PERSONAL INFORMATION

Hien Duy Nguyen

Department of Mathematics and Statistics, La Trobe University, Melbourne 3086, VIC Australia

+61 0 434 253 952

h.nguyen5@latrobe.edu.au

hiendn.github.io

ACADEMIC AND RESEARCH POSITIONS

2020– **Deputy Head of Department**
Department of Mathematics and Statistics
La Trobe University, Melbourne, Australia

2019– **Senior Lecturer**
Department of Mathematics and Statistics
La Trobe University, Melbourne, Australia

2016–2020 **DECRA Research Fellow**
Australian Research Council (ARC) grant number: DE170101134.
La Trobe University, Melbourne, Australia

Project: Feasible algorithms for big inference.

2016–2019 **Lecturer**
Department of Mathematics and Statistics
La Trobe University, Melbourne, Australia

2018, 2019 **Visiting Research Fellow**
Mistis Team
Inria Grenoble Rhone-Alpes, France

2015, 2019 **Visiting Research Fellow**
SIMEXP Laboratory
Centre de Reserche de l'Institut Universitaire de Geriatrie de Montreal, Canada

2017, 2018 **Visiting Research and Teaching Fellow**
Lab of Mathematics: Nicolas Oresme
University of Caen, France

2015–2016 **Postdoctoral Research Fellow**
School of Mathematics and Physics, and Centre for Advanced Imaging
University of Queensland, Brisbane, Australia

Supervisors: Dr Andrew Janke and Prof Geoffrey McLachlan
Project: Mixture modelling for multimodal medical imaging data

2010 **Vacation Research Scholar**
Diamantina Institute, University of Queensland, Brisbane, Australia

Supervisor: Dr Michelle Hills
Project: Bioinformatics for clinical proteomics

2009 **Research Assistant**
Commonwealth Scientific and Industrial Research Organisation, Australia

Supervisors: Dr Andrew George and Dr Emma Huang
Project: Genome-wide association study of wheat crop traits

2008 **Vacation Research Scholar**
Commonwealth Scientific and Industrial Research Organisation, Australia

Supervisors: Dr Andrew George and Dr Emma Huang
Project: Association analysis in sugarcane—on the hunt for sugar genes

TERTIARY EDUCATION

2011–2015 **PhD in Statistics** (Dean's Award for Outstanding RHD Theses)
University of Queensland, Brisbane, Australia

Supervisors: Prof Geoffrey McLachlan, Dr Ian Wood, and Dr Andrew Janke

Thesis title: Finite mixture models for linear regression data

Key words: Expectation-maximization algorithm, false discovery rate control, minorization-maximization algorithm, mixture model, neuroimaging, numerical optimization, random-effect models, regression

2006–2011 **Bachelor of Science with First Class Honours in Statistics** (Mathematics and Statistics majors; University Medal)
University of Queensland, Brisbane, Australia

Supervisor: Dr Ian Wood and Dr Andrew George

Thesis title: Variable selection in linear models using metaheuristic algorithms with applications in genome-wide association studies

2010 **Study Abroad** (Scholarship; Spring Semester)
University of California, Berkeley, USA

2006–2010 **Bachelor of Economics**
University of Queensland, Brisbane, Australia

TEACHING AND INSTRUCTION

2018 **Optimization theory for statistics and machine learning** (University of Caen)

A series of five lectures and three computer practical sessions were taught on the topic of optimization theory and its application to statistics and machine learning problems. The course concentrated on the fundamental theory of optimization with an emphasis on the framework of majorization-minimization algorithms. Applications of focus included regularized smooth and non-smooth regression, estimation of generalized support vector machines, and maximum likelihood estimation of latent variable models such as mixed effects and finite mixture models. Computer classes concentrated on the construction of algorithms using the R programming language.

Capacity: Visiting Teaching Fellow, Lab of Mathematics: Nicolas Oresme

2018 **Models for bioinformatics** (STA5MB, La Trobe University)

A series of two lectures was taught on the topics of k-means clustering, model-based clustering, the expectation maximization algorithn, empirical-Bayesian inference and false discovery rate control, with applications in bioinformatics.

Capacity: Lecturer, Department of Mathematics and Statistics

2016 **Experimental design** (STAT3003, University of Queensland)

A series of four lectures was taught on the topic of sampling theory and finite population statistics.

