Clara Grazian, Ph.D.

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Employment History

2025 – current **Associate Professor** School of Mathematics and Statistics, University of Sydney.

2022 – 2024 **Senior Lecturer** School of Mathematics and Statistics, University of Sydney.

2019 – 2022 **Senior Lecturer** School of Mathematics and Statistics, University of New South Wales.

2018 – 2019 **Research Fellow** Dipartimento di Economia, Università degli Studi "Gabriele d'Annunzio".

2017 – 2019 **Postdoctoral Scientist** Nuffield Department of Medicine and Big Data Institute, University of Oxford.

2015 – 2016 **Research Fellow** MEMOTEF Department, Sapienza Università di Roma.

Education

2012 – 2016 **Joint Ph.D. in Applied Mathematics and Statistics** CEREMADE Université Paris-Dauphine (Paris, France) and Department of Statistics Sapienza Università di Roma (Rome, Italy).
Thesis title: *Contributions to Bayesian computing for complex models.*
Graduated Excellent cum laude
Supervisors: Prof Christian Robert and Prof Brunero Liseo.

2009 – 2012 **Master in Statistics** Sapienza Università di Roma
Thesis title: *Approximate Bayesian Computation (ABC) for the elimination of nuisance parameters.*
110/110 cum laude (GPA: 30/30)
Supervisor: Prof Brunero Liseo

2010 – 2011 **Master 2, Mathématique de la Modélisation et de la Décision -– Mathématiques Appliquées à finalité Recherche** Université Paris–Dauphine
Thesis title: *Particle Learning for General Mixtures.*
Mention trés bien (GPA: 16.85/20)
Supervisor: Prof Christian Robert

2006 – 2009 **Bachelor Degree, Statistical Sciences** Università degli Studi di Torino
Thesis title: *Analysis of the "Cassa Integrazione Guadagni Ordinaria" requests of small firms of Torino's area.*
110/110 cum laude (GPA: 29.74/30)
Supervisor: Prof Ugo Colombino

Research Publications

Submitted Works

1. H. Chen and C. Grazian, "Adaptive spline-based weighting functions for blended survival curve extrapolation," 2025.
2. H. Chen, G. Han, W. Ding, and C. Grazian, "SPSID: A single-parameter shrinkage inverse-diffusion for denoising gene-regulatory networks," 2025.

3. H. Chen, C. Lub, W. Ding, and C. Grazian, "BiGAT-Fusion: Bidirectional graph attention with node-wise gated fusion for drug repurposing via drug–disease association prediction," 2025.
4. C. Grazian, Q. Jin, and P. Lafaye de Micheaux, "Generative flexible latent structure regression (GFLSR) model," arXiv:2508.04393, 2025.
5. T. Xie, Y. Wan, Y. Liu, Y. Zeng, S. Wang, W. Zhang, C. Grazian, C. Kit, W. Ouyang, D. Zhou, and B. Hoex, "DARWIN 1.5: Large language models as materials science adapted learners," arXiv:2412.11970, 2025.
6. J. C. Gabor and C. Grazian, "Novel Bayesian algorithms for arfima long-memory processes: A comparison between mcmc and abc approaches," arXiv:2410.13261, 2024.
7. C. Grazian, "Approximate Bayesian computation with statistical distances for model selection," arXiv:2410.21603, 2024.
8. C. Grazian, "Bayesian consistency for long memory processes: A semiparametric perspective," arXiv:2406.12780, 2024.
9. Y. Wan, Y. Liu, A. Ajith, C. Grazian, B. Hoex, W. Zhang, C. Kit, T. Xie, and I. Foster, "SciQAG: A framework for auto-generated science question answering dataset with fine-grained evaluation," arXiv:2405.09939, 2024.
10. J. Zhou, J. T. Ormerod, and C. Grazian, "Scalable expectation propagation for mixed-effects regression," arXiv:2409.14646, 2024.
11. C. Grazian and G. Visani, "A review on spatial clustering," 2023.
12. T. Xie, Y. Wan, W. Huang, Z. Yin, Y. Liu, S. Wang, Q. Linghu, C. Kit, C. Grazian, W. Zhang, I. Razzak, and B. Hoex, "DARWIN series: Domain specific large language models for natural science," arXiv:2308.13565, 2023.
13. T. Xie, Y. Wan, W. Li, Q. Linghu, S. Wang, Y. Cai, H. Liu, C. Kit, C. Grazian, and B. Hoex, "Interdisciplinary discovery of nanomaterials based on convolutional neural networks," arXiv:2212.02805v1, 2023.
14. C. Grazian, "A review on Bayesian model-based clustering," arXiv:2303.17182, 2020.

Journal Articles

1. C. Grazian, Q. Jin, and G. Tangari, "Assessing the invertibility of deep biometric representations: Investigating cnn hyperparameters for enhanced security against adversarial attacks," *Expert Systems With Applications*, vol. 264, p. 125 848, 2025. DOI: 10.1016/j.eswa.2024.125848.
2. T. Stindl, Z. Bi, and C. Grazian, "Bayesian forecasting of Italian seismicity using the spatiotemporal RETAS model," *Computational Statistics & Data Analysis*, no. 108219, 2025. DOI: 10.1016/j.csda.2025.108219.
3. P. Wu, Y. Yu, L. Toohey, M. Drew, S. Sisson, C. Grazian, and K. Mengersen, "Next generation models for subsequent sports injuries," *Applied Stochastic Models in Business and Industry*, vol. 41, no. 4, e70034, 2025. DOI: 10.1002/asmb.70034.
4. J. Zhou, C. Grazian, and J. Ormerod, "A Bayesian practitioner's guide to expectation propagation," *accepted for publication in Statistical Science*, vol. –, no. –, pp. –, 2025. DOI: --.
5. CRyPTIC, I. Barilar, S. Battaglia, E. Borroni, C. Grazian, *et al.*, "Quantitative measurement of antibiotic resistance in mycobacterium tuberculosis reveals genetic determinants of resistance and susceptibility in a target gene approach," *Nature Communications*, vol. 15, no. 488, 2024. DOI: 10.1038/s41467-023-44325-5.
6. CRyPTIC, A. S. Lachapelle, I. Barilar, S. Battaglia, E. Borroni, C. Grazian, *et al.*, "Quantitative drug susceptibility testing for mycobacterium tuberculosis using unassembled sequencing data and machine

learning," *PLOS Computational Biology*, vol. 20, no. 8, e1012260, 2024. DOI: 10.1371/journal.pcbi.1012260.

7 D. D'Antonio, M. E. Bell, J. J. Brown, and C. Grazian, "State space modelling for detecting and characterising gravitational waves afterglows," *Astronomy and Computing*, vol. 48, p. 100 860, 2024. DOI: 10.1016/j.ascom.2024.100860.

8 C. Grazian, "Spatio-temporal stick-breaking process," *Bayesian Analysis*, vol. 1, no. 1, pp. 1–32, 2024. DOI: 10.1214/24-BA1419.

9 T. Xie, Y. Wan, H. Wang, I. Østrøm, S. Wang, M. He, R. Deng, X. Wu, C. Grazian, C. Kit, and B. Hoex, "Opinion mining by convolutional neural networks for maximizing discoverability of nanomaterials," *Journal of Chemical Information and Modeling - published as a cover paper*, vol. 64, no. 7, pp. 2746–2759, 2024. DOI: 10.1021/acs.jcim.3c00746.

10 T. Xie, Y. Wan, Y. Zhou, W. Huang, Y. Liu, Q. Linghu, S. Wang, C. Kit, C. Grazian, W. Zhang, and B. Hoex, "Creation of a structured solar cell material dataset and performance prediction using large language models," *Patterns*, vol. 5, no. 5, 2024. DOI: 10.1016/j.patter.2024.100955.

11 H. Xuan, L. Maestrini, F. Chen, and C. Grazian, "Stochastic variational inference for GARCH models," *Statistics and Computing*, vol. 34, no. 45, 2024. DOI: 10.1007/s11222-023-10356-7.

12 J. Zhou, C. Grazian, and J. T. Ormerod, "Tractable skew-normal approximations via matching," *Journal of Statistical Computation and Simulation*, vol. 94, no. 5, pp. 1016–1034, 2024. DOI: 10.1080/00949655.2023.2277885.

13 D. Battagliese, C. Grazian, B. Liseo, and C. Villa, "Copula modelling with penalized complexity priors: The bivariate case," *TEST*, vol. 32, pp. 542–565, 2023. DOI: 10.1007/s11749-022-00843-w.

14 M. Bostanara, T. H. Rashidi, N. A. Khan, J. Auld, M. Ghasri, and C. Grazian, "The co-determination of home and workplace relocation durations using survival copula analysis," *Computers, Environment and Urban Systems*, vol. 99, p. 101 898, 2023. DOI: 10.1016/j.compenvurbsys.2022.101898.

15 C. Grazian, "Clustering minimal inhibitory concentration data through Bayesian mixture models: An application to detect Mycobacterium tuberculosis resistance mutations," *Statistical Methods in Medical Research*, vol. 32, no. 12, pp. 2423–2439, 2023. DOI: 10.1177/09622802231211010.

16 C. Grazian and A. McInnes, "An application of copulas to OPEC's changing influence on fossil fuel prices," *Econometric Reviews*, vol. 42, no. 8, pp. 676–699, 2023. DOI: 10.1080/07474938.2023.2222637.

17 L. Sonnenkalb, J. J. Carter, C. Grazian, A. Spitaleri, Z. Iqbal, M. Hunt, K. M. Malone, C. Utpatel, D. M. Cirillo, C. Rodrigues, K. S. Nilgiriwala, *et al.*, "Bedaquiline and clofazimine resistance in Mycobacterium tuberculosis: An in-vitro and in-silico data analysis," *The Lancet Microbe*, vol. 4, no. 5, E358–E368, 2023. DOI: 10.1016/S2666-5247(23)00002-2.

18 J. Zhou, J. T. Ormerod, and C. Grazian, "Fast expectation propagation for heteroscedastic, lasso-penalized, and quantile regression," *Journal of Machine Learning Research*, vol. 24, no. 314, pp. 1–39, 2023.

19 A. Brankin, K. Malone, I. Barilar, C. Grazian, *et al.*, "A data compendium associating the genomes of 12,289 Mycobacterium tuberculosis isolates with quantitative resistance phenotypes to 13 antibiotics," *PLoS Biology*, vol. 20, no. 8, e3001721, 2022. DOI: 10.1371/journal.pbio.3001721.

20 S. Earle, D. Wilson, C. Grazian, *et al.*, "Genome-wide association studies of global Mycobacterium tuberculosis resistance to 13 antimicrobials in 10,228 genomes identify new resistance mechanisms," *PLoS Biology*, vol. 20, no. 8, e3001755, 2022. DOI: 10.1371/journal.pbio.3001755.

21 P. Fowler, I. Barilar, S. Battaglia, C. Grazian, *et al.*, "Epidemiological cut-off values for a 96-well broth microdilution plate for high-throughput research antibiotic susceptibility testing of M. tuberculosis," *European Respiratory Journal*, vol. 60, no. 4, 2022. DOI: 10.1183/13993003.00239-2022.

