PERSONAL INFORMATION

Hien Duy Nguyen

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ACADEMIC AND RESEARCH EMPLOYMENT

2023– **Professor**
Institute of Mathematics for Industry
Kyushu University, Fukuoka, Japan

2023– **Associate Professor**
Department of Mathematical and Physical Sciences
La Trobe University, Melbourne, Australia

2021–2023 **Senior Lecturer**
School of Mathematics and Physics
University of Queensland, Brisbane, Australia

2019–2021 **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

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

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

Predoctoral Positions

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

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

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

HONORARY, ADJUNCT, AND SERVICE APPOINTMENTS

2021–2023 **Adjunct Senior Lecturer**
Department of Mathematics and Statistics
La Trobe University, Melbourne, Australia

2020–2021 **Deputy Head of Department**
Department of Mathematics and Statistics
La Trobe University, Melbourne, Australia

2018, 2019 **Visiting Research Fellow**
Statify (previously Mistis) Team
Inria Centre at the University Grenoble 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, Normandy, France

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

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

Supervisors: 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 COURSE COORDINATION

Teaching

2022, 2023 **Mathematics for Data Science 1** (MATH7501, University of Queensland; Undergraduate)

2022, 2023 **Problems and Applications in Modern Statistics** (STAT3500, University of Queensland; Undergraduate)

2021–2023 **Statistical Learning** (STAT3006, University of Queensland; Undergraduate)

2020, 2021 **Models for bioinformatics** (STA5MB, La Trobe University; Postgraduate)

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

Coordination

2020, 2021 **Models for bioinformatics** (STA5MB, La Trobe University; Postgraduate)

2020 **Biostatistics** (STA2BS, La Trobe University; Undergraduate)

2020 **Engineering probability and statistics** (STM2EPS, La Trobe University; Undergraduate)

Predoctoral Positions

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

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

PEER-REVIEWED PUBLICATIONS

Journal Articles

[1] T P Wallis, A Jiang, K Young, H Hou, K Kudo, A J McCann, N Durisic, M Joensuu, D Oelz, H Nguyen, R S Gormal, and F A Meunier. Super-resolved trajectory-derived nanoclustering analysis using spatiotemporal indexing. *Nature Communications*, 14:3353, 2023.

[2] T T Nguyen, F Chamroukhi, H D Nguyen, and G J McLachlan. Approximation of probability density functions via location-scale finite mixtures in Lesbegue spaces. *Communications in Statistics - Theory and Methods*, 52:5048–5059, 2023.

[3] H D Nguyen and M Gupta. Finite sample inference for empirical Bayesian methods. *Scandinavian Journal of Statistics*, to appear, 2023.

[4] H D Nguyen, D Fryer, and G J McLachlan. Order selection with confidence for finite mixture models. *Journal of the Korean Statistical Society*, 52:154–184, 2023.

[5] R Navarathna, D T Le, A R Hamann, H D Nguyen, T M Stace, and A Fedorov. Passive superconducting circulator on a chip. *Physical Review Letters*, 130:037001, 2023.

[6] J Arbel, S Girard, H D Nguyen, and A Usseglio-Carleve. Multiple expectile-based distribution: properties, Bayesian inference and applications. *Journal of Statistical Planning and Inference*, 225:146–170, 2023.

[7] F Almasi, M Stear, M Khansefid, H Nguyen, A Desai, and J E Pryce. The repeatability and heritability of traits derived from accelerometer sensors associated with grazing and rumination time in an extensive sheep farming system. *Frontiers in Animal Science*, to appear, 2023.

[8] 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. *eLife*, 11:e56257, 2022.

[9] R Sohi, A Carroll, H Nguyen, Z Almasi, J Miller, J Trompf, A Bervan, B I Godoy, M Stear, A Desai, and M Jois. Determination of ewe behaviour around lambing time and prediction of parturition seven days prior to lambing by tri-axial accelerometer sensors in an extensive farming system. *Animal Production Science*, 62:1729–1738, 2022.

[10] D C Phan, L T Truong, H D Nguyen, and R Tay. Modelling the safety effects of train commuters' access modes. *Journal of Advanced Transportation*, 2022:3473397, 2022.