Capacity: Casual Lecturer, School of Mathematics and Physics

2009–2014 **Tutor** (School of Economics, University of Queensland)

Provided instruction in various mathematical and quantitative courses that were taught by the School of Economics, University of Queensland including undergraduate and postgraduate courses.

Undergraduate: Applied econometrics for macroeconomics and finance (ECON3350; 2014), Mathematical economics (ECON2050; 2012–2014), Tools of economic analysis (ECON1050; 2011, 2014), Introductory econometrics (2300; 2012), Quantitative economics and business analysis B (ECON1320; 2009–2012), Quantitative economics and business analysis A (ECON1310; 2009)

Postgraduate: Mathematical techniques for economics (ECON7150; 2013, 2014), Statistics for business and economics (ECON7300; 2010–2013), Elements of econometrics (ECON7310; 2012)

2007–2014 **Tutor** (School of Mathematics and Physics, University of Queensland)

Provided instruction across the catalog of courses taught by the School of Mathematics and Physics, including various courses in mathematics, probability, and statistics, as well as service-type quantitative courses for students outside of the school.

Mathematics: Multivariate calculus and ODE (MATH1052; 2008, 2012), Calculus and linear algebra II (MATH2000; 2010), Calculus and linear algebra I (MATH1051; 2009), Basic mathematics (MATH1040; 2007)

Statistics: Advanced analysis of scientific data (STAT1301; 2014), Experimental design (STAT3003; 2012, 2013), Analysis of scientific data (STAT1201; 2008–2011), Analysis of engineering and scientific data (STAT2201; 2009), Probability models for engineering and science (STAT2203; 2008)

Service: Biomedical science (BIOM3200; 2012–2014), Research methodology (HRSS7806; 2011–2013), Pharmacy – data analysis and professional practise (PHRM1020; 2008, 2009, 2011), Advanced research processes in health sciences (HRSS7808; 2010)

Journal Articles

[1] M Vladimirova, S Girard, H Nguyen, and J Arbel. Sub-Weibull distributions: generalizing sub-Gaussian and sub-Exponential properties to heavier-tailed distributions. *Stat*, to appear, 2020.

[2] E Redivo, H Nguyen, and M Gupta. Bayesian clustering of skewed and multimodal data using geometric skew normal distributions. *Computational Statistics and Data Analysis*, to appear, 2020.

[3] T T Nguyen, H D Nguyen, F Chamroukhi, and G J McLachlan. Approximation by finite mixtures of continuous density functions that vanish at infinity. *Cogent Mathematics and Statistics*, 7:1750861, 2020.

[4] H D Nguyen, F Forbes, and G J McLachlan. Mini-batch learning of exponential family finite mixture models. *Statistics and Computing*, 30:731–748, 2020.

[5] H D Nguyen, J Arbel, H Lü, and F Forbes. Approximate Bayesian computation via the energy statistic. *IEEE Access*, to appear, 2020.

[6] J Arbel, O Marchal, and H D Nguyen. On strict sub-Gaussianity, optimal proxy variance and symmetry for bounded random variables. *ESAIM: Probability and Statistics*, 24:39–55, 2020.

[7] L Truong, H Nguyen, H Nguyen, and H Vu. Pedestrian overpass use and its relationship with digital and social distractions, and overpass characteristics. *Accident Analysis and Prevention*, 131:234–238, 2019.

[8] H D Nguyen, Y Yee, G J McLachlan, and J P Lerch. False discovery rate control for grouped or discretely supported p-values with application to a neuroimaging study. *SORT*, 43:1–22, 2019.

[9] H D Nguyen and G J McLachlan. On approximation via convolution-defined mixture models. *Communications in Statistics - Theory and Methods*, 48:3945–3955, 2019.

[10] H D Nguyen, F Chamroukhi, and F Forbes. Approximation results regarding the multiple-output mixture of linear experts model. *Neurocomputing*, 366:208–214, 2019.

[11] H D Nguyen. Asymptotic normality of the time-domain generalized least squares estimator for linear regression models. *Stat*, 8(e248), 2019.