22 P. W. Fowler, C. Wright, H. Spiers, C. Grazian, *et al.*, "A crowd of BashTheBug volunteers reproducibly and accurately measure the minimum inhibitory concentrations of 13 antitubercular drugs from photographs of 96-well broth microdilution plates," *ELife*, vol. 11, e75046, 2022. DOI: 10.7554/eLife.75046.

23 C. Grazian, L. Dalla Valle, and B. Liseo, "Approximate Bayesian conditional copulas," *Computational Statistics & Data Analysis*, vol. 169, p. 107 417, 2022. DOI: 10.1016/j.csda.2021.107417.

24 M. Hunt, B. Letcher, K. M. Malone, C. Grazian, *et al.*, "Minos: Variant adjudication and joint genotyping of cohorts of bacterial genomes," *Genome Biology*, vol. 23, no. 1, p. 147, 2022. DOI: 10.1186/s13059-022-02714-x.

25 T. M. Walker, P. Miotto, C. U. Köser, C. Grazian, *et al.*, "The 2021 WHO catalogue of Mycobacterium tuberculosis complex mutations associated with drug resistance: A genotypic analysis," *The Lancet Microbe*, vol. 3, no. 4, e265–e273, 2022. DOI: 10.1016/S2666-5247(21)00301-3.

26 Y. Fan, G. Emvalomenos, C. Grazian, and S. R. Meikle, "PET-ABC: Fully Bayesian likelihood-free inference for kinetic models," *Physics in Medicine & Biology*, vol. 66, no. 11, p. 115 002, 2021. DOI: 10.1088/1361-6560/abfa37.

27 C. Grazian and Y. Fan, "A review of approximate Bayesian computation methods via density estimation: Inference for simulator-models," *Wiley Interdisciplinary Reviews: Computational Statistics*, vol. 12, no. 4, e1486, 2020. DOI: 10.1002/wics.1486.

28 C. Grazian, C. Villa, and B. Liseo, "On a loss-based prior for the number of components in mixture models," *Statistics & Probability Letters*, vol. 158, p. 108 656, 2020. DOI: 10.1016/j.spl.2019.108656.

29 S. Kouchaki, Y. Yang, A. Lachapelle, T. M. Walker, C. Grazian, *et al.*, "Multi-label random forest model for tuberculosis drug resistance classification and mutation ranking," *Frontiers in microbiology*, vol. 11, p. 667, 2020. DOI: 10.3389/fmicb.2020.00667.

30 D. J. Wilson, D. Crook, T. Peto, A. Walker, C. Grazian, *et al.*, "GenomegaMap: Within-species genome-wide dN/dS estimation from over 10,000 genomes," *Molecular biology and evolution*, vol. 37, no. 8, pp. 2450–2460, 2020. DOI: 10.1093/molbev/msaa069.

31 M. Banterle, C. Grazian, A. Lee, and C. P. Robert, "Accelerating Metropolis-Hastings algorithms by delayed acceptance," *Foundations of Data Science*, vol. 1, no. 2, pp. 103–128, 2019. DOI: 10.3934/fods.2019005.

32 P. W. Fowler, A. L. G. Cruz, S. J. Hoosdally, C. Grazian, *et al.*, "Automated detection of bacterial growth on 96-well plates for high-throughput drug susceptibility testing of Mycobacterium tuberculosis," *Microbiology*, vol. 165, no. 5, p. 585, 2019. DOI: 10.1099/mic.0.00073.

33 C. Grazian, F. Leisen, and B. Liseo, "Modelling preference data with the Wallenius distribution," *Journal of the Royal Statistical Society Series A: Statistics in Society*, vol. 182, no. 2, pp. 541–558, 2019. DOI: 10.1111/rssa.12415.

34 S. Kouchaki, Y. Yang, T. M. Walker, A. Sarah Walker, C. Grazian, *et al.*, "Application of machine learning techniques to tuberculosis drug resistance analysis," *Bioinformatics*, vol. 35, no. 13, pp. 2276–2282, 2019. DOI: 10.1093/bioinformatics/bty949.

35 A. Lo Presti, A. Neri, C. Fazio Grazian, B. Liseo, G. Rezza, M. C. J. Maiden, and P. Stefanelli, "Reconstruction of dispersal patterns of hypervirulent meningococcal strains of serogroup C: Cc11 by phylogenomic time trees," *Journal of Clinical Microbiology*, vol. 58, no. 1, e01351–19, 2019. DOI: 10.1128/JCM.01351-19.

36 G. Mastrantonio, C. Grazian, S. Mancinelli, and E. Bibbona, "New formulation of the logistic-Gaussian process to analyze trajectory tracking data," *The Annals of Applied Statistics*, vol. 13, no. 4, pp. 2483–2508, 2019. DOI: 10.1214/19-AOAS1289.

37 Y. Yang, T. M. Walker, A. S. Walker, C. Grazian, *et al.*, "DeepAMR for predicting co-occurrent resistance of Mycobacterium tuberculosis," *Bioinformatics*, vol. 35, no. 18, pp. 3240–3249, 2019. DOI: 10.1093/bioinformatics/btz067.

38 C. Grazian and C. P. Robert, "Jeffreys priors for mixture estimation: Properties and alternatives," *Computational Statistics & Data Analysis*, vol. 121, pp. 149–163, 2018. DOI: 10.1016/j.csda.2017.12.005.

39 P. M. Rancoita, F. Cugnata, A. L. Gibertoni Cruz, E. Borroni, S. J. Hoosdally, C. Grazian, *et al.*, "Validating a 14-drug microtiter plate containing bedaquiline and delamanid for large-scale research susceptibility testing of Mycobacterium tuberculosis," *Antimicrobial agents and chemotherapy*, vol. 62, no. 9, e00344–18, 2018. DOI: 10.1128/AAC.00344-18.

40 C. Grazian and B. Liseo, "Approximate Bayesian inference in semiparametric copula models," *Bayesian Analysis*, vol. 12, no. 4, pp. 991–1016, 2017. DOI: 10.1214/17-BA1080.

41 C. Grazian and B. Liseo, "Approximate Bayesian computation for copula estimation," *Statistica*, vol. 75, no. 1, pp. 111–127, 2015.

42 C. Grazian and B. Liseo, "Approximate integrated likelihood via ABC methods," *Statistics and Its Interface*, vol. 8, no. 2, pp. 161–171, 2014.

Conference Proceedings

1 Q. Gu, Y. Gholami, N. Pham, R. Parajuli, A. Parmar, C. Grazian, F. Calamente, and S. Meikle, "Neurochemical connectivity using Bayesian kinetic modeling and network analysis of PET neurotransmitter stimulus studies," in *IEEE Medical Imaging Conference*, Nov. 2025.

2 N. Putril, B. Dickson, M. Mostaghim, A. Zhafira, F. Aditami, D. Lestari, F. Aprilia, W. Tafroji, F. Luthfiano, J. Harrison, C. Grazian, M. Harrison, J. Ramsay, A. Howard Jones, P. Turner, and P. Williams, "Association between gram-negative multidrug-resistant organism colonisation and invasive infections among neonates in indonesia: Results from NeoCol, a prospective cohort study," in *ASID Annual Scientific Meeting 2025*, Apr. 2025.

3 C. Grazian, "An application of the spatio-temporal stick-breaking process," in *Methodological and Applied Statistics and Demography II*, A. Pollice and P. Mariani, Eds., Aug. 2024, ISBN: 978-3-031-64349-1.

4 Q. Gu, G. Angelis, D. Bailey, P. Roach, C. Grazian, G. Emvalomenos, and S. Meikle, "Parametric maps of kinetic heterogeneity and ki in dynamic total body pet using approximate bayesian computation," in *2024 IEEE Nuclear Science Symposium, Medical Imagining Conference and Room Temperature Semiconductor Detector Conference, 2024 IEEE NSS MIC RTSD*, Oct. 2024. DOI: 10.1109/NSS/MIC/RTSD57108.2024.10657628.

5 M. Bostanara, R. Hossein, N. Khan, J. Auld, M. Ghasri, and C. Grazian, "Interdependencies of home and work relocation durations," in *Transportation Research Board 2023 Annual Meeting*, Jan. 2023.

6 T. Xie, Y. Wan, W. Li, Q. Linghu, S. Wang, Y. Cai, C. Kit, H. Liu, C. Grazian, and B. Hoex, "Interdisciplinary discovery of nanomaterials based on convolutional neural networks," in *NeurIPS 2022 AI for Science: Progress and Promises*, Dec. 2022.

7 C. Grazian, G. Emvalomenos, G. Angelis, Y. Fan, and S. R. Meikle, "VPET-ABC: Voxel-wise approximate Bayesian inference for parametric imaging of neurotransmitter release," in *2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*, Oct. 2021.

8 C. Grazian, G. Mastrantonio, and E. Bibbona, "A time clustering model for spatio-temporal data," in *Proceedings of XL Scientific Meeting of the Italian Statistical Society*, C. Salvati and F. Schirripa Spagnolo, Eds., Jun. 2021, ISBN: 978-88-9192-736-1.

9. P. Valentini, L. Ippoliti, and C. Grazian, "A time varying coefficient model to estimate the short-term effects of air pollution on human health," in *Proceedings of XL Scientific Meeting of the Italian Statistical Society*, C. Salvati and F. Schirripa Spagnolo, Eds., Jun. 2021, ISBN: 9788891927361.

10. D. Battagliese, C. Grazian, B. Liseo, and C. Villa, "Penalised complexity priors for copulae," in *Proceedings of 35th International Workshop on Statistical Modelling (IWSM 2020)*, Jul. 2020, ISBN: 978-84-1319-267-3.

11. M. Tangari G. amd Charalambides, D. Tuncer, C. Grazian, and G. Pavlou, "Classification-assisted query processing for network telemetry," in *Network Traffic Measurements and Analysis (TMA) 2020*, Jun. 2020.

12. A. Lo Presti, A. Neri, C. Fazio, P. Vacca, I. Ambrosio, C. Grazian, B. Liseo, G. Rezza, and P. Stefanelli, "Evaluation of the spatio-temporal origin of C:P!.5-1,10-8:F3-6:ST-11(cc11) meningococcal isolates in Italy through a Bayesian model," in *ECCMID 2019*, Apr. 2019.

13. C. Grazian, G. Mastrantonio, and E. Bibbona, "Introducing spatio-temporal dependence in clustering: From a parametric to a nonparametric approach," in *Proceedings of XLIX Scientific Meeting of the Italian Statistical Society*, A. Abbruzzo, E. Brentari, M. Chiodi, and D. Piacentino, Eds., Jun. 2018, ISBN: 978-88-9191-023-3.

14. C. Grazian, "Classical inference for intractable likelihoods," in *Proceedings of XLVIII Scientific Meeting of the Italian Statistical Society*, Jun. 2016, ISBN: 978-88-6197-061-8.

15. P. Stefanelli, C. Fazio, C. Grazian, A. Neri, *et al.*, "Genetic relatedness of Neisseria meningitidis of serogroup c in Italy, 2012-2015," in *IPNC 2016*, Sep. 2016.

