning Scientist, Investments Artificial Intelligence Division, AIG, U.K.
 - 2018, Data Science, Google, Zurich, Switzerland
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University Education

- 2020, DPhil in Statistics (no corrections)
University of Oxford, U.K.
 - Supervisors: François Caron and Yee Whye Teh.
 - 2014-2015, MAST in Mathematics (Part III of the Mathematical Tripos),
(Distinction)
University of Cambridge, U.K.
 - Churchill Scholar for academic excellence
 - Essay: *Theoretical and Empirical Comparison of Bayesian and Frequentist Inference and Methodology for fMRI data analysis* (Distinction)
 - Essay supervisor: Professor John Aston
 - 2011-2014, BSc in Mathematics (First Class)
Imperial College London, U.K.
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Grants and Funding

- **DyNeMo: Statistical Machine Learning for Dynamical Network Modelling**, Principal Investigator, European Commission, Marie Skłodowska-Curie Fellowship (Horizon Europe). €164,328. 2024â2028
 - **Bayesian Nonparametrics for Sparse Graph Modelling** Principal Investigator, University of Cyprus research start-up grant, €21,000. 2024â2027
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PhD students

- Marta Aparicio Rodriguez, jointly supervised with Dr Anastasia Borovykh, Department of Mathematics, Imperial College London 2022âpresent
- Wenqing Liu, jointly supervised with Dr DÃ©borah Sulem, Faculty of Informatics, UniversitÃ della Svizzera italiana 2025âpresent

Research Assistants

- Marios Kyriacou, funded by my start-up grant *Bayesian Nonparametrics for Sparse Graph Modelling* 2024â2026

MSc student supervision

- Co-advisor of Andria Ioannou's project, *Bayesian Neural Networks*, University of Cyprus 2025
- Advisor of Iosif Pintirishis's project, *Detecting overlapping communities in U.S. equity markets: A Bayesian network model approach*, University of Cyprus 2024
- Co-advisor of Federico Baio's thesis, *Semiparametric and Nonparametric Estimation of Multivariate Spatio-temporal Hawkes Processes*, Faculty of Informatics, UniversitÃ della Svizzera italiana 2026
- Co-advisor of Wenqing Liu's thesis, *Flexible Nonparametric Estimation of Spatio-temporal Hawkes Processes*, Faculty of Informatics, UniversitÃ della Svizzera italiana 2025
- Advisor of three theses on topics of Stochastic Processes and Gaussian Processes, MSc in Statistics, Department of Mathematics, Imperial College London 2021â2023

Undergraduate student supervision

- Advisor of Antreas Laos, final-year thesis, *Dynamic Overlapping Community Detection on Sparse Networks*, University of Cyprus 2025â2026

- Stanimira Georgieva, Research Project (non-ECTS), *An Overview of Graph Neural Networks for Social Network Analysis*, University of Cyprus 2026
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Publications

Preprints & Papers Under Review

- W. Liu, X. Miscouridou and D. Sulem, *Flexible and Scalable Bayesian Modelling of Spatio-Temporal Hawkes Processes*, arXiv:2603.28556v1, (2026).
- X. Miscouridou, F. Panero and A. Laos, *Bayesian Nonparametrics for Sparse Graphs with Dynamic Community Structure*, arXiv:2512.10717v2, (2025).
- X. Miscouridou and D. Sulem, *Posterior concentration in spatio-temporal Hawkes processes*, arXiv:2601.03719v1, (2026).