[12] A T Jones, J J Bagnall, and H D Nguyen. BoltzMM: an R package for maximum pseudolikelihood estimation of fully-visible Boltzmann machines. *Journal of Open Source Software*, 4:1193, 2019. https://doi.org/10.21105/joss.01193.

[13] D Fryer, H Nguyen, and P Orban. studentlife: tidy handling and navigation of a valuable mobile-health dataset. *Journal of Open Source Software*, 4(40), 2019.

[14] F Chamroukhi and H D Nguyen. Model-based clustering and classification of functional data. *WIREs Data Mining and Knowledge Discovery*, e1298, 2019.

[15] J Bagnall, A Jones, N Karavarsamis, and H Nguyen. The fully-visible Boltzmann machine and the Senate of the 45th Australian Parliament in 2016. *Journal of Computational Social Science*, to appear, 2019.

[16] P Orban, C Dansereau, L Desbois, V Mongeau-Perusse, C-E Giguere, H Nguyen, A Mendrek, E Stip, and P Bellec. Multisite generalizability of schizophrenia diagnosis classification based on functional brain connectivity. *Schizophrenia Research*, 192:167–171, 2018.

[17] H D Nguyen, D H Wang, and G J McLachlan. Randomized mixture models for probability density approximation and estimation. *Information Sciences*, 467:135–148, 2018.

[18] H D Nguyen, G J McLachlan, J F P Ullmann, V Voleti, W Li, E M C Hillman, D C Reutens, and A L Janke. Whole-volume clustering of time series data from zebrafish brain calcium images via mxiture modeling. *Statistical Analysis and Data Mining*, 11:5–16, 2018.

[19] H D Nguyen and G J McLachlan. Some theoretical results regarding the polygonal distribution. *Communications in Statistics - Theory and Methods*, 47:5083–5095, 2018.

[20] H D Nguyen and G J McLachlan. Chunked-and-averaged estimators for vector parameters. *Statistics and Probability Letters*, 137:336–342, 2018.

[21] H D Nguyen, A T Jones, and G J McLachlan. Stream-suitable optimization algorithms for some soft-margin support vector machine variants. *Japanese Journal of Statistics and Data Science*, 1:81–108, 2018.

[22] H D Nguyen and F Chamroukhi. An introduction to the practical and theoretical aspects of mixture-of-experts modeling. *WIREs Data Mining and Knowledge Discovery*, e1246, 2018.

[23] H D Nguyen. Near universal consistency of the maximum pseudolikelihood estimator for discrete models. *Journal of the Korean Statistical Society*, 47:90–98, 2018.

[24] L R Lloyd-Jones, H D Nguyen, and G J McLachlan. A globally convergent algorithm for lasso-penalized mixture of linear regression models. *Computational Statistics and Data Analysis*, 119:19–38, 2018.

[25] A T Jones, H D Nguyen, and G J McLachlan. logKDE: log-transformed kernel density estimation. *Journal of Open Source Software*, 3:870, 2018.

[26] C Oyarzun, A Sanjurjo, and H Nguyen. Response functions. *European Economic Review*, 98:1–31, 2017.

[27] H D Nguyen, G J McLachlan, P Orban, P Bellec, and A L Janke. Maximum pseudolikelihood estimation for a model-based clustering of time series data. *Neural Computation*, 29:990–1020, 2017.

[28] H D Nguyen and G J McLachlan. Progress on a conjecture regarding the triangular distribution. *Communications in Statistics - Theory and Methods*, 46:11261–11271, 2017.

[29] H D Nguyen. An introduction to MM algorithms for machine learning and statistical estimation. *WIREs Data Mining and Knowledge Discovery*, 7(e1198), 2017.

[30] H D Nguyen and I A Wood. Asymptotic normality of the maximum pseudolikelihood estimator for fully visible Boltzmann machines. *IEEE Transactions on Neural Networks and Learning Systems*, 27:897–902, 2016.

[31] H D Nguyen and I A Wood. A block successive lower-bound maximization algorithm for the maximum pseudolikelihood estimation of fully visible Boltzmann machines. *Neural Computation*, 28:485–492, 2016.

[32] H D Nguyen, G J McLachlan, and I A Wood. Mixtures of spatial spline regressions for clustering and classification. *Computational Statistics and Data Analysis*, 93:76–85, 2016.