16. C. Grazian and C. Robert, "Jeffreys prior for mixture estimation," in *Springer Proceedings in Mathematics & Statistics, Volume "Bayesian Statistics from Methods to Models and Applications"*, S. Fruhwirth-Schnatter, A. Bitto, G. Kastner, and A. Posekany, Eds., Sep. 2015, ISBN: 978-3-319-16238-6.

17. C. Grazian, "Approximate Bayesian computation for the elimination of nuisance parameters," in *Springer Proceedings in Mathematics & Statistics, Volume "The Contribution of Young Researchers to Bayesian Statistics"*, E. Lanzarone and F. Ieva, Eds., Sep. 2014, ISBN: 978-3-319-02084-6.

18. C. Grazian and C. Robert, "Jeffreys priors for mixture models," in *Proceedings of XLVII Scientific Meeting of the Italian Statistical Society*, Jun. 2014, ISBN: 978-8-884-67874-4.

19. C. Grazian, "Approximate Bayesian computation and applications," in *Proceedings of S.Co. 2013*, Sep. 2013.

Books and Chapters

1. J. Rousseau, C. Grazian, and J. Lee, "Bayesian mixture models: Theory and method," in *Handbook of Mixture Analysis*, S. Frühwirth-Schnatter, C. Robert, and G. Celeux, Eds., United Kingdom: CRC-Press, 2019.

2. C. Drovandi, C. Grazian, K. Mengersen, and C. Robert, "Approximating the likelihood in approximate Bayesian computation," in *Handbook of Approximate Bayesian Computation*, C. Sisson, Y. Fan, and M. Beaumont, Eds., United Kingdom: CRC-Press, 2018.

Discussions

1. C. Grazian, I. Masiani, and C. P. Robert, *A discussion of "Bayesian model selection based on proper scoring rules" by A.P. Dawid and M. Musio*, 2015.

Software

BiGAT-Fusion — "BiGAT-Fusion · Bidirectional Graph Attention with Node-wise Gated Fusion for Drug–Disease Association Prediction" https://github.com/haohaostats/BiGAT-Fusion (Python)

SPISID — "SPSID: Single-Parameter Shrinkage Inverse Diffusion for GRN Denoising" https://github.com/haohaostats/SPSID (Python)

Clockwork — "Pipelines for processing bacterial sequence data (Illumina only) and variant calling" https://github.com/iqbal-lab-org/clockwork (Python)

SciQAG — "Auto-Generated Science Question Answering Dataset with Fine-grained Evaluation" https://github.com/MasterAI-EAM/SciQAG (Python): SciQAG is a novel framework for automatically generating high-quality science question-answer pairs from a large corpus of scientific literature using large language models (LLMs). SciQAG consists of a QA generator and a QA evaluator, which work together to extract diverse and research-level questions and answers from scientific papers.

DARWIN — "A Tailored GPT for the Scientific Domain", https://github.com/MasterAI-EAM/Darwin (Python): DARWIN LLM has achieved a groundbreaking milestone, having been recognized as the world's most accurate model in Experimental Bandgap Prediction and Metal Classification Model within MatBench.

Minos — "Variant adjudication and joint genotyping of cohorts of bacterial genomes", https://github.com/iqbal-lab-org/minos-paper-benchmarking (Python)

MLTRP — "Multilabel Learning for Tuberculosis Resistance Prediction", http://www.robots.ox.ac.uk/~davidc/code/mlrf.zip (Python)

DeepAMR — "DeepAMR for predicting co-occurrent resistance of Mycobacterium tuberculosis", http://www.robots.ox.ac.uk/~davidc/code/deepamr.zip (Python)

ML for tuberculosis — "Application of machine learning techniques to tuberculosis drug resistance analysis", http://www.robots.ox.ac.uk/~davidc/code/mtb-ml.zip (Python)

survblendr — "Adaptive Spline-Weighted Blending for Survival Extrapolation" https://github.com/haohaostats/survblendr (R)

EP-ext — "Expectation propagation extensions" https://github.com/jackson-zhou-sydney/EP-ext (R)

EP-multicomp — "Fast Expectation Propagation for Heteroscedastic, Lasso-Penalized, and Quantile Regression" https://github.com/jackson-zhou-sydney/EP-multicomp (R)

BICC — "Bayesian Inference for Conditional Copulas" https://github.com/cgrazian/BICC (R)

PETabc — "Bayesian Analysis for Kinetic Models" https://github.com/cgrazian/PETabc (R)

BayesMIC — "Estimating MIC distributions and cutoffs through mixture models" https://github.com/cgrazian/BayesMIC (R)

Supervision

Research Fellows

Vasiliki Vamvaka (2021)
"Copula directional dependence techniques for inferring directionality on gene expression data"
Clinical Data Analyst at Avania

Thomas Goodwin (2021)
"Exploiting composite likelihoods for likelihood-free problems"
PhD student at UTS

Supervision (continued)

PhD Students

Qinlin Gu (2025-current) (joint with Prof Steven Meikle and Prof Fernando Calamante)
"vPET-ABC for kinetic modeling"

James Gabor (2024-current)
"Advances in Spatial Bayesian clustering"
Honours: Invited Speaker for the seminar series of the NSW Branch of SSA September 2025, 2024 University of Sydney University Postgraduate Award, Best 3-minute presentation at the Time Series and Forecasting Symposium TSF2024 (runner-up), Hoffline scholarship (AUD 6,0000)

Hao Chen (2023-current)
"Bayesian experimental design for detecting drug resistance"

Samuel Caradog Davis (2022-current) (jointly supervised with Prof Matt Cleary)
"Bayesian analysis of Gaussian plume models"

Jackson Zhou (2022-current) (jointly supervised with A/Prof John Ormerod)
"Skew-normal posterior approximations"
Honours: NSW SSA Travel Grant to attend ASC23 (AUD 400), Winner of the 2024 J.B. Douglas Postgraduate Award of the Statistical Society of Australia (SSA) (AUD 1000)

Qian Jin (2021-current) (jointly supervised with A/Prof Pierre Lafaye De Micheaux)
"Machine learning techniques for brain age"
Honours: Invited Speaker for the seminar series of the NSW Branch of SSA, Invited Speaker to present at the ISBA World Meeting 2024, NSW SSA Travel Grant to attend ASC23 (AUD 400), Mike Tallis PhD Award 2024 (AUD 5,000), Duke University Travel Grant to attend ISBA World Meeting 2024 (USD 1,000), UNSW Development and Research Training Grant (AUD 3,000), Keynote Speaker at the UNSW School of Mathematics and Statistics Postgraduate Conference 2024 Research Data Scientist in Education Data and Insights team at UNSW

Hanwen Xuan (2021-2025) (jointly supervised with Dr Feng Chen)
"Copula-based Bayesian Extension of the Black-Litterman Model"
Date PhD Awarded: 17th September 2025
Honours: Honourable Mention as best presentation at the UNSW School of Mathematics and Statistics Postgraduate Conference 2023, Mike Tallis PhD Award 2024 (AUD 5,000)

Tong Xie (2021-2025) (jointly supervised with Prof Bram Hoex)
"Leveraging Large Language Models for NanoMaterials Discovery and Synthesis"
Date PhD Awarded: 11th February 2025
Honours: Invited Speaker at Argonne National Laboratory, Travel Grant from the Acceleration Consortium, Travel Grant for the Australasian Leadership Computing Symposium 2023, Selected for the NCI HPC-AI Talent Program 2023, Selected for the Argonne Training Program on Extreme-Scale Computing (ATPESC) August 2024, Funder and CEO of GreenDynamics, Top YouTube video of 2024 of DARE ARC Centre YouTube Channel ("Revolutionising Materials Science with Large Language Models") CEO and Founder of Green Dynamics and Adjunct Lecturer at UNSW Sydney

Supervision (continued)

PhD Students - continued

- Maryam Bostanara (2020-2024) (co-supervised with Dr Taha Hossein Rashidi and Dr Ali Najmi)
  "Urban Dynamics and Household Decisions: Advanced Statistical Methods in Relocation, Land Use, and Transport Planning"
  Date PhD Awarded: 24th May 2024
  Honours: 2024 SIDRA SOLUTIONS Postgraduate Awards (the most outstanding postgraduate student from a tertiary institution in Australia or New Zealand, based on the quality of research and potential to make a significant contribution to the traffic and transport engineering profession)
  Postdoc at City Futures Research Centre (UNSW)

- Diego Battagliese (2017-2020) (joint with B. Liseo)
  "Penalising Model Complexity"
  Date PhD Awarded: 28th February 2020
  Lecturer at Università degli Studi di Bari

MPhil Student

- Vincent Khan Khang (2024-current) (joint with Prof Willem Vervoort)
  MPhil in Hydrology, University of Sydney
  "Machine learning methods for hydrology"

Supervision (continued)

Master Students

Jeremy Gebrael (Aug 2025 - Jul 2026
Master in Mathematical Sciences, University of Sydney
"Convolutional Neural Networks for Scalable Dirichlet Process Mixture Estimation"

Jessica Ramsay (Apr 2025 - Jul 2025 (joint with A/Prof Phoebe Williams)
Master in Global Health, University of Sydney
"Maternal Group B Streptococcus Colonisation and Neonatal Outcomes in Indonesia: Implications for Intrapartum Antibiotic Prophylaxis in Low-Resource Settings"

Dongyuan Lin (Aug 2024 - Jul 2025) (joint with Dr Linh Nghiem)
Master in Mathematical Sciences, University of Sydney
"Bayesian Analysis of Linear Models with Endogeneity using Instrumental Variables"

Christian Angelopoulos (Aug 2023 - Jul 2024)
Master in Mathematical Sciences, University of Sydney
"Approximate Bayesian Computation with Statistical Distances for Model Selection"

Siyi Gu (2021)
Master in Statistics, University of New South Wales
"Bayesian clustering models for lichen abundance data"

Vasiliki Vamvaka (2021)
Master in Statistics, University of New South Wales
"Bayesian inference for copula directional dependence"

Xujing Quan (2021)
Master in Statistics, University of New South Wales
"Portfolio risk management based on the skewed Student t distribution and GARCH models"

Tingyi Lee (2021)
Master in Statistics, University of New South Wales
"New formulation of the Dirichlet process on clustering"

Chenhao Yue (2021)
Master in Statistics, University of New South Wales
"Approximate Bayesian computation for long memory processes"

Yuan Gong (2021)
Master in Statistics, University of New South Wales
"A time clustering model for temporal data"

Tong Wang (2020)
Master in Statistics, University of New South Wales
"Quantile regression via multivariate asymmetric Laplace distribu- tion"

Yiwei Wang (2020)
Master in Statistics, University of New South Wales
"The invertibility of biometric representations through CNN"

Taiming Xu (2020)
Master in Statistics, University of New South Wales
"Copula representation of the Black and Litterman model"

Xinyu Guan (2019)
Master in Statistics, University of New South Wales
"Evaluating M. Tuberculosis resistance through mixture models"

Supervision (continued)

Master Students - continued

Wei Li (2018)
Master of Statistics, University of Oxford
"Establishing Antimicrobial Resistance Breakpoints via Mixture Models"

Ilaria Masiani (2014)
Master 2 en Mathématique de la Modélisation et de la Décision, Paris-Dauphine
"On proper scoring rules for Bayesian model selection"

Supervision (continued)

Honours Students

Riey Chen (Aug 2025 - Jul 2026)
Honours in Data Science, University of Sydney
"Harnessing LLMs for Climate Change Research and Policy"

Xiaoying Wei (Feb 2025 - Dec 2025)
Honours in Data Science, University of Sydney
"Bayesian Copula Directional Dependence: Methodology and Implementation for Directed Connectivity Analysis"

Alex Liu (Aug 2024 - Jul 2025)
Honours in Data Science, University of Sydney
"Approximate Bayesian Computation in Partial Differential Equations"

Margareth Ritchie (Jan 2024 - Nov 2024) (joint with A/Prof Jan Zika)
Honours in Applied Mathematics, University of New South Wales
"Using Gaussian Mixture Modelling to Characterise the Ocean"

Qinlin Gu (Aug 2023 - Jul 2024) (joint with Prof Steven Meikle)
Honours in Data Science, University of Sydney
"Voxelwise Approximate Bayesian Computation Algorithm for Kinetic Model Selection in Total Body PET"
Honours: Poster presentation at the IEEE Medical Imaging Conference 2024 (Tampa, Florida), Rolf Adams Prize (best talk in the Honours program in Data Science).