[11] T T Nguyen, H D Nguyen, F Chamroukhi, and F Forbes. A non-asymptotic approach for model selection via penalization in high-dimensional mixture of experts. *Electronic Journal of Statistics*, 16:4742–4822, 2022.

[12] H D Nguyen and F Forbes. Global implicit function theorems and the online expectation–maximisation algorithm. *Australian and New Zealand Journal of Statistics*, 64:255–281, 2022.

[13] J Gao, D A Burgard, B J Tscharke, F Y Lai, J W O'Brien, H D Nguyen, Q Zheng, J Li, P Du, X Li, D Wang, S Castiglioni, C Cruz-Cruz, J A Baz-Lomba, V Yargeau, E Emke, K V Thomas, J F Mueller, and P K Thai. Refining the estimation of amphetamine consumption by wastewater-based epidemiology. *Water Research*, 225:119182, 2022.

[14] F Forbes, H D Nguyen, T T Nguyen, and J Arbel. Approximate Bayesian computation with surrogate posteriors. *Statistics and Computing*, 32:85, 2022.

[15] J-B Durand, F Forbes, C D Phan, L Truong, H D Nguyen, and F Dama. Bayesian nonparametric spatial prior for traffic crash risk mapping: a case study of Victoria, Australia. *Australian and New Zealand Journal of Statistics*, 64:171–204, 2022.

[16] F Almasi, H Nguyen, D Heydarian, R Sohi, S Nikbin, C J Jenvey, E Halliwell, E N Ponnampalam, A Desai, M Jois, and M J Stear. Quantification of behavioural variation among sheep grazing on pasture using accelerometer sensors. *Animal Production Science*, 62:1527–1538, 2022.

[17] H D Nguyen, T T Nguyen, F Chamroukhi, and G McLachlan. Approximations of conditional probability density functions in Lesbegue spaces via mixture of experts models. *Journal of Statistical Distributions and Applications*, 8(13), 2021.

[18] D V Fryer, I Strümke, and H Nguyen. Explaining the data or explaining a model? Shapley values that uncover non-linear dependencies. *PeerJ Computer Science*, 7(e582), 2021.

[19] D Fryer, I Strümke, and H Nguyen. Shapley values for feature selection: the good, the bad, and the axioms. *IEEE Access*, 9:144352 – 144360, 2021.

[20] M Vladimirova, S Girard, H Nguyen, and J Arbel. Sub-Weibull distributions: generalizing sub-Gaussian and sub-Exponential properties to heavier-tailed distributions. *Stat*, 9:e318, 2020.

[21] E Redivo, H Nguyen, and M Gupta. Bayesian clustering of skewed and multimodal data using geometric skew normal distributions. *Computational Statistics and Data Analysis*, 152:107044, 2020.

[22] 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.

[23] 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.

[24] H D Nguyen, J Arbel, H Lü, and F Forbes. Approximate Bayesian computation via the energy statistic. *IEEE Access*, 8:131683–131698, 2020.

[25] D V Fryer, I Strümke, and H D Nguyen. Shapley value confidence intervals for attributing variance explained. *Frontiers in Applied Mathematics and Statistics*, 6:587199, 2020.

[26] 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*, 3:55–81, 2020.

[27] 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.

[28] 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.

[29] 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.

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

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

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

[33] 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.

[34] 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.

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

[36] 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.

[37] 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.

[38] 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.

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

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

[41] 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.

[42] 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.

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

[44] 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.

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

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

[47] 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.

[48] 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.

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

[50] 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.

[51] 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.

[52] 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.

[53] 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.

[54] 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.

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

[56] 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.

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

[58] 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.

[59] 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.

[60] 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.

[61] 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.

[62] 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.

[63] 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.

[64] 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.

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

[66] 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

[67] S Roohi, R Skarbez, and H Nguyen. Reliable emotion recognition in conversation: quantifying and communicating uncertainty. In *IJCNN Workshop on Trustworthy and Responsible AI: theory, applications and challanges*, 2023.

[68] D Fryer, D Lowing, I Strümke, and H Nguyen. Multi-choice Explanations: a new cooperative game structure for XAI. In *IJCNN Workshop on Trustworthy and Responsible AI: theory, applications and challanges*, 2023.