[33] H D Nguyen, G J McLachlan, J F P Ullmann, and A L Janke. Spatial clustering of time-series via mixture of autoregressions models and Markov Random Fields. *Statistica Neerlandica*, 70:414–439, 2016.

[34] H D Nguyen, G J McLachlan, J F P Ullmann, and A L Janke. Laplace mixture autoregressive models. *Statistics and Probability Letters*, 110:18–24, 2016.

[35] H D Nguyen and G J McLachlan. Maximum likelihood estimation of triangular and polygonal distributions. *Computational Statistics and Data Analysis*, 106:23–36, 2016.

[36] H D Nguyen and G J McLachlan. Linear mixed models with marginally symmetric nonparametric random-effects. *Computational Statistics and Data Analysis*, 106:151–169, 2016.

[37] H D Nguyen and G J McLachlan. Laplace mixture of linear experts. *Computational Statistics and Data Analysis*, 93:177–191, 2016.

[38] H D Nguyen, L R Lloyd-Jones, and G J McLachlan. A universal approximation theorem for mixture-of-experts models. *Neural Computation*, 28:2585–2593, 2016.

[39] H D Nguyen, L R Lloyd-Jones, and G J McLachlan. A block minorization-maximization algorithm for heteroscedastic regression. *IEEE Signal Processing Letters*, 23:1031–1135, 2016.

[40] L R Lloyd-Jones, H D Nguyen, G J McLachlan, W Sumpton, and Y-G Wang. Mixture of time dependent growth models with an application to blue swimmer crab length-frequency data. *Biometrics*, 72:1255–1265, 2016.

[41] H D Nguyen and G J McLachlan. Maximum likelihood estimation of Gaussian mixture models without matrix operations. *Advances in Data Analysis and Classification*, 9:371–394, 2015.

[42] H D Nguyen, G J McLachlan, N Cherbuin, and A L Janke. False discovery rate control in magnetic resonance imaging studies via Markov random fields. *IEEE Transactions on Medical Imaging*, 33:1735–1748, 2014.

[43] L R Lloyd-Jones, H D Nguyen, Y-G Wang, and M F O'Neill. Improved estimation of size-transition matrices using tag-recapture data. *Canadian Journal of Fisheries and Aquatic Sciences*, 71:1385–1394, 2014.

[44] D Chen, A Shah, H Nguyen, D Loo, K Inder, and M Hill. Online quantitative proteomics p-value calculator for permutation-based statistical testing of peptide ratios. *Journal of Proteomics Research*, 13:4184–4191, 2014.

[45] H D Nguyen, M M Hill, and I A Wood. A robust permulation test for quantitative SILAC proteomics experiments. *Journal of Integrated OMICS*, 2(80-93), 2012.

[46] K L Inder, Y Z Zheng, M J Davis, H Moon, D Loo, H Nguyen, J A Clements, R G Parton, L J Foster, and M M Hill. Expression of PRTF in PC-3 cells modulated cholesterol dynamics and actin cytoskeleton impacting secretion pathways. *Molecular and Cellular Proteomics*, 11(M111.012245), 2012.

Conference Papers

[47] H D Nguyen. An introduction to approximate Bayesian computation. In *Proceedings of the Research School on Statistics and Data Science (RSSDS)*, 2019.

[48] F Chamroukhi, F Lecocq, and H D Nguyen. Regularized estimation and feature selection in mixtures of Gaussian-gated experts models. In *Proceedings of the Research School on Statistics and Data Science (RSSDS)*, 2019.

[49] H D Nguyen, A T Jones, and G J McLachlan. Positive data kernel density estimation via the logKDE package for R. In *Proceedings of the Sixteenth Australasian Data Mining Conference*, 2018.

[50] H D Nguyen and G J McLachlan. Iteratively-reweighted least-squares fitting of support vector machines: a majorization-minimization algorithm approach. In *Proceedings of the 2017 Future Technologies Conference (FTC)*, 2017.

[51] H D Nguyen. A two-sample Kolmogorov-Smirnov-like test for Big Data. In *Proceedings of the Fifteenth Australasian Data Mining Conference*, 2017.

[52] H D Nguyen and G J McLachlan. Asymptotic inference for hidden process regression models. In *Proceedings of the IEEE Statistical Signal Processing Workshop*, 2014.