Xiaoying Liao (Feb 2023 - Dec 2023) (joint with Prof Jean Yang)
Honours in Statistics, University of Sydney
"Clustering cell types with 3D aligned data"

Skye Williams-Kelly (2022)
Honours in Quantitative Data Science, University of New South Wales
"A Bayesian clustering approach for multivariate RNA-splicing data"

Kathryn Dalton (2022) (joint with A/Prof Shane Keating and Prof Scott Sisson)
Honours in Quantitative Data Science, University of New South Wales
"Trajectory clustering to identify cargo shipping patterns"

Shanshui Gu (2022)
Honours in Statistics, University of New South Wales
"RNA splicing with Bayesian network and clustering analysis"

James Gabor (2022)
Honours in Statistics, University of New South Wales
"Bayesian simulation methods for estimating long memory in ARFIMA models"

Adam Stanley (2021)
Honours in Statistics, University of New South Wales
"Model-based identification of script-generated anomalous behaviour in social network traffic"

Louis Ye (2020)
Honours in Statistics, University of New South Wales
"Temporal extensions on Spatial Dirichlet Process Modelling's base distribution"

Supervision (continued)

Bachelor Students

Thomas Zheng (Aug 2024 - Dec 2024)
Bachelor in Science, Dalyell Scholars program, University of Sydney
"Consistency Results on Estimating the Number of Clusters with Dirichlet Process Models"
Honours: University of Sydney Chancellor's Award 2024, AMSI Summer Research Scholarships 2024, Barker Scholarship No I for Intermediate Mathematics

Alexander McInnes (2019)
Bachelor in Science, Major in Physics, University of New South Wales
"An application of copulas to OPEC's changing influence on fossil fuel prices"

Summer Students

Thomas Zheng (2024)
Denison Science Summer Research Program, University of Sydney
"Exploring Statistical Models for Animal Behaviour Analysis"
Honours: Second position in the Formula SAE-A Competition 2023, Second Best Presentation at the AMSI Summer School 2023, Dean's List of Excellence in Academic Performance 2023, Tim Brown Prize No 1 for Intermediate Statistics 2023, Faculty of Science Dean's Honours List Prize 2023, University of Sydney Academic Merit Prize 2023, University of Sydney Chancellor's Award 2023, Dalyell Global Mobility Scholarship 2023, Barker Scholarship No II for Junior Mathematics 2023

Reviewer

Bahareh Ghanbari (PhD 2025), Dehua Tao (PhD, 2024), Emanuele Degani (PhD), Sébastien Coube-Sisqueille (PhD), Haruki Jeremy Osaka (PhD), Rosario Barone (PhD), Mukundadura Yasod Sankalpa Fonseka (MPhil, 2024), Naihui Zhang (Master, 2024), Muzhi Yu (Master), Zhipeng Dai (Master), Ziqi Yang (Master), Danya Luo (Master), Weidai Xu (Master), Yi Guo (Master), Yongjiang Shi (Honours), Yuhao Li (Honours), Benjamin Shade (Honours), Harish Suresh (Honours), Andy Yu (Honours), Zhipeng Dai (Honours), Xuan Yang (Honours), Ian Powell (Honours), Shilong Zhu (Honours), Emily Lin (Dalyell Individual Research Project)

Grants as Chief Investigator

2024

Rewarding Research Success Scheme
Amount: AUD 60,000
Funding Agency: University of Sydney, Faculty of Medicine and Health
Research Project: "Developing Artificial Intelligence tools to examine and visualise trends and factors associated with child undernutrition in Indonesia"
Team: Chief Investigator joint with Prof Michael J Dibley (USyd), Dr Shahadat Uddin (USyd), Dr Dori Patay (USyd), Dr Tanvir Huda (USyd), Dr Sk Masum Billah (USyd)

National Computational Infrastructure
Amount: Gadi 38.0kSU
Funding Agency: National Computational Infrastructure
Research Project: "Generalized Partial Least Square in Deep Neural Network"
Team: Chief Investigator joint with A/Prof Pierre Lafaye de Micheaux (UNSW) and Ms Qian Jin (UNSW)

Grants as Chief Investigator (continued)

Scientific Exchanges Scheme
Amount: CFH 20,000
Grant number: IZSEZ0_225139
Funding Agency: Swiss National Science Foundation (SNSF)
Team: Chief Investigator joint with Prof Antonietta Mira (USI), Dr Antonio Di Noia (ETH), Mr Federico Ravenda (USI), A/Prof Stefano Peluso (Milano-Bicocca), Dr Elena Ballante (Università degli Studi di Pavia), Dr Beatrice Franzolini (Bocconi), Dr Leah South (QUT), Dr Balabdaoui Fadoua (ETH), Dr Xenia Miscouridou (University of Cyprus), Dr Valentina Ghidini (USI), Dr Matt Moores (UoW), Dr Marco Scutari (IDSIA), A/Prof Andrew Zammit-Mangion (UoW), A/Prof Marco Scutari (RomaTre)

Research Excellence and Inclusion Prize - Thompson Prize
Amount: AUD 15,000 Research Fund & AUD 25,000 Teaching Relief
Funding Agency: University of Sydney
Team: Sole Chief Investigator

2023

Microsoft Accelerate Foundation Models Research Funds
Amount: USD 20,000
Funding Agency: Microsoft
Research Project: "Leveraging Foundation Models for Accelerated Materials Science Research"
Team: Chief Investigator joint with Dr Imran Razzak, Mr Tong Xie (UNSW) and Prof Bram Hoex (UNSW)

Microsoft Accelerate Foundation Models Research Funds
Amount: USD 20,000
Funding Agency: Microsoft
Research Project: "Unsupervised word embedding for material discovery from natural scientific literature"
Team: Chief Investigator joint with Mr Tong Xie (UNSW) and Prof Bram Hoex (UNSW)

Australia Awards Fellowship
Amount: AUD 34,500
Funding Agency: Australia Government Department of Foreign Affairs and Trade
Research Project: "Mapping child malnutrition and determinants in Indonesia with spatial epidemiology and Bayesian regression"
Team: Chief Investigator joint with Prof Michael Dibley (USyd), Mr Masum Billah (USyd), Dr Tanvir Huda (USyd), Prof Mu Li (USyd)

2022 - 2023

H2020-MSCA-RISE-2017 Project GHAIA "Geometric and Harmonic Analysis with Interdisciplinary Applications"
Amount: EUR 12,000
Funding Agency: Marie Skłodkowska-Curie Actions
Research Project: "Monte Carlo Tree Integration"
Team: Chief Investigator joint with Mr Giorgio Visani (Università degli Studi di Bologna)

Grants as Chief Investigator (continued)

Diamond Jubilee Fellowship of the Statistical Society of Australia
Amount: AUD 5,000
Funding Agency: Statistical Society of Australia
Team: Sole Chief Investigator

2022 - current

ARC Training Centre in Data Analytics for Resources and Environments (DARE)
Amount: AUD 3,973,202
Grant Number: IC190100031
Funding Agency: Australian Research Council
Team: Chief Investigator joint with A/Prof Rutger Vervoort, Prof Lucy Marshall, Prof Fabio Ramos, Prof Glenda Wardle, Prof Dacheng Tao, Prof Robert Kohn, A/Prof Edward Cripps, Dr Mark Lindsay, Prof Jody Webster, Dr Tristan Salles, Dr Richard Scalzo, A/Prof Fiona Johnson, Dr Rohitash Chandra, Dr Aaron Greenville, Prof Mark Jessell, Prof Mark Girolami, Dr Ian Oppermann, Dr Milan Korbel, Mr Jeffrey Bell, Mr Jeremy Black, Dr Karol Czarnota, Dr Lesley Gibson, Mr Neil Symington, Mr Peter Dupen, Mr Martin Gallagher, A/Prof Minh-Ngoc Tran, Dr Nandini Ramesh, Dr Tongliang Liu, A/Prof Matthew Cleary, Prof Judy Kay, Dr Sahani Pathiraja, Ms Carolyn Robinson

2022 - 2023

SSA Fellowship Funding Award
Amount: AUD 3,000
Funding Agency: Statistical Society of Australia
Team: Sole Chief Investigator

2021

ACEMS Research Sprint Scheme
Amount: AUD 28,022.31
Funding Agency: ARC Centre of Excellence for Mathematical and Statistical Frontiers
Project: "Copula directional dependence techniques for inferring directionality on gene expression data"
Team: Sole Chief Investigator

UNSW Science Equality Diversity and Inclusion Working Group
Amount: AUD 1,423
Funding Agency: UNSW Faculty of Science
Project: "Textbook Accessibility at UNSW"
Team: Sole Chief Investigator

UNSW Faculty Research Grant 2021
Amount: AUD 5,000
Funding Agency: UNSW Faculty of Science
Project: "Renewal Chain Monte Carlo Sampling: Applied Probability meets Thomas Bayes"
Team: Sole Chief Investigator

ACEMS Research Support Scheme (RSS)
Amount: AUD 14,588.32
Funding Agency: ARC Centre of Excellence for Mathematical and Statistical Frontiers
Project: "Exploiting composite likelihoods for likelihood-free problems"
Team: Chief Investigator, joint with Prof. Chris Drovandi (QUT)

Grants as Chief Investigator (continued)

2020 - 2021

ACEMS Industry Collaboration Support Scheme (ICSS)
Amount: AUD 20,000
Funding Agency: ARC Centre of Excellence for Mathematical and Statistical Frontiers
Project: "Developing Bayesian methods for modelling the dynamics of complex systems in sports: performance vs injuries"
Team: Chief Investigator, joint with Dr P. Wu (QUT)

Defence Innovation Network Scheme (DIN)
Amount: AUD 175,000
Funding Agency: Defence Innovation Network, RES20/927
Grant number: PP20-21_02.01
Project: "Optimising ADF military working dog performance through next-generation monitoring systems"
Team: Chief Investigator, joint with Dr M. Starling, Prof P. McGreevy, Prof. P. Leong, A/Prof C. Clark, A/Prof O. Jay, Dr S. Lomax, Dr B. Flower (University of Sydney), A/Prof C. Broderick, Prof S. Sisson (UNSW), A/Prof P. Breen, Dr T. Jayarathna (Western Sydney University)