[69] T T Nguyen, F Chamroukhi, H D Nguyen, and F Forbes. Model selection by penalization in mixture of experts models with a non-asymptotic approach. In *53emes Journees de Statistique de la Societe Française de Statistique (SFdS)*, 2022.

[70] H Nguyen, F Forbes, G Fort, and O Cappe. An online Minorization–Maximization Algorithm. In *Proceedings of the International Federation of Classification Societies*, 2022.

[71] F Almasi, M Khansefid, H Nguyen, A Desai, J E Pryce, and M Stear. Repeatability estimates of grazing and rumination activity of Merino sheep measured using wearable sensors. In *Proceedings of the World Congress on Genetics Applied to Livestock Production*, 2022.

[72] D C Phan, L T Truong, H D Nguyen, and R Tay. Can walking and cycling for train access improve road safety? In *Australian Road Safety Conference (ARSC2021)*, 2021.

[73] D Fryer, H Nguyen, and P Castellazzi. k-means on positive definite matrices, and an application to clustering in radar image sequences. In *Proceedings of the IEEE Symposium Series on Computational Intelligence*, 2020.

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

[75] 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.

[76] 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.

[77] 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.

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

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

[80] 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.

[81] 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

[82] G J McLachlan, S K Ng, and H D Nguyen. EM Algorithm. In *Wiley StatsRef: Statistics Reference Online*. Wiley, Chichester, 2021.

[83] 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.

[84] 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

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

[86] H Nguyen, S Lee, and F Forbes. A Festschrift for Geoff McLachlan. *Australian and New Zealand Journal of Statistics*, 64:111–116, 2022.

[87] H D Nguyen, J Bagnall-Guerreiro, and A T Jones. Universal inference with composite likelihoods. In *Proceedings of the 63rd ISI World Statistics Congress*, 2021.

[88] H D Nguyen. Finite sample inference for generic autoregressive models. In *Proceedings of FMfI 2021*, Math-for-Industry Lecture Notes. Institute of Mathematics for Industry, Kyushu University, 2021.

[89] R Gray, H Nguyen, D Bressington, M Jones, and D Thompson. Comment on - Mothers' voices and white noise on premature infants' psychological reactions in a neonatal intensive care unit: A multi-arm randomised controlled trial. *International Journal of Nursing Studies*, (104050), 2021.

[90] 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.

[91] 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.

[92] 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.

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

[94] 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.

[95] 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.

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

[97] 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

[98] H D Nguyen, TT Nguyen, J Arbel, and F Forbes. Concentration results for approximate Bayesian computation without identifiability. 2023.

[99] H D Nguyen. PanIC: consistent information criteria for general model selection problems. 2023.

[100] S Grot, S Smine, S Potvin, M Darcey, V Pavlov, S Genon, H Nguyen, and P Orban. Label-based meta-analysis of functional brain dysconnectivity across mood and psychotic disorders. 2022.

[101] T T Nguyen, F Chamroukhi, H D Nguyen, and F Forbes. A non-asymptotic model selection in block-diagonal mixture of polynomial experts models. 2021.

[102] 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.

[103] M Terrett, D Fryer, T Doody, H Nguyen, and P Castellazzi. SARGDV: Efficient identification of groundwatter-dependent vegetation using synthetic aperture radar. 2020.

[104] T T Nguyen, H D Nguyen, F Chamroukhi, and G J McLachlan. An l_1-oracle inequality for the lasso in mixture-of-experts regression models. 2020.

[105] H D Nguyen and D V Fryer. A binary-response regression model based on support vector machines. 2020.