[53] H D Nguyen, A L Janke, N Cherbuin, G J McLachlan, P Sachdev, and K J Anstey. Spatial false discovery rate control for magnetic resonance imaging studies. In *Proceedings of the 2013 Digital Imaging: Techniques and Applications (DICTA) Conference*, 2013.

[54] H D Nguyen and I A Wood. Variable selection in statistical models using population-based incremental learning with applications to genome-wide association studies. In *Proceedings of the 2012 IEEE Congress on Evolutionary Computation (CEC)*, 2012.

Book Chapters

[55] H D Nguyen and A T Jones. Big data-appropriate clustering via stochastic approximation and Gaussian mixture models. In *Data Analytics: Concepts, Techniques, and Applications*. CRC Press, 2018.

[56] H D Nguyen, G J McLachlan, and M M Hill. Permutation tests with false discovery corrections for comparative-profiling proteomics experiments. In *Methods in Molecular Biology: Proteomics Bioinformatics*. Springer, 2017.

OTHER PUBLICATIONS

[57] H Nguyen, editor. *Statistics and Data Science: Proceedings of the 2019 Research School on Statistics and Data Science (RSSDS)*, Singapore, 2019. Springer.

[58] A T Jones, H D Nguyen, and J J Bagnall. BoltzMM: Boltzmann Machines with MM Algorithms. Software published in the Comprehensive R Archive Network, 2019. https://CRAN.R- project.org/package=BoltzMM.

[59] H D Nguyen, A T Jones, and G J McLachlan. logKDE: Computing log-transformed kernel density estmates for positive data. Software published in the Comprehensive R Archive Network, 2018. https://CRAN.R-project.org/package=logKDE.

[60] J Bagnall, A T Jones, and H Nguyen. Analysing the voting patterns of the Senate of the 45th Australian Parliament via fully-visible Boltzmann machines. Poster presented at UseR! 2018, 2018. https://hal.archives-ouvertes.fr/hal-01838443v1.

[61] H D Nguyen. A novel algorithm for clustering of data on the unit sphere via mixture models. In *JSM Proceedings: Statistical Computing Section*, 2017.

[62] G J McLachlan and H D Nguyen. Contribution to the discussion of paper by M. Drton and M. Plummer. *Journal of the Royal Statistical Society B*, 79:365, 2017.

[63] A T Jones and H D Nguyen. lowmemtkmeans: Low memory use trimmed k-means. Software published in the Comprehensive R Archive Network, 2016. https://CRAN.R-project.org/package=lowmemtkmeans.

[64] H D Nguyen. NostalgiR: Advanced text-based plots. Software published in the Comprehensive R Archive Network, 2015. https://CRAN.R-project.org/package=NostalgiR.

[65] H D Nguyen. *Finite mixture models for regression problems*. PhD thesis, University of Queensland, 2015. https://doi.org/10.14264/uql.2015.584.

SUBMITTED MANUSCRIPTS, WORKING PAPERS, AND PREPRINTS

[66] S Urchs, A Tam, P Orban, C Moreau, Y Benhajali, H D Nguyen, A C Evans, and P Bellec. Subtypes of functional connectivity associate robustly with asd diagnosis. 2020.

[67] S Urchs, H D Nguyen, C Moreau, C Dansereau, A Tam, A C Evans, and P Bellec. Reporoducible functional connectivity endophenotype confers high risk of ASD diagnosis in subset of individuals. 2020.

[68] D V Fryer, I Strumke, and H Nguyen. Shapley value confidence intervals for variable importance ranking in regression models. 2020.

[69] D V Fryer, I Strümke, and H Nguyen. Explaining the data or explaining a model? Shapley values that uncover non-linear dependencies. 2020.

[70] H D Nguyen. Concentration-based confidence intervals for U-statistics. https://arxiv.org/abs/1903.01679, 2019.

[71] H D Nguyen. A note on the convergence of the Gaussian mean shift algorithm. https://arxiv.org/abs/1703.02337, 2017.

[72] H D Nguyen, G J McLachlan, J F P Ullmann, and A L Janke. Faster functional clustering via Gaussian mixture models. https://arxiv.org/abs/1608.05481, 2016.