Defence Science Partnering Scheme
Amount: AUD 160,000
Funding Agency: Defence Science & Technology Group (DSTG)
Grant number: DINPP2019 S1-05
Project: "Knowledge Synthesis for Autonomous Analyst"
Team: Chief Investigator, joint project with Prof. S. Sisson (UNSW), Prof. M. Guertler (UTS), Prof. P.R. Massingham (University of Wollongong)

2018 - 2019

PRIN 2015 - "Research Projects of National Interest" - Area "Social Sciences"
Amount: EUR 682,785 (personal award: EUR 47,582.00)
Funding Agency: Italian Ministry of Education, Universities and Research
Grant number: DINPP2019 S1-05
Project: "Environmental processes and human activities: capturing their interactions via statistical methods (EPHASTAT)"
Team: Chief Investigator, joint project with Prof. Daniela Cocchi (Lead Investigator), A/Prof Alessio Pollice (Università degli Studi di Bari "Aldo Moro"), A/Prof Michela Camelletti (Università degli Studi di Bergamo), Prof Luisi Ippoliti, A/Prof Pasquale Valentini (Università degli Studi "G. d'Annunzio" Chieti-Pescara), Prof Giovanna Jona-Lasinio (Università degli Studi di Roma "La Sapienza"), and A/Prof Rosalba Ignaccolo (Università degli Studi di Torino)

2017 - 2019

International Exchanges Scheme 2017/R2 (inc CNRS)
Amount: GBT 10,000
Funding Agency: The Royal Society
Grant number: IE160597
Project: "High-dimensional Bayesian dependence modelling with conditional copulas"
Team: Chief Investigator, joint with Dr. Luciana Dalla Valle, Prof. Julian Stander (Plymouth University), Prof. Brunero Liseo (Sapienza University of Rome)

Grants as Chief Investigator (continued)

2018 - 2019

PRIN 2015 - "Research Projects of National Interest" - Area "Physical Sciences and Engineering"
Amount: EUR 148,087
Funding Agency: Italian Ministry of Education, Universities and Research
Grant number: PROT. 20154X8K23
Project: "Likelihood-free methods for inference"
Team: Chief Investigator, joint project with Prof. Brunero Liseo (Lead Investigator), Prof Laura Ventura (Università degli Studi di Padova), and Prof Paolo Vidoni (Università degli Studi di Udine)

2015 - 2017

International Exchanges Scheme 2015/R2 (inc CNRS)
Amount: GBT 11,820
Funding Agency: The Royal Society
Project: "Empirical and Bootstrap Likelihood procedures for Approximate Bayesian Inference"
Team: Chief Investigator, joint with Dr. Fabrizio Leisen (University of Kent), Prof. Brunero Liseo (Sapienza University of Rome)

2015

Annual Funding for Scientific Research
Amount: EUR 1,000
Funding Agency: Sapienza Università di Roma
Project:"Objective Bayesian analysis of mixture models"
Team: Sole Chief Investigator

2014 Contribute for Double PhD programme Fellowship
Amount: EUR 4,370
Funding Agency: Università Italo-francese - Bando Vinci 2014 (Aide à la mobilité pour théses de l'Université Franco-italienne pour Projet Vinci 2014
Team: Sole Chief Investigator

2014

"Ing. Vittorino Pollo e Dott.ssa Zita Pollo" Fellowship
Amount: EUR 6,000
Funding Agency: Fondazione Agnelli
Team: Sole Chief Investigator

Annual Funding for Scientific Research
Amount: EUR 2,000
Funding Agency: Sapienza Università di Roma
Project: "Disclosure risk estimation via Bayesian semi-parametric mixed effects log-linear models"
Team: Chief Investigator joint with Dr. Silvia Polettini (Sapienza Università di Roma)

2013

Annual Funding for Scientific Research
Amount: EUR 12,000
Funding Agency: Sapienza Università di Roma
Project: "Bayesian methods for small area estimation: economic and demographic applications"
Team: Chief Investigator, joint with Dr. Serena Arima, Dr. Elena Ambrosetti, Dr. Silvia Polettini (Sapienza Università di Roma)

Grants as Chief Investigator (continued)

2013-current
- Travel Grants: MATRIX Family Funding Scheme to attend the workshop "Bayesian Learning of Very High-Dimensional Physical Process Models" 23 June - 04 July 2025 (Creswick, Australia, AUD1,100), QUT travel support to attend SMC Down Under 10-13 July 2023 (Brisbane, Australia, AUD867), BayesComp@ISBA junior travel support to attend ISBA World Meeting 2016 (Sardinia, Italy, USD400), ISBA Travel Award to attend MCMSki V 2015 (Lenzerheide, Switzerland, USD300), US National Science Foundation Travel award to attend OBayes 2015 (Valencia, Spain, USD500), ISBA Travel Award to participate at MCMSki IV 2013 (Chamonix, France, USD250)

Grant Reviewer

2025
- Assessor for the "Concurso de Proyectos Fondecyt de Iniciación en Investigación 2026", National Agency for Research and Development under the Ministry of Science, Technology, Knowledge, and Innovation of Chile
- Assessor for Astralian Research Council Discovery Early Career Researcher Award 2026 (DE26) and Discovery Projects 2026 (DP26)

2024
- Assessor for Astralian Research Council Discovery Projects 2025 (DP25) Assessor

2023
- Reviewer for the US National Science Foundation (Methodology, Measurement, and Statistics Program)
- Reviewer for the National Intelligence and Security Discovery Research Grants (NISDRG)

Honours and Awards

2024
- Research Excellence and Inclusion Prize - Thompson Prize, University of Sydney

2023
- Listed in the SSA list of 60 historical and current prominent Australian statisticians `https://significancemagazine.com/60-for-the-60th-celebrating-ssas-60th-anniversary/`

2022
- SSA President's Award for Leadership in Statistics (Statistical Society of Australia)
- Diamond Jubilee Fellowship of the Statistical Society of Australia
- Stastistical Society of Australia (SSA) sponsorship to attend the Science & Technology (STA)'s "Science Meets Parliament 2022"

2021
- UNSW Faculty of Science Award for Early Career Research Excellence
- Statistical Society of Australia Fellowship Funding Award

2020
- Italian National qualification as Associate Professor in Statistics (Abilitazione Scientifica Nazionale 2020-2029 - Settore Concorsuale 13-D1 - SECS-S/01)

2018
- French qualification as Assistant Professor in Applied Mathematics and Statistics (Qualification aux fonctions de Maître de Conférences en Mathématiques appliquées et applications des mathématiques - CNU 26)

2014
- Università Italo-francese - Bando Vinci 2014 (Aide à la mobilité pour théses de l'Université Franco-italienne pour Projet Vinci Fellowship
- "Ing. Vittorino Pollo e Dott.ssa Zita Pollo" Fellowship
- International Society for Bayesian Analysis Lifetime Members Junior Researcher Award
- Italian Statistical Society (SIS) Best Poster Award at the Scientific Meeting

Honours and Awards (continued)

- MCMSki IV Best Poster Award

2013
- NoiSapienza Award, Sapienza Università di Roma (best graduates 2011-2012)
- Optime Award, Unione Industriale di Torino (best graduates 2008-2009)

Teaching

2022, 2023, 2024 — STAT2011 Probability and Estimation Theory, Undergraduate level, University of Sydney, 400 students

2023 — Mapping Child Malnutrition Trends and Determinants, A partnership between the Ministry of National Development Planning of the Republic of Indonesia (BAPPENAS) and the Sydney School of Public Health, PhD level, 20 students

2022, 2023 — MATH1005 Statistical Thinking with Data, Undergraduate level, University of Sydney, 900 students

2019, 2020, 2021 — MATH3871 Bayesian Inference and Computation, Master level, University of New South Wales, 150 students

2021 — ZZSC5960 Bayesian Inference and Computation for Data Scientists, Master level, University of New South Wales, 60 students

2020 — MATH5806 Applied Regression Analysis, Honours level, University of New South Wales, 70 students

2018 — Bayesian Statistics, Master level, Università degli Studi di Torino, 25 students

2017 — Bayesian Statistics, PhD level, European Doctoral School of Demography, 10 students

2016 — Statistical Analysis with R, PhD level, APRIL Summer School on Interdisciplinary Robotics Research Methods, 30 students

— Advanced Statistics, PhD level, Sapienza Università di Roma, 15 students

2015 — Statistique Bayesienne, PhD level, Ecole d'été des jeunes chercheurs du CEREMADE, Raveau

2014 — Introductory course of R - Intensive, Bachelor level, Université Paris-Dauphine, 10 students

2012 — Approximate Bayesian computation, Master level, Sapienza Università di Roma, 15 students

Talks and Presentations

Public Lectures and Keynote Talks

09th June 2025 — "Distance-Based Mixture Models for Prior Specification in Spatial Bayesian Analysis", OBayes 2025, Athens, Greece, 08-12 June 2025 (Invitation-only long talk with discussion by Janet Van Niekerk)

10th September 2024 — "Introduction to Bayesian Statistics: A New Perspective on Probability", Sydney University Maths Society, Sydney, Australia (Public Lecture)

01st August 2024 — "A Bayesian Semiparametric Approach for Long Memory Analysis", BNP Networking Workshop 2024, Singapore, 30 July - 02 August 2024 (Invitation-only long talk)

27th June 2024 — "Approximate Bayesian Computation with Statistical Distances for Model Selection", Satellite workshop to International Society for Bayesian Analysis (ISBA) world meeting, Lugano, Switzerland, 25-28 June 2024 (Invitation-only long talk)

Talks and Presentations (continued)

16th July 2023 — "Clustering MIC data through Bayesian mixture models: an application to detect M. Tuberculosis resistance mutations", VIASM Workshop on Bayesian Statistics, Ho Chi Minh City, Vietnam, 13-22 July 2023 (Keynote talk)

10th September 2022 — "Finding Structures in Observations: Consistent(?) Clustering Analysis", OBayes 2022, Santa Cruz, California, USA, 06-10 September 2022 (Invitation-only long talk with discussion by Garrit Page)

23th March 2022 — "A mixing path from theory to applications", Lancaster Lecture, Statistical Society of Australia, Sydney, Australia (Public lecture)

27 May 2021 — "Approximate Bayesian Conditional Copulas", BISP12 Bayesian Inference in Stochastic Processes Online Workshop, Milan, Italy (and virtual), 27-28 May 2021 (Invitation-only long talk)

09th June 2016 — "Classical inference for intractable likelihoods", S.I.S. Scientific Meeting, 08-10 June 2016, Salerno, Italy (Invited specialized talk)

Invited Talks

10 September 2025 — "Tree-Structured Mixtures for Spatial Prior Specification", CLAssification and Data Analysis Group CLAGAG 2025, Naples (Italy), 8-10 September 2025 (Invited Talk)

01 July 2025 — "Model Probability Maps of Kinetic Heterogeneity in Dynamic Total Body PET using ABC", MATRIX Research Programme: Bayesian Learning of Very High-Dimensional Physical Process Models, Creswick (Australia), 23 June - 4 July 2025 (Invited Talk)

