

Martin L. Hazelton

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Personal Details

Place of Birth

Bath, England

Nationality

Joint British/Australian

Education

University of Oxford

D. Phil in Statistics

1989-1993

B.A. (Hons) in Mathematics (1st class)

1986-1989

- Exhibitioner of St Anne's College

Employment History

Massey University

Palmerston North, New Zealand

Chair of Statistics

2006-present

- Head of Statistics and Bioinformatics Group in the Institute of Fundamental Sciences
- Deputy Head of Institute of Fundamental Sciences, 2015-2017
- Acting Head of Institute of Fundamental Sciences, 2017-present
 - Managing 100 staff, annual budget \$20M

University of Western Australia

Perth, Australia

Lecturer, Senior Lecturer then Associate Professor in Statistics

1997-2005

University College London

London, U.K.

Lecturer in Statistical Science

1994-1997

University of Oxford

Oxford, U.K.

Research Officer, Transport Studies Unit

1993-1994

Jesus College, University of Oxford

Oxford, U.K.

Temporary Stipendiary Lecturer in Mathematics

1992-1993

Honours and Awards

Littlejohn Research Award

2014

New Zealand Statistical Association

- Premier research award in Statistics in New Zealand

Research

RESEARCH INTERESTS

- Network tomography and related inverse problems for count data
- Smoothing methods
- Statistical methods in transportation science

- Statistical methods in epidemiology
- Inference for spatial point processes

RESEARCH FUNDING

Marsden Fund (Royal Society of New Zealand) <i>Sole Principal Investigator</i> Lattice polytope samplers: theory, methods and applications	2018-2020 NZ\$535,000
Marsden Fund (Royal Society of New Zealand) <i>Associate Investigator (with Dr Tilman Davies)</i> Smoothing and inference for point process data with applications to epidemiology	2016-2019 NZ\$300,000
Marsden Fund (Royal Society of New Zealand) <i>Sole Principal Investigator</i> Modelling, inference and prediction for dynamic traffic networks	2015-2018 NZ\$380,000
Australian Research Council Discovery Grant <i>Associate Investigator (with Professor Adrian Baddeley et al.)</i> Statistical methodology for events on a network, with application to road safety	2013-2015 A\$330,000
Australian National Health and Medical Research Council <i>Associate Investigator (with Professor William Morgan et al.)</i> Non-invasive vein pulsation pressure measurement: a new assessment of glaucoma treatment	2012-2014 A\$529,875
Marsden Fund (Royal Society of New Zealand) <i>Sole Principal Investigator</i> New tools for statistical inference for network-based transportation models	2009-2011 NZ\$310,000
Massey University Postdoctoral Fellowship Award <i>Principal Investigator (with Professor Nigel French)</i> Spatial models of animal disease	2007-2008 NZ\$110,652
Australian Research Council Discovery Grant <i>Chief Investigator D (with Dr Kim Carter et al.)</i> Novel Bioinformatics approaches for genetics and data linkage	2006-2008 A\$233,680
Australian National Health and Medical Research Council <i>Chief Investigator D (with Professor Lyle Palmer et al.)</i> New statistical methods to assist gene discovery	2006-2008 A\$472,500
University of Western Australia Research Grant <i>Sole Investigator</i> Kernel density estimation from aggregate data	2002 A\$4,733
Australian Research Council Small Grant <i>Sole Investigator</i> Efficient stochastic simulation of road traffic models	2000 A\$11,200
Engineering and Physical Science Research Council, U.K. <i>Principal Investigator</i> Efficient computation of intractable traffic assignment models using the Gibbs sampler	1995-1996 £38,500

PHD STUDENT SUPERVISION

Michael McVeagh <i>Primary Supervisor</i> Efficient Markov bases for polytope sampling	2017-present Massey University
Ahmad Mahmoodjanlou <i>Primary Supervisor</i> Modelling and inference for dynamic traffic networks	2016-present Massey University
Sih-Jing Liao <i>Primary Supervisor</i> Statistical modelling of zoonotic disease data	2015-present Massey University