GRANTS AND RESEARCH FUNDING

2019–2021 **Inria Associate Teams** (36,000 EURO)

Coinvestigator: Dr Florence Forbes (Inria Rhone-Alpes)

Project: Latent analysis, adversarial networks, and DimEnsionality Reduction (LANDER)

2018–2021 **Discovery Project** (242,194 AUD; DP180101192)

Australian Research Council

Coinvestigators: Prof Geoffrey McLachlan (University of Queensland) and Dr Sharon Lee (University of Queensland)
Project: Classification methods for providing personalised and class decisions

2017–2020 **Discovery Early Career Research Award** (360,000 AUD; DE170101134)
Australian Research Council
Project: Feasible algorithms for big inference

2018 **AFRAN Call for Initiatives** (3,000 AUD)
Australian-French Association for Research and Innovation
Project: Research School on Statistics and Data Science

2018 **FASIC RESEARCHERS Program** (2,545 EURO)
Ministry of Europe and Foreign Affairs, and Ministry of Higher Education, Research and Innovation (France)
Coawardee: Dr Florence Forbes (Inria Rhone-Alpes)
Project: Latent analysis, adversarial networks, and dimensionality reduction

2017–2019 **Start Up Grant** (15,000 AUD)
La Trobe University

SCHOLARSHIPS AND PRIZES

2015 **AK Head Travelling Scholarship** (13,000 AUD)
Australian Academy of Science

2011–2014 **ASPREE-ENVISION Scholarship** (21,000 AUD)
Australian National University

2011–2014 **Advantage RHD Scholarship** (17,500 AUD)
University of Queensland

2011–2014 **Australian Postgraduate Award** (87,000 AUD)
University of Queensland

2010 **Honours Research Scholarship** (5,000 AUD)
Commonwealth Scientific and Industrial Research Organization

2010 **Summer Research Scholarship** (3,000 AUD)
University of Queensland

2009 **Economics Jubilee Scholarship** (8,000 AUD)
University of Queensland

2009 **National Priority Scholarship** (2,000 AUD)
University of Queensland

2008 **Vacation Research Scholarship** (8,500 AUD)
Commonwealth Scientific and Industrial Research Organization

2008 **Elizabeth Norsworthy Power Industry Bursary** (7,500 AUD)
Stanwell Corporation Limited

2008 **Prize for Third Year Statistics** (500 AUD)
Department of Education, Employment and Workplace Relations

2007, 2008 **Undergraduate Scholarship** (8,000 AUD)
Australian Bureau of Statistics

2006, 2007 **Commonwealth Educational Cost Scholarship** (4,000 AUD)
University of Queensland

2006 **Kenneth Swanwick Memorial Prize** (100 AUD)
University of Queensland

2006 **John Black Prize** (100 AUD)
University of Queensland

TEACHING AWARDS

2013, 2014 **Distinguished Teaching Award**
School of Economics, University of Queensland

2012 **Excellence in Tutoring Award**
School of Mathematics and Physics, University of Queensland

CONFERENCE PRESENTATIONS

Poster Presentations

2014 **Asymptotic inference for hidden process regresion models**

Conference: IEEE Statistical Signal Processing Workshop
Location: Gold Coast, Australia

Oral Presentations

2019 **Mixture of autoregressive moving average models**

Conference: 13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics)
Location: London, UK

2019 **Approximate Bayesian computation with discrepancy measurements**

Conference: Research School on Statistics and Data Science (RSSDS2019)
Location: Melbourne, Australia

2019 **Mixtures of local logistic regressions for nonlinear classification when data are heterogeneous**

Conference: 3rd International Conference on Econometrics and Statistics (EcoSta 2019)
Location: Taichung, Taiwan

2018 **Fast Gaussian mixture model estimation using online EM algorithms**

Conference: 11th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics)
Location: Pisa, Italy

2018 **On approximations via convolution-defined mixture models**

Conference: 2nd Italian-French Statistical Seminar
Location: Grenoble, France

2017 **Stream-suitable optimization algorithms for some soft-margin support vector machines**

Conference: 10th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics)
Location: London, UK

2017 **Iteratively-reweighted least-squares fitting of support vector machines: a majorization-minimization algorithm approach** (Best Paper Award)