Peer-reviewed Journal Articles

- Isaac Manring, Honglang Wang, George Mohler, Xenia Miscouridou, *BSTPP: a Python package for Bayesian spatiotemporal point processes*, Journal of Applied Statistics, 52(13), 2524–2543 (2025).
- X. Miscouridou, S. Bhatt, G. Mohler, S. Flaxman, S. Mishra, *Doubly stochastic spatiotemporal Poisson processes*, Transactions of Machine Learning Research¹, <https://openreview.net/forum?id=xzCDD9i4IZ>, (2023).
- M. Pakkanen, X. Miscouridou, M. J. Penn, C. Whittaker, T. Berah, S. Mishra, T. A. Mellan and S. Bhatt, *Unifying incidence and prevalence under a time-varying general branching process*, Journal of Mathematical Biology, 87(35) (2023).
- J. Lee, X. Miscouridou, F. Caron, *A unified framework for series representations and finite approximations of completely random measures, Bernoulli*, 29 (2022), 2142–2166.
- A. Brizzi, C. Whittaker, C., L.M.S Servo, et al., *Spatial and temporal fluctuations in COVID-19 fatality rates in Brazilian hospitals. Nature Medicine*, 28, 1509 (2022).
- N. R. Faria et al., *Genomics and epidemiology of a novel SARS-CoV-2 lineage in Manaus, Brazil, Science*, 372, 815–821 (2021).
- S. Mishra et al., *Changing composition of SARS-CoV-2 lineages and rise of Delta variant in England, eClinicalMedicine*, 39, article 101064 (2021).
- A. Todeschini, X. Miscouridou, F. Caron, *Exchangeable random measures for sparse networks with overlapping communities*, Journal of the Royal Statistical Society: Series B (Statistical Methodology), 82, 1–35 (2020).

Peer-reviewed Conference Proceedings

- M. Aparicio Rodriguez, X. Miscouridou, A. Borovykh, *Concept Reachability in Diffusion Models: Beyond Dataset Constraints*, Proceedings of the 42nd International Conference on Machine Learning (ICML), (2025).
- A. Hills, T. Tseriotou, X. Miscouridou, A. Tsakalides, M. Liakata, *Exciting Mood Changes: A Time-aware Hierarchical Transformer for Predicting Moments of Change in Longitudinally Segmented Social Media Posts*, Findings of the Association for Computational Linguistics (ACL), 12526–1253 (2024).
- I. Hawryluk, H. Hoeltgebaum, S. Mishra, X. Miscouridou, R. P. Schnekenberg, C. Whittaker, M. Vollmer, S. Flaxman, S. Bhatt, and T. A. Mellan, *Gaussian Process Nowcasting: Application to COVID-19 Mortality Reporting*, in *Proceedings of the Thirty-Seventh Conference on Uncertainty in Artificial Intelligence (UAI)*, PMLR, 161, 1258–1268 (2021).

¹TMLR is part of the Journal of Machine Learning Research Inc. organization and it is an electronic-only journal

- X. Miscouridou, F. Caron, Y.W. Teh, *Modelling sparsity, heterogeneity, reciprocity and community structure in temporal interaction data*, Advances in Neural Information Processing Systems, (NeurIPS 2018), 2349–2358 (2018).
- X. Miscouridou, A. Perotte, N. Elhadad, R. Ranganath, *Deep Survival Analysis: Nonparametrics and Missingness*, Machine Learning for Healthcare, PMLR, 85, 1–12 (2018).

Workshop Proceedings

- Anthony Hills, Mahmud Elahi Akhter, Junyu Mao, Iqra Ali, Xenia Miscouridou and Maria Liakata, *Multistream Modelling for Mental Health: Modelling Linguistic and Temporal Contexts with Mutual and Self-Excitation in Social Media* Workshop on Computational Linguistics and Clinical Psychology (CLPsych), ACL (2026).
- M. Willetts, X. Miscouridou, C. Holmes, S. Roberts, *Relaxed-Responsibility Hierarchical Discrete VAEs*, Bayesian Deep Learning Workshop, NeurIPS, (2021).

Discussion Papers & Reports

- S. Mishra, S. Mindermann, M. Sharma, C. Whittaker, T. A. Mellan, T. Wilton, D. Klapsa, R. Mate, M. Fritzsche, M. Zambon, J. Ahuja, A. Howes, X. Miscouridou, G. P. Nason, O. Ratmann, G. Leech, J. F. Sandkühner, C. Rogers-Smith, M. Vollmer, H. J. T. Unwin, COVID-19 Genomics UK (COG-UK) Consortium, Y. Gal, M. Chand, A. Gandy, J. Martin, E. Volz, N. M. Ferguson, S. Bhatt, J. M. Brauner, and S. Flaxman, *Report 44: Recent trends in SARS-CoV-2 variants of concern in England*, Imperial College London COVID-19 Response Team, <https://www.imperial.ac.uk/media/imperial-college/medicine/mrc-gida/20-05-20-COVID19-Report-44.pdf> (2021).
- X. Miscouridou, F. Panero, *A discussion on Evaluating Sensitivity to the Stick-Breaking Prior in Bayesian Nonparametrics* by R. Giordano, R. Liu, M. I. Jordan, T. Broderick., Bayesian Analysis, 18, 287–366 (2023).