23rd June 2025 — "Consistency Results On Estimating The Number Of Clusters For The Pitman-Yor Process", 14th International Conference on Bayesian Nonparametrics BNP14, Los Angeles (California, USA), 23-27 June 2025 (Invited Talk)

19th June 2025 — Discussant for the session "Simulation-based Bayesian inference: efficiency, robustness, and theoretical results" with speakers D. Frazier, Y. Wang, R. Kelly, BayesComp25, Singapore, 16-20 September (Invited Discussion)

14th December 2024 — "Approximate Bayesian Computation for Factor Copula Models", 18th International Joint Conference CFE-CMStatistics 2024, London (United Kingdom), 14-16 December 2024 (Invited Talk)

04th December 2024 — "Invertibility of Deep Biometric Representations", Sydney Workshop on Mathematics of Data Science, Sydney (Australia), 04-06 December 2024 (Invited Talk)

06th September 2024 — "Some advice for postdoctoral and academic opportunities in Statistics in Europe", University of Sydney PhD Career Event, Sydney (Australia), 06 September 2024 (Invited Talk)

05th September 2024 — "A spatio-temporal stick-breaking process", Royal Statistical Society Annual Conference 2024, Brighton (United Kingdom), 02-05 September 2024 (Invited Talk)

23rd August 2024 — "Bayesian Inference for Hydrology", Murray–Darling Basin Authority, Canberra (Australia), 23 August 2024 (Invited Talk)

24th July 2024 — "Efficient estimation of Bayesian Factor Copula Models", MATRIX Workshop Multivariate Dependence Modeling: Theory and Applications, Creswick (Australia), 22 July - 02 August 2024 (Invited Talk)

17th June 2024 — "An application of the spatio-temporal stick-breaking process", 52nd Riunione Scientifica Società Italiana di Statistica, Bari (Italy), 17-20 June 2024 (Invited Solicited Talk)

Talks and Presentations (continued)

14th June 2024	"Copula modelling with penalized complexity priors", 4th Italian Meeting on Probability and Mathematical Statistics, Rome (Italy), 10-14 June 2024
29th May 2024	"A statistical perspective of STEM", The M in STEM: Where maths can take you! (Engagement event for Years 9-12 students organised by the Faculty of Science of the University of Sydney), Sydney (Australia), 29 May 2024
15th May 2024	"A mixing path from theory to applications", International Women in Mathematics Day Celebration, Sydney (Australia), 15 May 2024
18th December 2023	"Approximate Bayesian computation for long memory processes", ERCIM WG on CMStatistics, Berlin (Germany), 16-18 December 2023
6th December 2023	"Bayesian analysis of long memory processes", Research School of Finance, Actuarial Studies and Statistics 2023 Summer Research Camp, Canberra (Australia), 4-6 December 2023
7th November 2023	"Bacterial drug resistance analysis: a Mycobacterium tuberculosis example", Drug Discovery Initiative and Sydney Precision Data Science Centre Workshop, Sydney (Australia), 7 November 2023
20th July 2023	"Modelling uncertainty in environmental sciences", DARE Centre presentation to Australian Banking Association (ABA), online (Australia), 20 July 2023
7th June 2023	"Bayesian statistical analysis of neurotransmitter activation PET studies", Sydney Pre-BrainPET 23 Workshop, Sydney (Australia), 7 June 2023
10th March 2023	Discussion "Panel Discussion - Female EMCR questions on academic life", Sydney Precision Bioinformatics, Sydney (Australia), 10 March 2023
07th February 2023	Panel Discussion "Panel Discussion - Applying Data Science to Natural Resources: Opportunities and Challenges", DARE 2023 Symposium, Sydney (Australia), 07 February 2023
29th November 2022	"Statistical models to incorporate heterogeneity in spatio-temporal prediction", The Biarri Applied Mathematics Conference "Limits of Predictability", Sydney (Australia), 29 November 2022
24 August 2022	"Statistical models to incorporate heterogeneity in spatio-temporal prediction", The Biarri Applied Mathematics Conference "Limits of Predictability", Sydney (Australia), 29 November 2022
01 July 2022	"Spatio-temporal stick-breaking", ISBA World Meeting 2022, Montreal (Canada), 26th June-01 July 2022
20 December 2021	"Assessing the invertibility of deep biometric representation", CMStatistics 2021 (ERCIM 2021), London 18-20 December 2021
19 December 2021	"Approximate Bayesian conditional copulas", CMStatistics 2021 (ERCIM 2021), London, 18-20 December 2021
05 July 2021	"New formulation of the Logistic-Gaussian process to analyse trajectory tracking data", Australian and New Zealand Statistical Conference 2021 (ANZSC 2021), virtual, 5 July - 09 July 2021
02 July 2021	"The importance of being conservative: Bayesian analysis for mixture models", ISBA World Meeting 2021, virtual, 28 June - 02 July 2021
19 May 2021	"Should the post-pandemic future be data-driven or humanity-driven?", UNSW Debate, Postgraduate Information Evening, The Hyatt Regency, Sydney (Australia)
12 April 2021	"Approximate Bayesian conditional copula", ABC in SVALBARD 2021, virtual, 12-13 April 2021

Talks and Presentations (continued)

- 12 December 2019 — "The importance of being conservative: Bayesian analysis for mixture models", MATRIX Workshop: "Statistical Methods in Data Science", 8-13 December 2019, Creswick (Australia)
- 15 July 2019 — "A Hierarchical Bayesian Spatio-Temporal Model to Estimate the Short-term Effects of Air Pollution on Human Health", GRASPA 2019, 15-16 July 2019, Pescara (Italy)
- 11 July 2019 — "Approximate Bayesian Conditional Copula", MCM19, 08-12 July 2019, Sydney (Australia)
- 29 June 2019 — "Bayesian cluster analysis", O'Bayes2019, 28 June-02 July 2019, University of Warwick (United Kingdom)
- 20 June 2019 — "Approximate Bayesian conditional copula", Second Italian Meeting on Probability and Mathematical Statistics, 17-20 June 2019, Vietri sul Mare (SA), (Italy)
- 17 January 2019 — "GWAS techniques to study M. Tuberculosis' features", Modernising Microbiology Medicine Lab Talk, Oxford (United Kingdom)
- 15 December 2018 — "Dirichlet processes and copulas", 11th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), Pisa (Italy), 14-16 December 2018
- 01 November 2018 — "GWAS for detecting new mutation which affect drug resistance for CRyPTIC", CRyPTIC Annual Meeting, Dubai, United Arab Emirates
- 26th June 2018 — "Modelling Ranking Data with Wallenius Distribution", ISBA World Meeting, Edinburgh (United Kingdom), 25-30 June 2018
- "Introducing spatio-temporal dependence in clustering: from a parametric to a nonparametric approach", ISBA World Meeting, Edinburgh (United Kingdom), 25-30 June 2018
- 20th June 2018 — "Introducing spatio-temporal dependence in clustering: from a parametric to a nonparametric approach", 49th Scientific Meeting of the Italian Statistical Society, Parlermo (Italy), 20-22 June 2018
- 12nd March 2018 — "Towards using the CRyPTIC plate for M. tuberculosis drug susceptibility testing", MMM Conference, Oxford (United Kingdom), 12 March 2018
- 6th November 2017 — "A GWAS analysis of the genus Mycobacterium", CRyPTIC Annual Meeting, Dubai (United Arab Emirates), 5-7 November 2018
- 22nd February 2017 — "Semi-parametric models with copula methods", BIRS "Validating and Expanding Approximate Bayesian Computation Methods", Banff (Canada), 19-24 February 2017
- 8th February 2017 — "Modelling Ranking Data with the Wallenius Distribution", SISBayes 2017, Rome (Italy), 7-8 February 2017
- 9th September 2016 — "Modelling financial dependence through approximate Bayesian inference", Third StaTalk on Computational Tools for Statistical Modelling, Rome (Italy), 9 September 2016
- 16th June 2016 — "Approximate Bayesian computation for semiparametric problems", ISBA World Meeting, Sardinia (Italy), 13-17 June 2016
- 16th May 2016 — "Semiparametric estimation via ABC methods", ABCruise Workshop, Helsinki (Finland), 16-18 May 2016
- 3rd September 2015 — "Approximate Bayesian computation for semiparametric problems", EUSIPCO 2015, Nice (France), 31 August - 4 September 2015
- 7th December 2014 — "Delayed acceptance with prefetching", ERCIM WG on Computational and Methodological Statistics, Pisa (Italy), 6-8 December 2014

Talks and Presentations (continued)

15th July 2014 — "Approximate Integrated Likelihood via ABC methods", ISBA World meeting 2014, Cancun (Mexico), 14-18 July 2014

Invited Seminars

23rd October 2023 — "Some Consistency Results for Bayesian Analysis of Long Memory Processes", One School Seminar series, Sydney Mathematical Research Institute, Sydney (Australia)

29th September 2023 — "A spatio-temporal stick-breaking process", NIASRA Seminar Series, Wollongong (Australia)

8th August 2022 — "Statistical models to incorporate heterogeneity in spatio-temporal prediction", DARE Seminar Series, Online (Australia)

10th May 2022 — "Finding structures in observations: consistent(?) clustering analysis", SMRI Sydney Mathematical Research Institute Colloquium, Sydney (Australia)

1st March 2022 — "A loss-based prior distribution on the number of components of mixture models", SSA Canberra Branch Seminar Series, Online (Australia)

25th November 2021 — "PET-ABC: A Bayesian likelihood-free tool for kinetic models", One World ABC Seminar, Online (United Kingdom)

14th October 2021 — "An overview of clustering methodologies for temporal and spatio-temporal data", University of Nottingham Statistics and Probability Seminar Series, Online (United Kingdom)

25th August 2021 — "Assessing The Invertibility of Deep Biometric Representations", UNSW IFCyber Seminar Series, Online (Australia)

27th July 2021 — "New formulation of the Logistic-Gaussian process to analyse trajectory tracking data", University of Western Australia Statistical Seminar, Online (Australia)

16th April 2021 — "Approximate Bayesian conditional Copula", Monash University Econometrics and Business Statistics Seminar Series, Online (Australia)

12th February 2021 — "The importance of being conservative: Bayesian analysis for mixture models", Queen Mary University of London Spring Seminar Series for the Statistics and Data Science, Online (United Kingdom)

18th September 2020 — "Approximate Bayesian (un)conditional copula", University of Warwick Algorithms & Computationally Intensive Inference Seminar Series, Online (United Kingdom)

25th August 2020 — "Estimating MIC distributions and cutoffs through Bayesian mixture models: an application to M. Tuberculosis resistance", University of Melbourne Statistics Seminar Series, Online (Australia)

3rd February 2020 — "Bacterial genome-wide association techniques and applications: Mycobacterium tuberculosis example", CIDM-PH Seminar Series, Sydney (Australia)

29th November 2019 — "My path as a mixture", UNSW Annual Work Experience Program for Year 10 High School Students, Sydney (Australia)

4th October 2019 — "My mixing path", UNSW Advanced Mathematical Day, Sydney (Australia)

27th September 2019 — "Approximate Bayesian (un)conditional copulas", UNSW Statistical Seminar Series, Sydney (Australia)