Conference: 2nd Future Technologies Conference
Location: Vancouver, Canada

2017 **A two-sample Kolmogorov-Smirnov-like test for Big Data**

Conference: 15th Australasian Data Mining Conference
Location: Melbourne, Australia

2017 **Novel algorithm for clustering of data on the unit sphere via mixture models**

Conference: Joint Statistics Meeting
Location: Baltimore, Australia

2016 **Fast model-based clustering of functional data via Gaussian mixture models**

Conference: 9th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics)
Location: Seville, Spain

2015 **Spatial clustering of time-series via mixtures of autoregressive models and Markov random fields**
https://www.dropbox.com/s/d03n4hy4pepu056/Slides.pdf?dl=0

Conference: 8th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics)
Location: London, UK

2013 **Spatial false discovery rate control for magnetic resonance imaging studies**

Conference: International Conference on Digital Image Computing: Techniques and Applications (DICTA)
Location: Hobart, Australia

2012 **Variable selection in statistical models using population-based incremental learning with applications to genome-wide association studies**

Conference: IEEE Congress on Evolutionary Computation
Location: Brisbane, Australia

INVITED PRESENTATIONS AND WORKSHOPS

2020 **Shapley values for linear regression models and its application to explainable AI**

Location: University of Sydney, Australia

2019 **Approximate Bayesian computation using the energy statistic** (CDAC Seminar)

Location: La Trobe University, Australia

2018 **Optimization theory for statistics and machine learning** (4-week course)

Location: University of Caen, France

2018 **Minibatch and incremental learning of exponential family mixtures**

Location: RMIT, Australia

2018 **Minibatch and incremental learning of exponential family mixtures, and the soft k-means clustering problem**

Location: Inria Grenoble Rhone-Alpes, France

2018 **The fully-visible Boltzmann machine, maximum pseudolikelihood estimation, and the Senate of the 45th Australian Parliament** (Monash Econometrics and Business Statistics Seminar)

Location: Monash University, Australia

2018 **A maximum likelihood oddity** (Statstics Seminar)

Location: La Trobe University, Australia

2018 **MM algorithms for statistical inference and machine learning problems** (S4D)

Location: University of Caen, France

2018 **Theory of statistical inference: a lazy approach to obtaining asymptotic results in parametric models** (S4D)

Location: University of Caen, France

2017 **False discovery rate control under rounding of p-values**

Location: Centre de Reserche de l'Institut Universitaire de Geriatrie de Montreal, Canada

2017 **The Stone-Weierstrass theorem and neural networks** (Kyushu-Latrobe Joint Seminar)

Location: La Trobe University, Australia

2017 **False discovery rate control under rounding of p-values**

Location: Inria Grenoble Rhone-Alpes, France

2017 **Majorization-minimization (MM) algorithms for statistical inference and machine learning problems** (Research Summer School in Statistics and Big Data Science)

Location: University of Caen, France

2017 **Chunked-and-averaged estimators for statistically embarassingly parallel computation and online learning** (Workshop on Big Data Analysis)

Location: La Trobe University, Australia

2016 **Whole-volume clustering of calcium imaged zebrafish brains via model-based functional data analysis**

Location: La Trobe University, Australia

2016 **A novel approach to clustering time series data in large spatial arrays** (Centre for Advanced Imaging Seminar Series)

Location: University of Queensland, Australia

2016 **Model-based methods for clustering of spatial time series data** (3-day Invited Workshop for the School of Computer Science and Software Engineering)

Location: University of Western Australia, Australia

2015 **Finite mixture models and false discovery rate control in MRI studies** (Mouse Imaging Research Centre)

Location: Toronto Centre for Phenogenomics, Canada

2015 **Finite mixture models and false discovery rate control in MRI studies** (Feindel Brain Imaging Lecture Series at the McConnell Brain Imaging Centre)

Location: McGill University, Canada

2013 **Spatial false discovery rate control for magnetic resonance imaging studies** (Neuroimaging and Brain Lab)

Location: Australian National University, Australia

2010 **The beginner's guide to genetic algorithms** (General Interest/Lay Audience Seminar at the School of Mathematics and Physics)

Location: University of Queensland, Australia

PROFESSIONAL SERVICE

2020 **Elected Member of the Academic Board**
Level C/D Representative

Institution: La Trobe University, Australia

2018–2020 **PhD Confirmations Committee Chair**
Department of Mathematics and Statistics