Theses

- X. Miscouridou, *Bayesian Nonparametrics methods and applications in statistical networking modelling*, DPhil dissertation, University of Oxford (2020).
- X. Miscouridou, *Theoretical and Empirical Comparison of Bayesian and Frequentist Inference and Methodology for fMRI data analysis*, Essay (Part III of the Mathematical Tripos), University of Cambridge (2015).

Software

- A. Todeschini, X. Miscouridou, F. Caron, *SNetOC*, A MATLAB package for Exchangeable random measures for sparse networks with overlapping communities, GitHub repository <https://github.com/misxenia/SNetOC> (2020).
- Web-based interactive application (in progress) for generating and analysing random graphs <https://app.misxenia.com/> (2026).

Scholarships and Awards

- 2023: BlackwellâRosenbluth Award for Young Bayesian Statisticians, j-ISBA, junior section of ISBA (International Society of Bayesian Analysis)
 - 2022: Forbes 30 Under 30 Europe, Science and Healthcare.
 - 2019: Studentship award for a research appointment at the Alan Turing Institute
 - 2016 & 2017: Scholarships for PhD studies from the Leventis Foundation, Cyprus
 - 2015–2019: PhD studentship through EPSRC funding for OxWaSP Doctoral Training Center
 - 2015: Award for academic excellence from Churchill College (Churchill Scholar list) in Part III of the Mathematical Tripos, University of Cambridge.
 - Awards for academic excellence as an undergraduate student at the Department of Mathematics, Imperial College London
 - Gloucester Research Prize, third year Mathematics, 2013/14
 - Ken Allen Prize, first year Mathematics, 2011/12
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Talks (invited in bold)

- 2026: **35th European Meeting of Statisticians (Lugano), Statistics Seminar (UCL), Computational Science Symposium CONVERGE (University of Cyprus)**
 - 2025: **IMS Conference on Statistics and Data Science ICSDS (Seville), Discussant at Objective Bayes Conference (Athens)**
 - 2024: **Royal Statistical Society International Conference (Brighton), ISBA World Meeting (Venice), Keynote Speaker at the Workshop in Statistics (Athens University of Economics and Business)**
 - 2023: **IMS Conference on Statistics and Data Science (ICSDS) (Lisbon), EcoSta (Tokyo), CIRM conference on Approximation Methods in Bayesian Analysis (Marseille), Keynote Speaker at Pancyprian Statistical Conference (Cyprus), Statistics Seminar (University of Lancaster), Webinar of ISBA-Bayesian Nonparametrics section (Zoom), Workshop on Bayesian Inference in Stochastic Processes, BISP13 (Madrid)**
 - 2022: **13th Conference on Bayesian Nonparametrics (Chile), Statistics seminar (Imperial College London), Statistics and Econometrics seminar (University of Tokyo), Statistics seminar (University College London), TEDx Speaker on Memory and AI at National Technical University of Athens (Athens), International Symposium for Nonparametric Statistics - ISNPS (Cyprus), ISBA Bayesian Nonparametrics Networking Workshop (Cyprus).**
 - 2021: **Data Science Seminar Series (University of Cyprus), seminars of Women in Machine Learning and Data Science - WiMLDS (Joint Paris and Limassol meetup)**
 - 2020: **Bayesian Young Statisticians Meeting (BAYSM) (j-ISBA)**
 - 2019: **Semi and Nonparametric Modelling, CMStatistics (London), 12th Conference on Bayesian Nonparametrics (Oxford), Mathematical Institute Seminar (University of Oxford)**
 - 2018: **Greek Stochastics κ' on Statistical Learning (Athens)**
 - 2017: **11th Conference on Bayesian Nonparametrics (Paris)**
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Posters

- 2018: The Thirty-Second Annual Conference on Neural Information Processing Systems (NeurIPS)

- 2017: 10th International Workshop on Bayesian Inference in Stochastic Processes - BISP10 (Milan), Amazon Machine Learning Workshop (Berlin), Women in Machine Learning Workshop, NeurIPS conference (Long Beach)
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Outreach