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

[107] 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

2023–2026 **Inria Associate Teams** (48,000 EURO)

Co-investigator: Dr Florence Forbes (Inria Centre at the University Grenoble Alpes)

Project: Variance-reduced Optimization Methods and Bayesian Approximation Techniques for scalable inference (WOMBAT)

2023–2025 **Discovery Project** (360,000 AUD; DP230100905)

Australian Research Council

Co-investigators: Dr Xin Guo (University of Queensland), Dr Florence Forbes (Inria Centre at the University Grenoble Alpes), and A Prof Gersende Fort (CNRS)

Project: Stochastic majorization–minimization algorithms for data science

2021–2023 **Australian Government Road Safety Innovation Fund** (101,248 AUD)

Co-investigator: Dr Long Truong (La Trobe University)

Project: Development of planning-stage crash prediction tools for use at the planning stages

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

Co-investigator: Dr Florence Forbes (Inria Centre at the University Grenoble Alpes)

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

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

Australian Research Council

Co-investigators: 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)

Co-awardee: Dr Florence Forbes (Inria Centre at the University Grenoble 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

POST-DOCTORAL SUPERVISION

2021— **Trung Tin Nguyen** (Inria Centre at the University Grenoble Alpes)
Co-supervised with Dr Florence Forbes, Inria Centre at the University Grenoble Alpes
Project: Non-asymptotic methods for Bayesian computation

STUDENT SUPERVISION

2023— **Samad Roohi** (PhD, La Trobe University)
Project: Natural language models for affective conversation systems

2023 **Jacob Westerhout** (Honours, University of Queensland)
Project: Asymptotic distributions of optimal values arising from sample averaging processes

2023 **Qingyuan Zhang** (Honours, University of Queensland)
Project: Determination of optimal constraints for regularization problems in the Ivanov form

2022–2023 **Mark Chiu Chong** (Honours, University of Queensland)
Project: Risk bounds for mixture density estimation on compact sets via Bregman divergences

2021–2022 **Nicholas Williams** (Honours, University of Queensland)
Co-supervised with Dr Ramiro Lafuente, University of Queensland
Project: Links between maximum likelihood estimation and geometric invariant theory

2019–2022 **Cong Duc Phan** (M Engineering, La Trobe University)
Co-supervised with Dr Long Truong, La Trobe University
Project: Exploring the Network-wide Road Safety Impacts of Public Transport Usage and Congestion Levels

2018–2021 **Trung Tin Nguyen** (PhD, University of Caen, Normandy)
Co-supervised with Prof Faicel Chamroukhi, University of Caen, Normandy
Project: Learning and approximation theory of mixture models and mixture of experts

2020 **Nauvoo Perez** (AMSI Vacation Scholar, La Trobe University)
Project: Statistical learning for time-to-relapse of colorectal cancer patients

2022 **Callum Macfarlane** (Honours, University of Queensland)
Co-supervised with Em Prof Alan Mark and Dr Martin Stroet, University of Queensland
Project: Optimisation methods of refined point charge fitting for molecular modelling forcefields

2019– **Fazel Almasi** (PhD, La Trobe University)
Co-supervised with Profs Michael Stear, Aniruddha Desai, and Drs Markandeya Jois and Eric Ponnampalam, La Trobe University
Project: Parasitological and behavioral study of lambs using sensor technology

2019– **Daniel Fryer** (PhD, University of Queensland)
Co-supervised with Prof Geoffrey McLachlan and Dr Ian Wood, University of Queensland
Project: Interpretable methods in AI and statistics

CONFERENCE PRESENTATIONS

Talks

2023 **Convergence of Bayesian posterior statistics and related quantities**

Conference: Sequential Monte Carlo Down Under
Location: Brisbane, Australia

2022 **(SAM)^2: a family of sequential sample averaging algorithms via majorization–minimization**

Conference: CSDA and EcoSta Workshop on Statistical Data Science
Location: Bologna, Italy (Delivered online)

2022 **An online MM algorithm**

Conference: 17th conference of the International Federation of Classification Societies
Location: Porto, Portugal

2021 **Finite sample inference for nonlinear autoregressive models**

Conference: 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics)
Location: London, UK (Delivered online)

2021 **Universal inference with composite likelihoods**

Conference: ISI World Statistics Congress
Location: Online

2021 **Distance-based ABC procedures**

Conference: ABC in Svalbard
Location: Melbourne, Australia (Delivered onsite and online)

2020 **Global implicit function theorems and the online EM algorithm**

Conference: 14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics)
Location: London, UK (Delivered online)