Institution: La Trobe University, Australia

2017, 2018 **Statistics Seminar Administrator**
Department of Mathematics and Statistics

Institution: La Trobe University, Australia

2017–2019 **Masters Theses Committee Member**
Department of Mathematics and Statistics

Institution: La Trobe University, Australia

2016 **PhD Confirmation Committee Member**
School of Mathematics and Physics

Institution: University of Queensland, Australia

2015 **Promotion Application Assessor**
School of Mathematics and Physics

Institution: University of Queensland, Australia

2012, 2013 **Interview Panel Member for Statistics Lecturer Positions**
School of Mathematics and Physics

Institution: University of Queensland, Australia

2012, 2013 **Treasurer**
Mathematics Students Society

Institution: University of Queensland, Australia

2011–2013 **First-Year Learning Centre Tutor**
School of Mathematics and Physics

Institution: University of Queensland, Australia

ACADEMIC SERVICE

Grant Assessor

2020 **Future Fellowships**
Australian Research Council, Australia

2020 **Laureate Fellowships**
Australian Research Council, Australia

2018, 2019 **Linkage Projects**
Australian Research Council, Australia

2018 **Internal Research Funds**
Free University of Bozen-Bolzano, Italy

2017–2019 **Discovery Projects**
Australian Research Council, Australia

2017–2019 **Discovery Early Career Research Awards**
Australian Research Council, Australia

Editorial Positions

2019– **Associate and Handling Editor (Statistical Computing)**
Australian and New Zealand Journal of Statistics (Wiley)

2018– **Technical Editor**
Australian and New Zealand Journal of Statistics (Wiley)

2018– **Associate Editor**
International Journal of Machine Intelligence and Sensory Signal Processing (Inderscience)

Conference Commitments

2019 **Workshop Co-chair**
Research School in Statistics and Data Science (RSSDS), Melbourne Australia

2019 **Program Committee Member**
17th Australasian Data Mining Conference (AusDM), Adelaide Australia

2018 **Program Committee Member and Tract Chair** (Statistics in Data Science)
16th Australasian Data Mining Conference (AusDM), Bathurst Australia

2018 **Program Committee Member**
Research Summer School on Statistics for Data Science (S4D)

2018 **Program Committee Member** (Applications and Technologies in Big Data)
2nd International Conference on Smart Grid Assisted Internet of Things (SGIoT)

Peer Review

- Advances in Data Analysis and Classification (Springer)
- Applied Mathematical Modelling (Elsevier)
- Australasian Journal of Information Systems (Australian Computer Society)
- BMC Bioinformatics (BioMed Central)
- Computational Statistics (Springer)
- Computational Statistics and Data Analysis (Elsevier)
- Communications in Statistics – Simulation and Computation (Taylor Francis)
- Electronic Journal of Statistics (Project Euclid)
- IEEE Transactions on Fuzzy Systems (IEEE)
- IEEE Transactions on Image Processing (IEEE)
- IEEE Transactions on Medical Imaging (IEEE)
- Information Sciences (Elsevier)
- International Journal of Computers and Applications (Taylor Francis)
- International Journal of Machine Intelligence and Sensory Signal Processing (Inderscience)
- Journal of Computational and Graphical Statistics (Taylor Francis)
- Journal of Open Source Software (Open Source Initiative)
- Journal of Statistical Computation and Simulation (Taylor Francis)
- Journal of Statistical Planning and Inference (Elsevier)
- Knowledge-Based Systems (Elsevier)
- Royal Society Open Science (Royal Society)
- Statistical Modelling: An International Journal (SAGE)

- Statistical Analysis and Data Mining (Wiley)
- Statistics Surveys (Project Euclid)
- Statistics and Computing (Springer)
- Statistics in Medicine (Wiley)
- WIREs: Data Mining and Knowledge Discovery (Wiley)

PROFESSIONAL MEMBERSHIPS

2020	Statistical Society of Australia (Victoria Branch, Council Member)
2019	Statistical Society of Australia (Victoria Branch, Guest Council Member)
2018–	Australian-French Association for Research and Innovation (AFRAN)
2018–	NumFOCUS Community Member