16th November 2018 — "Semiparametric Bayesian estimation in copula models", Research Seminar at WU Institute for Statistics and Mathematics, Vienna (Austria)

29th October 2018 — "Bayesian inference for mixture models"", CHI Lab Meeting, Oxford (United Kingdom)

Talks and Presentations (continued)

18th October 2018 — "Bayesian inference for complex systems", UTS Statistical Seminar Series, Sydney (Australia)

15th October 2018 — "Bayesian inference for complex systems", UNSW Statistics Seminar Series, Sydney (Australia)

26th April 2018 — "Hierarchical Dirichlet Processes and copulas", Università degli Studi "Gabriele d'Annunzio" Statistics Seminar Series, Pescara (Italy)

19th April 2018 — "Dirichlet Processes", Università degli Studi "Gabriele d'Annunzio" Statistics Seminar Series, Pescara (Italy)

18th April 2018 — "Bayesian mixture and hidden Markov models and extensions", Università degli Studi "Gabriele d'Annunzio" Statistics Seminar Series, Pescara (Italy)

8th March 2018 — "Towards using the CRyPTIC plate for M. tuberculosis drug susceptibility testing", Nuffield Department of Medicine Lab Talks, Oxford (United Kingdom)

9th February 2018 — "Consistency and Doob's Theorem", BNP Reading Group, Oxford (United Kingdom)

30th November 2017 — "Bayesian Inference for Complex Systems", Queensland University of Technology Statistics Seminar Series, Brisbane (Australia)

20th October 2017 — "Bayesian parametric and nonparametric methods of spatial clustering", Newcastle Statistics Seminar, Newcastle (United Kingdom)

29th September 2017 — "A Flexible Bayesian Model for Clustering Seasonal Time Series With Linear and Circular Components", Bristol Statistics Seminar, Bristol (United Kingdom)

2nd March 2017 — "Genetic relatedness of Neisseria Meningitidis of serogroup C in Italy, 2012-2016", Modernising Medical Microbiology Lab Talks, Oxford (United Kingdom)

7th December 2016 — "Semiparametric Bayesian estimation in copula models", Plymouth University Statistics Seminar Series, Plymouth (United Kingdom)

10th November 2016 — "Approximate Bayesian inference for complex models", University of Melbourne Statistics Seminar Series, Melbourne (Australia)

12nd December 2014 — "Jeffreys prior for mixture models", Séminaire des Jeunes Chercheurs, Paris (France)

13th March 2014 — "Approximate Integrated Likelihood via ABC methods", Bayes in Paris Seminar Series, Paris (France)

20th February 2014 — "Approximate Bayesian computation for the elimination of nuisance parameters", Università degli Studi di Torino Statistics Lunch Seminar, Turin (Italy)

6th February 2014 — Discussion of "Markov Chain Monte Carlo with Linchpin Variables" by Galin Jones (talk presented at MCMSki IV, Chamonix, France), Bayes in Paris Seminar Series, Paris (France)

27th November 2012 — "Approximate Bayesian computation", Spatial Statistics Seminar Series, Rome (Italy)

Contributed Talks

29th November 2024 — "Bayesian Consistency for Long Memory Processes: A Semiparametric Perspective", Time Series and Forecasting Symposium TSF2024, Sydney (Australia), 28-29 November 2024

03th July 2024 — "Bayesian analysis of long memory processes", ISBA World Meeting, Venice (Italy), 1-7 July 2024

6th February 2024 — "Spatio-temporal stick-breaking process", Bayes on the Beach 2024, 5-7 February 2024, Gold Coast (Australia)

Talks and Presentations (continued)

13th December 2023 — "Approximate Bayesian computation for long memory processes", Australian Statistical Conference 2023 (ASC23), 10-15 December 2023, Wollongong (Australia)

13th July 2023 — "Stochastic Variational Inference for GARCH Models", SMC Down Under, 10-13 July 2023, Brisbane (Australia)

25th October 2022 — "Assessing the invertibility of deep biometric representations", Workshop on Statistical Deep Learning, 24-25 October 2022, Sydney (Australia)

02nd November 2020 — "Measuring conditional dependence on astronomical data", ACEMS Retreat 2020, 2-6 November 2020, Online (Australia)

09th July 2020 — "New formulation of the Logistic-Gaussian process to analyze trajectory tracking data", SSA+NZSA Virtual Mini-Conference, 9 July 2020, Online (Australia)

25th June 2020 — "Bayesian spatial model for lichen abundance data", vISEC2020, 22-26 June 2020, Online (Australia)

23rd January 2019 — "Bayesian spatial model for lichen abundance data", Spatio-temporal modeling of ecological data Workshop, 22-23 January 2019, Bergamo (Italy)

5th July 2017 — "Approximate Bayesian inference in semiparametric copula models", Copula and Their Application to Commemorate the 75th Birthday of Professor Roger B. Nelsen, 3-5 July 2017, Almeria (Spain)

23rd May 2017 — "Copula models for genetical applications', Oxford Statistical Genetics Retreat, 23-24 May 2017, Witney (United Kingdom)

28th October 2016 — "Approximate Bayesian Computation for Copula Estimation", European Seminar on Bayesian Econometrics (ESOBE), 27-28 October 2016, Venice (Italy)

21st June 2016 — "Noninformative Analysis for Mixture Models: A Hierarchical Story", Third BAyesian Young Statistician Meeting (BAYSM), 19-21 June 2016, Florence (Italy)

26th February 2016 — "Approximate Bayesian computation for copula estimation", Sapienza Università di Roma Giornata della Ricerca, 25-26 Febuary 2016, Rome (Italy)

12nd December 2015 — "Approximate Bayesian computation for model choice", 8th International Conference of the ERCIM WG on Computational and Methodological Statistics, 12-14 December 2015, London (United Kingdom)

12nd February 2015 — "Jeffreys priors for mixture estimation", Riunione Scientifica della Scuola di Dottorato di Scienze Statistiche Sapienza University of Rome, 12 February 2015, Rome (Italy)

19th September 2014 — "Jeffreys Priors for Mixture Models", 2nd BAYSM 2014, 18-19 September 2014, Vienna (Austria)

27th September 2013 — "Approximate Bayesian computation for the elimination of nuisance parameters", Riunione Scientifica della Scuola di Dottorato di Scienze Statistiche Sapienza University of Rome, 27 September 2013, Vienna (Austria)

6th June 2013 — "Approximate Bayesian computation for the elimination of nuisance parameters", 1st BAyesian Young Statistician Meeting (BAYSM), 5-6 June 2013, Milano (Italy)

Poster Presentations

25th November 2019 — Grazian, C., Fontanella, L., Valentini, P., and Ippoliti, L. "A Hierarchical Bayesian Spatio-Temporal Model to Estimate the Short-Term Effects of Air Pollution on Human Health", Bayes On The Beach 2019, 25-27 November 2019, Gold Coast (Australia)

Talks and Presentations (continued)

15th April 2019 — Lo Presti, A., Neri, A., Fazio, C., Vacca, P., Ambrosio, L., Grazian, C., Liseo, B., Rezza, G., and Stefanelli, P. "Evaluation of the spatio-temporal origin of C:P!.5-1,10-8:F3-6:ST-11(cc11) meningococcal isolates in Italy through a Bayesian model", ECCMID 2019, 13-16 April 2019, Amsterdam (Netherlands)

27th June 2017 — "Approximate Bayesian inference in semiparametric copula models", Bayesian Nonparametrics BNP XI 2017, 26-30 June 2017, Paris (France)

5th September 2016 — Stefanelli, P., Fazio, C., Anselmo, A., Vacca, P., Ciammaruconi, A., Ambrosio, L., Fortunato, A., Palozzi, A.M., Fillo, S., Lista, F. Liseo, B., Grazian, C., and Neri, A. "Genetic relatedness of Neisseria meningitidis of serogroup C in Italy, 2012-2015", IPNC 2016, 4-6 September 2016, Manchester (United Kingdom)

5th January 2016 — "Approximate Bayesian computation for copula estimation", MCMSki V 2016, 4-7 January 2016, Lenzerheide (Switzerland)

3rd June 2015 — "Jeffreys Priors for Mixture Estimation", OBayes 2015, 1-5 June 2015, Valencia (Spain)

11th June 2014 — "Jeffreys Priors for Mixture Models", SIS Scientific Meeting 2014, 11-13 June 2014, Cagliari (Italy) - **Best Poster Award**

6th June 2014 — "Approximate Bayesian computation for the elimination of nuisance parameters", MCMSki IV, 6-8 January 2014, Chamonix (France) - **Best Poster Award**

9th September 2013 — "Approximate Bayesian computation for the elimination of nuisance parameters", S.Co., 9-11 September 2013, Milano (Italy)

30th May 2013 — "Approximate Bayesian computation for the elimination of nuisance parameters", BC in Rome, 30-31 May 2013, Rome (Italy)

Governance and leadership appointments

University of Sydney roles

2025 - current — **Academic Planning & Development (AP&D)**, School of Mathematics and Statistics, University of Sydney.

2024 - current — **Associate Head of School Equality Diversity and Inclusion**, School of Mathematics and Statistics, University of Sydney.

2022 - current — **Coordinator of the Honours Programme in Data Science**, School of Mathematics and Statistics, University of Sydney.

2023 — **Coordinator of the Honours Programme in Statistics**, School of Mathematics and Statistics, University of Sydney.

2024 — **Member of the School Committee to Evaluate Special Studies Program applications**: representative of the Statistics Division (Semester 2, 2024)

Governance and leadership appointments (continued)

2021 - current — **Member of the Hiring Committees:** Job 0134594 Postdoctoral Research Associate in fair machine learning and large language models (July 2025), Job 0106196 Associate Lecturer in Aeronautical Engineering at the University of Sydney (Education Focused) (August 2024), Job 0109390 Research Fellow (Level B) at the Image X Institute (Oct 2023), Job 0107616 (0106900) School of Mathematics and Statistics - University of Sydney: Sydney Horizon Fellowships (Climate Change, Health and Sustainability) (Jun 2023), Job 0100626 Lecturer / Senior Lecturer in Statistical/Mathematical Data Science at the School of Mathematics and Statistics - University of Sydney (Dec 2022 - Jun 2023), Job 0098840 Postdoctoral Research Fellow in Mathematics and AI at SMRI - University of Sydney (Jan-Mar 2023), Job 0098843 Postdoctoral Research Associate in Mathematics and AI at SMRI - University of Sydney (Jan-Mar 2023), Job 502906 Postdoctoral Fellow School of Economics UNSW (Oct-Nov 2021)

Other Universities and Research Institutes

2022 - current — **Chief Investigator**, ARC Training Centre in Data Analytics for Resources and Environments (DARE)

2021 - current — **Member of the PhD Committee**, MEMOTEF Department, Sapienza Università di Roma.

2020 - 2022 — **Representative of Statistics**, School Executive Board, School of Mathematics and Statistics, University of New South Wales.

Coordinator of the Honours Programme in Quantitative Data Science, School of Mathematics and Statistics, University of New South Wales.

