Michael Salter-Townshend, Ph.D., M.Sc.

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Present Appointment

Assistant Professor, School of Mathematics and Statistics, University College Dublin.

Previous Appointments

Postdoctoral Researcher, Simon Myers Group, Dept. of Statistics, University of Oxford. (2013-2016)
Junior Research Fellow, Mansfield College, University of Oxford (2013-2016).
Postdoctoral Researcher, Clique Cluster, University College Dublin (2009-2013).

Qualifications

Ph.D. Statistics, Trinity College Dublin, (2004-2008).
M.Sc. High Performance Computing, Trinity College Dublin, (2003-2004).
B.A. Mod. Computational Physics, Trinity College Dublin, (1999-2003).

Lecturer

Time Series, University College Dublin (2017-).
Bayesian Analysis, University College Dublin (2017-).
Statistics Using R for Computational Biologists, University College Dublin (2011, 2012, 2013).
Case Studies in Simulation Science, University College Dublin (2013).
Statistics and Mathematics in Computational Biology, University College Dublin (2009, 2010).
Transferable Skills: Statistics I and II (Ph.D. level), University College Dublin (2010, 2011).
Advanced Quantitative Research Methods module, School of Nursing, Trinity College Dublin (2007).
Introduction to Management Science, Dept. of Statistics, Trinity College Dublin (2007).

Tutor

Visiting Students' Tutor in Statistics, Mansfield College, University of Oxford (2015, 2016).
Stochastic Models in Mathematical Genetics, University of Oxford (2014, 2015).
Introduction to Unix, School of Mathematics, Trinity College Dublin (2005-2006).
Numerical Computing, School of Mathematics, Trinity College Dublin (2005-2007).

Graduate Student Supervision

- Jinbo Zhao, Ph.D. Research Demonstrator, School of Mathematics and Statistics, UCD (2017-).
- Catherine Mahoney, Ph.D. Bioinformatics and Systems Biology, UCD (2019-).
- Prabhleen Kaur, Ph.D. SFI CRT Foundations of Data Science, UCD (2019-).
- James Ward, Ph.D. SFI CRT Genomics Data Science, UCD (2019-).
- Chiara Cotroneo, Ph.D. Computational Infection Biology, UCD (2017-2020).
- M.Sc. in Statistics, University College Dublin (2017,2018,2019,2020,2021).
- M.Sc. in Data and Computational Science, University College Dublin (2017,2018,2019,2021).
- M.Sc. in Actuarial Science, University College Dublin (2017).
- M.Sc. in Applied Statistics, University of Oxford (2014, 2016).

Professional Activities

- Director of Online Programmes, School of Mathematics and Statistics, UCD (2017-).
- Statistician, Animal Research Ethics Committee, UCD (2017-).
- Education Officer, Irish Statistical Association (2017-).
- Organising Committee, Conference of Applied Statistics Ireland (2017).
- Refereeing: Genetics; Biometrika; Machine Learning; Annals of Applied Statistics; Journal of the Environmetrics Society; Journal of Statistics and Computing; Transactions on Knowledge and Data Engineering; Pattern Analysis and Applications; International Statistical Institute World Congress 2011, NIPS (2014), AISTATS (2012,2013).
- Organiser of DPhil / postdoc seminar series, Dept. of Statistics, University of Oxford (2013-2016).

- Green Impact committee, Dept. of Statistics, University of Oxford (2013-2016).
- Interview board for hiring to CeADAR (Centre for Applied Data Analytics Research) (2013).
- Exam marking for Mathematics, University of Oxford, (2015, 2016).
- Facilitator of academic taster sessions and application conferences for Mansfield College (2015).
- Irish Supercomputer List Maintenance Committee (2013-2017).

Journal Publications

"Fine-scale Inference of Ancestry Segments without Prior Knowledge of Admixing Groups", Michael Salter-Townshend, Simon R. Myers, Genetics (2019).

"Statistical challenges in estimating past climate changes", J. Sweeney, M. Salter-Townshend, T. Edwards, C.E. Buck, A.C. Parnell, WIREs Computational Statistics (2018).

"Latent Space Models for Multiview Network Data", M. Salter-Townshend, T.H. McCormick, Annals of Applied Statistics (2017).

"Online Trans-dimensional von Mises-Fisher Mixture Models for User Profiles", X. Qin, P. Cunningham, M. Salter-Townshend, Journal of Machine Learning Research (2016).

"The influence of network structures of Wikipedia discussion pages on the efficiency of WikiProjects", X. Qin, P. Cunningham, M. Salter-Townshend, Social Networks (2015).

"Role Analysis in Networks using Mixtures of Exponential Random Graph Models", M. Salter-Townshend, T.B. Murphy, Journal of Computational and Graphical Statistics (2014).

"Bayesian Inference for Palaeoclimate with Time Uncertainty and Stochastic Volatility", A.C. Parnell, J. Sweeney, T.K. Doan, M. Salter-Townshend, J.R.M. Allen, B. Huntley, J. Haslett, JRSS Series C (2014).