A. Seminars in Machine Learning Industry Research Groups

- *Statistical Machine Learning for real-world problems*, Google Data Science (Google Zurich), 2024
- *Spatiotemporal modelling with Hawkes Processes*, Amazon Research Center (Amazon Berlin), 2023
- *On Bayesian Machine Learning*, IBM Research (Boston MA), 2020
- *Bayesian Nonparametrics for Complex Networks*, Microsoft Research, (Cambridge U.K.), 2020

B. Seminars in Machine Learning Summer Schools

- *An overview of Variational Autoencoders and Generative Adversarial Networks*, Mediterranean Machine Learning Summer School, Anatolia College (Thessaloniki), 2023
 - *Lecture on Clustering Methods*, and *Lecture on Dimensionality Reduction Methods*, Machine Learning and Applied Statistics, Imperial College London (London), Summer 2022 & 2023
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Conference, workshop and seminar organizer

- Member of the Scientific Committee for ISBA Bayesian Nonparametrics networking workshop Seoul, 2026
 - Session organizer at CFE-CMStatistics, Berlin, 2026
 - Member of the Scientific Committee, Bayesian Nonparametrics Conference (BNP15), UCLA, 2025
 - Member of the Organizing Committee of the Bayesian Young Statisticians Meeting (BAYSM), 2024
 - Member of the Local Organizing Committee of ISBA Bayesian Nonparametrics networking workshop Cyprus, 2022
 - Member of the Organizing Committee for ISBA World Meeting, 2021
 - Programme Chair (equivalent to area chair for scientific committee) for Women in Machine Learning Workshop, co-located at NeurIPS.
 - Co-organizer of the Computational Statistics and Machine Learning reading group, Imperial College London, 2022
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Teaching Experience

- Lecturer of *Probability and Statistics*, Winter terms 2023/24, 2024/25, 2025/26, 2026/27
University of Cyprus (UG course on topics from the areas of Probability, Random Variables, Central Limit Theorem, Hypothesis Testing, Simple Linear Regression)
- Lecturer of *Statistical Learning*, Easter terms 2023/24, 2025/26
University of Cyprus (MSc Statistics course on statistical learning, linear regression, classification, model selection, regularization, models beyond linearity)
- Lecturer of *Unsupervised Learning*, MLDS MSc, Autumn term 2022/23,
Imperial College London (MSc course on several methods for unsupervised learning in machine learning)
- Class Tutor, *Foundations of Statistical Inference*, Winter terms 2017/18, Department of Statistics, University of Oxford.

- Taught weekly support lectures.
 - Theoretical topics on frequentist statistical inference.
 - Instructor: Professor Julien Berestycki
 - Teaching assistant of *Foundations of Statistical Inference*, Winter terms 2016/17
University of Oxford
 - Marking of bi-weekly assessment
 - Leading Tutor *Introductory Course in Mathematics*, September 2016 & 2017, residential and online teaching, St Peter's College, University of Oxford.
 - Designed, prepared and delivered course on mathematics (algebra, trigonometry and calculus) for preparation of 1st year UG students in Engineering and Natural Sciences
 - Instructor, *Applied Data Science* course for professionals, Machine Learning, Cambridge Spark
 - Interviewer for Undergraduate Admissions, BSc Mathematics, Keble College, University of Oxford
 - Coach, *Practical Sessions and Demonstration in R*, Life Sciences Doctoral Training Centre, University of Oxford.
 - Instructor, *Elementary probability and statistics* to first year PhD students from Life Sciences, University of Oxford
 - Tutor in *Practical sessions in R language for statistical inference problems*, University of Oxford.
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Service

- Associate Editor, *Journal of the Royal Statistical Society: Series C (Applied Statistics)* (2026–present)
- Referee for *Bayesian Analysis*, *Electronic Journal of Statistics*, *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, and *Statistics in Medicine*
- Referee for NeurIPS, ICML, AISTATS, UAI, and the Women in Machine Learning (WiML) Workshop
- Referee for grants submitted to UK Research and Innovation (UKRI)
- Chair, junior section of the International Society for Bayesian Analysis (j-ISBA) (2022)
- Chair-Elect, junior section of the International Society for Bayesian Analysis (j-ISBA) (2021)
- PhD admissions interviewer, Imperial College London & University of Oxford, StatML CDT (2021)
- UG admissions interviewer for the degree of Mathematics, University of Oxford, (2016)
- Mentoring of PhD students, University of Oxford (2016/17)