2019 - 2021 — **Associate Investigator**, ARC Centre of Excellence for Mathematical & Statistical Frontiers (ACEMS)

2019-2021 — Member of the Faculty of Science Equity, Diversity and Inclusion Working Group (SEDIWG), University of New South Wales

Industry and Professional Societies

2025-current — **Member of the ISBA** (International Society of Bayesian Analysis)'s **Board of Directors**

2021-2024 — **Vice-president** (2021,2024) **and President** (2022-2023) of the NSW Branch of the Statistical Society of Australia

2022 - 2023 — **Executive Advisor**, GreenDynamics, (Industries Renewable Energy Semiconductor Manufacturing Company).

2022 — **Delegate** at Science & Technology's (STA) Science Meets Parliament 2022

2018 - 2024 — **Member of the Scientific Committees for the Following Awards:** Savage Award - Applied Methodology (2025), Blackwell-Rosenbluth Award (2024), Savage Award - Theory and Methods (2022), Lindley Prize (2022), Blackwell-Rosenbluth Award (2021), Lindley Prize (2020), J.B. Douglas Postgraduate Award of the New South Wales Branch of the Statistical Society of Australia (2021,2022,2023)

2018 — Member of the Best Poster Award committee at the 49th Scientific Meeting of the Italian Society of Statistics, 20 - 22 June 2018, Palermo (Italy)

2019-2021 — Member of the Equality and Opportunity Committee (Chair in 2021), School of Mathematics and Statistics, University of New South Wales

2017-2019 — Member of the safeISBA committee, working on the Code of Conduct and Protocol in Case of Misconduct of ISBA

Governance and leadership appointments (continued)

2018 - 2023 — **Member of Statistical Societies Committees**, Vice-Chair of the Emerging Application Section of the Royal Statistical Society (2017-2022), Member of the Professional Conduct Committee of ISBA (2019-2021), Member of the safeISBA committee (2017-2018), Treasurer of the j-ISBA Section of ISBA (2017-2018), Member of the Committee of the Bayes Section of the Statistical Society of Australia (2019 - current), Social Media Manager of the New South Wales Branch of the SSA (2019 - 2020), Member of the Committee Board of young-SIS, the Early Career Section of the Italian Society of Statistics (2014-2015)

Editorial Activity

2024 - current — Statistical Methods and Applications, Associate Editor

2023 - current — Australian & New Zealand Journal of Statistics, Associate Editor

2022 - current — Bayesian Analysis, Associate Editor

2021 - 2024 — Journal of the Royal Statistical Society Series A, Associate Editor

2019 - 2022 — Journal of the Royal Statistical Society, Associate Editor: Discussion Meeting Papers

2019-2020 — Member of the Program Committee for AAAI-20, the 34th AAAI Conference on Artificial Intelligence, 7-12 February 2020, New York (USA)

2012 - current — Recognized reviewer for the following statistical journals: "Journal of the Royal Statistical Society - Series B", "Journal of the American Statistical Association","Biometrika", "Journal of Machine Learning Research", "Journal of the Royal Statistical Society - Series C", "Journal of the Royal Statistical Society - Series A", "Statistics and Computing", "Journal of Computational and Graphical Statistics", "Statistics in Medicine","Bayesian Analysis","Annals of Applied Statistics","Biometrics", "Computational Statistics and Data Analysis", "Journal of Statistical Planning and Inference", "SMA Statistical Methods Application","'Nature Scientific Reports", 'Nature Computational Science", "PLOS Computational Biology", "BMC Medical Research Methodology","Methods in Ecology and Evoltion", "Journal of Spatial Science", "Econometrics & Statistics", "Dependence Modeling", "Statistics", "Computational Statistics","Applied Mathematical Modelling","IEEE Access", "Metron", "Stat", "International Journal of Forecasting", "Statistics & Probability Letters", "Statistics & Its Interface", "Journal of Statistical Computation and Simulation", "Soustanability","Stats","Risks", "Entropy", "Iranian Journal of Science and Technology Transaction A: Science", "The Open Statistics & Probability Journal"

Recognized reviewer for the following machine learning conferences: "NeurIPS 2020", "ICML 2020", "NeurIPS 2019","ICML 2019", "AI & Statistics 2019" (AISTATS 2019), "NIPS 2018", "AI & Statistics 2018" (AISTATS 2018), "AI & Statistics 2017" (AISTATS 2017), "AI & Statistics 2016" (AISTATS 2016), "2016 IEEE Workshop on Statistical Signal Processing" (SSP 16), SIS2015 Statistical Conference 'Statistics and Demography: the Legacy of Corrado Gini"

2018 — Reviewer for the Book "BAYSM 2018 Springer Book on Mathematics and Statistics"

Organisation

Events

2024 — Member of the Scientific Committee of the SNF Satellite Event at ISBA 2024, 25-28 June 2024, Lugano (Switzerland)

2023-current — Organiser of the One World ABC Seminar Series, University of Warwick, United Kingdom

Organisation (continued)

2022-2023 — Chair of the Organising Committee of the Australian Statistical Conference 2023 (ASC23), 10-15 December 2023, Wollongong (NSW) (320 attendants)

2022 — Chair and Organiser of the RSS Discussion Meeting for the paper "Vintage Factor Analysis with Varimax Performs Statistical Inference" by Karl Rohe and Muzhe Zeng (University of Wisconsin-Madison) published in the Journal of the Royal Statistical Society - Series B, 12 May 2022

2021 — Member of the Organising Committee of the Joint UNSW/Data61 Workshop on the "Role of AI and Data Science to Enable Cybersecurity", 19 October 2021, Sydney (Australia). Chair of the virtual poster session

Member of the Organising Committee Australian and New Zealand Statistical Conference 2021 (ANZSC 2021), Marketing and Communications Officer, 5-9 July 2021, Online (Australia). Marketing and Communications Officer. (350 attendants)

2019 — Member of the Organising Committee of GRASPA2019, 15-16 July 2019, Pescara (Italy). (150 attendants)

2018 — Member of the Organising Committee of Young Statisticians Meeting (YSM) 2018, 30-31 July 2018, Oxford (United Kingdom) (150 attendants)

Member of the Organising Committee of the "Resistance is Futile: Royal Society Summer Science Exhibition", 2-8 July 2018, London (United Kingdom) (45,000 attendants)

2017 — Member of the Organizing Committee of the First SISBayes Meeting, 7-8 February 2017, Rome (Italy) (75 attendants)

2016-2017 — Promoter and organizer of the PhD students seminar at the PhD School of Economics at Sapienza Università di Roma

2016 — Chair of the Organising Committee of the Third StaTalk on "Computational Tools for Statistical Modelling", 9 September 2016, Rome (Italy)

2014 — Member of the Organising Committee of the First IYSM 2014 International Young Statistician Meeting, y-SIS Satellite Event of the XLVII Scientific Meeting of the Italian Statistical Society, 14 June 2014, Cagliari (Italy)

Sessions and Seminars

2024 — Organisation of the invited session "Bridging the Gap: Bayesian Statistics and Machine Learning for Enhanced Data Modeling", ISBA World Meeting, July 1-7 2024, Venice (Italy) - Speakers: Ethan Goan (Queensland University of Technology), Qian Jin (University of New South Wales), Andrew Zammit-Mangion (University of Wollongong)

Organisation of the invited session "Frontiers in spatio-temporal modelling: Advancements in ecology and epidemiology", Satellite Workshop to ISBA World Meeting 2024, 25-28 June 2024, Lugano (Switzerland) - Speakers: Gianluca Mastrantonio (Politecnico di Torino, Italy), Marco Mingione (Universit à Roma Tre), Sara Martino (Norwegian University of Science and Technology), Julie Vercelloni, (QUT, and Australian Institute of Marine Science)

2023 — Organization of the invited session "IPS5 Bayesian Statistics", Australian Statistical Conference 2023 (ASC23), 10-15 December 2023, Wollongong (Australia)

2022 — Organization of the invited session "Fast Variational Bayes", ISBA World Meeting 2022, 26 June - 1 July 2022, Montreal (Canada)

2021 — Organization of the invited session "Data science and cybersecurity", 11th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics), 18-20 December 2021, London/Virtual (United Kingdom)

Organisation (continued)

- Organization of the invited session "Panel Session: Challenges of the COVID-19 pandemic", Royal Statistical Society Annual Conference 2021, 6-9 September 2021, Manchester/Virtual (United Kingdom)
- Organization of the invited session "Bayesian nonparametrics for high-dimensional data", Australian and New Zealand Statistical Conference 2021 (ANZSC 2021), 5-9 July 2021, Virtual (Australia)
- Organisation of the Bayes Section of the SSA Webinar "Parallel Tempering on Optimized Paths", Speaker: Dr Trevor Campbell (University of British Columbia), 1 April 2021, Online (Australia)

2018

- Organization of the invited session "Statistical models for environmental processes and human activities", 11th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), 14-16 December 2018, Pisa (Italy)
- Organization of the invited session "Bayesian approaches to spatio-temporal clustering", ISBA World Meeting 2018, 25-30 June 2018, Edinburgh (United Kingdom)
- Organization of the session "Bayesian approaches of young researchers to intractable models", i-Like Workshop 2018, 20-22 June 2018, Newcastle (United Kingfom)

2017

- Organization of the invited session "Nonparametric Bayesian analysis of copula models", 10th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), 16-18 December 2017, London (United Kingdom)
- Organization of the session "Junior research in Bayesian modeling for high-dimensional data", Joint Statistical Meeting (JSM) 2017, 29 July - 3 August 2017, Baltimore (USA)

2015

- Organization of the session "Network Graphical Models and Relational Data", Italian Society of Statistics (S.I.S) Meeting 2015 "Statistics and Demography: The Legacy of Corrado Gini", 9-11 September 2015, Treviso (Italy)

Engagement

2023-current

- In charge of the "Clara-fications" of the Institute of Mathematical Statistics (IMS) Bulletin

2023

- Participation to the Franklin Women Mentoring Program as a Mentee

2021

- Guardian of the Data Science and Decisions Ambassador Program, School of Mathematics and Statistics, UNSW.

2020-2022

- Participation to the "Sisters Who Shine" programme, to provide young girls with the opportunity to connect with and understand their rural community from a scientific, cultural heritage, innovative, nature and empowerment perspective

2021

- Participation to the Debate "Should the post-pandemic future be data-driven or humanity-driven?", UNSW Debate, Postgraduate Information Evening, 19 May 2021, The Hyatt Regency, Sydney.

2021-2022

- Participation to the Statistical Society of Australia Mentoring Program as mentor

Engagement (continued)

2021	UNSW MathSoc Panel Cast. Participation to the Panel Discussion of "Episode 1: What do Mathematicians do?", 17 March 2021, Sydney (Australia) (40 participants).
2020	Judge for the Best Presentation Award for the UNSW DataSoc x Atlassian's Datathon, 4 October 2020, Sydney (Australia)
2019-2020	Participation to the UNSW Women in Maths & Science Champions Program with 30 hours of engagement activities with Universities and High School students
2020	Participation to the ACEMS 2020 Women in Mathematics Day Celebrations
	Participation to the Spotlight on Women in Maths in Australia
2019	Judge for the Best presentation award for the Annual Work Experience Program for Year 10 high school students, UNSW, 29 November 2019, Sydney (Australia)
2018	Author of the j-ISBA section of the ISBA Bulletin
2017-2019	Main Curator of the Bayes' Food Cake blog