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, USA

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**

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

Posters

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

Conference: IEEE Statistical Signal Processing Workshop

Location: Gold Coast, Australia

INVITED PRESENTATIONS AND WORKSHOPS

2022 **Asymptotic concentration of the ABC posterior estimator without identifiability** (ICASM)

Location: University of Economics, Ho Chi Minh City, Vietnam (Delivered online)

2021 **Finite sample inference for generic autoregressive models** (Math for Industry Forum)

Location: VIASM, Hanoi, Vietnam (Delivered online)

2021 **Approximate Bayesian computation** (Intellectual Climate Fund Seminar)

Location: La Trobe University, Melbourne (Delivered online)

2021 **Universal inference with composite likelihoods** (Research School of Finance, Actuarial Studies and Statistics Seminar)

Location: Australian National University, Canberra (Delivered online)

2021 **Order selection with confidence for mixture models** (Department of Mathematics and Statistics Colloquium)

Location: Macquarie University, Sydney (Delivered online)

2020 **Machine learning for statistical analysis – it's just a game!** (AgriBio, Intellectual Climate Fund talk)

Location: La Trobe University, Melbourne (Delivered online)

2020 **Multivariate analyses—A normal approach** (AgriBio, Intellectual Climate Fund talk)

Location: La Trobe University, Melbourne (Delivered online)

2020 **The multiple testing problem in high-throughput biology** (AgriBio Lectures in Mathematical Biology)

Location: La Trobe University, Melbourne (Delivered online)

2020 **Approximate Bayesian computation via the energy statistic** (One World Approximate Bayesian Computation (ABC) Seminar)

Location: University of Warwick, UK (Delivered online)

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

Location: University of Sydney, Australia

2019 **Approximation by finite mixtures of continuous density functions that vanish at infinity**

Location: University of Glasgow, Scotland

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 Centre at the University Grenoble 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** (Statistics 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 Centre at the University Grenoble 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 embarrassingly 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

2022– **Chair of Engagement, Advancement and Internationalization**
School of Mathematics and Physics

Institution: University of Queensland, Australia

2022– **UQ School of Mathematics and Physics Representative**
Institution: Australian Data Science Network

2022– **Faculty and School Student Misconduct Committee Member**
School of Mathematics and Physics

Institution: University of Queensland, Australia

2022– **Faculty EMCA Reference Group Representative and School EMCA Committee Member**
School of Mathematics and Physics

Institution: University of Queensland, Australia

2022– **Mentoring Chair**
Research Committee, School of Mathematics and Physics

Institution: University of Queensland, Australia

2021– **Statistics, Modelling and Operations Research Seminar Administrator**
School of Mathematics and Physics

Institution: University of Queensland, Australia

2020–2021 **Mathematics, Statistics, and Data Science Majors Course Advisor**
Bachelor of Science Program, College of Science, Health and Engineering

Institution: La Trobe University, Australia

2020–2021 **Elected Member of the Academic Board**
Levels C/D Representative

Institution: La Trobe University, Australia

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

Institution: La Trobe University, 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– **Discovery Projects**
Australian Research Council, Australia

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

Editorial Positions

2021– **Associate Editor (Statistics)**
Frontiers in Applied Mathematics and Statistics (Frontiers)

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)

Conference Commitments

2023 **Organization Committee Member (Chair of Sponsorships)**
67th Annual Meeting of the Australian Mathematical Society (AustMS 2023), Brisbane Australia

2020 **Program Committee Member**
18th Australasian Data Mining Conference (AusDM), Canberra Australia

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); Annals of Applied Statistics (Project Euclid); Annals of Statistics (Project Euclid); Australasian Journal of Information Systems (Australian Computer Society); Australian and New Zealand Journal of Statistics (Wiley); 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 Forecasting (Elsevier); International Journal of Machine Intelligence and Sensory Signal Processing (Inderscience); Journal of the American Statistical Association (Taylor Francis); 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

2022– Australian Mathematical Society (Fellowship Committee Member 2022–)

2019– Statistical Society of Australia (Victoria Branch, Guest Council Member 2019; Victoria Branch, Council Member 2020–2021; Queensland Branch, President 2023–)

2018– Australian-French Association for Research and Innovation (AFRAN)