"Mixtures of Biased Sentiment Analysers", M. Salter-Townshend, T.B. Murphy, Advances in Data Analysis and Classification (2014).

"Variational Bayesian Inference for the Latent Position Cluster Model", M. Salter-Townshend, T.B. Murphy, Computational Statistics and Data Analysis (2012).

"Fast Inversion of a Flexible Regression Model for Multivariate Pollen Counts Data", M. Salter-Townshend, J. Haslett, Environmetrics (2012).

"Review of Statistical Network Analysis: Models, Algorithms, and Software", M. Salter-Townshend, A. White, I. Gollini, T. B. Murphy, Statistical Analysis and Data Mining (2012).

Discussion on "Approximate Bayesian Inference for Latent Gaussian Models Using Integrated Nested Laplace Approximations", M. Salter-Townshend, J. Haslett, N. Friel, JRSS Series B (2009).

"Bayesian Palaeoclimate Reconstruction," J. Haslett, M. Whiley, S. Bhattacharya, M. Salter-Townshend, S. Wilson, J.R.M Allen, B. Huntley, F.J.G. Mitchell, Read Paper, JRSS Series A (2006).

Book Chapters

"Sentiment analysis of online media", M. Salter-Townshend, T.B. Murphy, Algorithms from and for Nature and Life. Studies in Classification, Data Analysis, and Knowledge Organization (2012).

Peer Reviewed Conference Proceedings

"Exploring the Relationship between Membership Turnover and Productivity in Online Communities", X. Qin, M. Salter-Townshend, P. Cunningham, ICWSM 8 (2014).

"Latent space models for multiview network data", M. Salter-Townshend, T.H. McCormick, IEEE GlobalSIP Symposium on Emerging Challenges in Network Sensing, Inference, and Communication

(2013).

"Clustering Biased Sentiment Analysers", M. Salter-Townshend, T.B. Murphy, MBC2, Catania, Sicily, Italy (2012).

"Bias Correction in Sentiment Analysis", M. Salter-Townshend, T.B. Murphy, invited paper to Symposium of the International Federation of Classification Societies, (with proceedings) (2011).

"A Latent Space Mapping for Link Prediction", M. Salter-Townshend, A. Brew, NIPS Workshop on Networks across Disciplines in Theory and Applications (2010).

"Variational Bayesian Inference for the Latent Position Cluster Model", M. Salter-Townshend, T.B. Murphy, Analyzing Networks and Learning With Graphs workshop, NIPS (2009).

"Zero-Inflation of Compositional Data", M. Salter-Townshend, J. Haslett, Proceedings of the 21st International Workshop on Statistical Modelling (2006).

"Modelling Temporal Uncertainty in Palaeoclimate Reconstructions", J. Haslett, A. Parnell, M. Salter-Townshend, Proceedings of the 21st International Workshop on Statistical Modelling (2006).

Magazine Articles

"Analysing My Facebook Friends", M. Salter-Townshend, Significance, magazine of the Royal Statistical Society and the American Statistical Association (2012).

Ph.D. Thesis

"Fast Approximate Inverse Bayesian Inference in non-parametric Multivariate Regression (with application to palaeoclimate reconstruction)", Trinity College Dublin (2009).

Invited International Conference Presentations

"Clustering-by-Role: Modelling Ego Networks as mixtures of ERGMs", M. Salter-Townshend, T.B. Murphy, invited paper to International Statistical Institute World Congress, Dublin, Ireland (2011).

"Variational Bayesian Inference for the Latent Position Cluster Model", M. Salter-Townshend, T.B. Murphy, Modelling and Computation for Social Networks, Pacific Institute for the Mathematical Sciences, Whistler, Canada (2010).

"Variational Bayesian Inference for the Latent Position Cluster Model", M. Salter-Townshend, T.B. Murphy, Statistical Methods for the Analysis of Network Data in Practice (2009).

Published Software

MOSAIC is a tool for modelling multiway admixture using dense genotype data. Available at `https://maths.ucd.ie/~mst/MOSAIC/`

VBLPCM (Variational Bayesian inference for the Latent Position Cluster Model for networks), R package published on the CRAN network.

R code for the example problems in "Review of Statistical Network Analysis: Models, Algorithms and Software", available at `https://maths.ucd.ie/~mst/networks/R/`

Honours and Awards

Teaching Excellence Award, College of Science, UCD (2020).
Recognition Award, Dept. of Statistics, University of Oxford (2015).
Junior Research Fellowship, Mansfield College, University of Oxford (2014).
Norwegian Government Scholarship Pool funding to visit NTNU in Trondheim (2007).
Student Poster award, Conference of Applied Statistics in Ireland (2007).
Four year Ph.D. funding from Science Foundation Ireland (2004).
Graduated top of Computational Physics class, Trinity College Dublin (2003).

Referees

Prof. Simon Myers
Dept. of Statistics
University of Oxford
myers@stats.ox.ac.uk

Prof. Thomas Brendan Murphy
School of Mathematical Sciences
University College Dublin
brendan.murphy@ucd.ie