- Sarah Pirikahu** 2015-present
Co-Supervisor (primary supervisor: A/Prof Geoff Jones) Massey University
 Statistical inference for population based measures of risk-reduction
- Elsa Guilot** 2011-2015
Co-supervisor (primary supervisor: Prof Murray Cox) Massey University
 Modelling and inference in population genetics
 - PhD thesis placed on Dean's List for excellence
- Kate Richards** 2011-2015
Primary Supervisor Massey University
 Statistical methods for disease surveillance in veterinary epidemiology
 - First appointment: Biometrician at New Zealand Plant and Food Crown Research Institute
- Katharina Parry** 2009-2012
Primary Supervisor Massey University
 Statistical modelling and inference for network-based transport models
 - First appointment: Lecturer in Statistics and Analytics, Auckland University of Technology
- Brigid Betz-Stablein** 2009-2013
Primary Supervisor Massey University
 Statistical Methods in Ophthalmology
 - First appointment: Postdoctoral Fellow, University of New South Wales, Australia
- Tilman Davies** 2009-2012
Primary Supervisor Massey University
 Semiparametric methods for spatio-temporal modelling in epidemiology
 - Funded by New Zealand government Top Achievers Scholarship
 - First appointment: Lecturer in Statistics, University of Otago, NZ
- Sarojinie Fernando** 2007-2012
Primary Supervisor Massey University
 Estimation of relative risk in geographical epidemiology
- Pamela McCaskie** 2004-2008
Co-supervisor (primary supervisor: Prof Lyle Palmer) University of Western Australia
 Statistical modelling in genetic epidemiology
 - First appointment: Lecturer in Statistics, University of Western Australian
- Rohan Sadler** 2002-2006
Co-supervisor (primary supervisor: Dr Pauline Grierson) University of Western Australia
 Spatio-temporal dynamics of Pilbara grasslands
 - First appointment: Research Assistant, University of Western Australian
- Tarn Duong** 2001-2004
Sole supervisor University of Western Australia
 Multivariate kernel density estimation
 - PhD awarded with distinction
 - First appointment: Lecturer in Statistics, Macquarie University, Australia
- Katrina Scurrah** 1997-2002
Co-supervisor (primary supervisor: Prof Paul Burton) University of Western Australia
 Methods for analysis of correlated survival data with applications to genetics
 - First appointment: Research Assistant, Melbourne University, Australia
- MASTERS STUDENT SUPERVISION**
- Matthew Schroder** 2017-present
Primary supervisor MAppStat, Massey University
 Application of modern methods of classification to sports betting
- Penny Bilton** 2008-2010
Primary supervisor MAppStat, Massey University
 A Statistical Model to characterize the naphthenic acid component of petroleum

- Later completed a PhD student at Massey University

Stacy Azar

Primary supervisor

A Bayesian analysis of ophthalmic data

1998-2000

MSc, University of Western Australia

John Pueschel

Sole supervisor

Estimation of traffic speed-flow relationships

1995-1996

MSc, University College London

Lara Ainsworth

Sole supervisor

Monte Carlo integration in molecular biology

1995-1996

MSc, University College London

Teaching

LECTURE COURSES DELIVERED

University College London

Statistical inference; Applied Statistics

University of Western Australia

Introductory Statistics; Introduction to Probability; Applied Probability; Statistical Inference; Applied Statistics; Multivariate Methods; Time Series; Computer-Intensive Methods in Statistics; Smoothing Methods

Massey University

Introductory Statistics; Statistics for Business; Applied Linear Models; Data Mining; Statistical Inference; Nonparametric Regression; Advanced Statistical Modelling; Mathematical Statistics; Probability and Measure

STUDENT PERCEPTIONS OF TEACHING

- Consistently ranked in the top quartile (against other lecturers) on key indicators
- Twice received high commendation in University of Western Australia Excellence in Teaching Awards scheme

CURRICULUM DEVELOPMENT

- Extensive experience in curriculum development
- Chaired curriculum working party for School of Mathematics and Statistics, University of Western Australia
- Developed new major in Applied Statistics, University of Western Australia
- Designed several new lecture courses at the University of Western Australia and Massey University

Statistical Consulting

Massey University

Consultant to New Zealand Land Transport Agency (2008-present)

Statistical Consulting Group, University of Western Australia

Director (1999-2000, 2003-2006) and Group Member (1997-1999, 2000-2003). Clients included university staff and students; state and federal agencies (e.g. Electoral Commission of Western Australia; King Edward Memorial Hospital; Highways Agency U.K.); private companies (e.g. Woodside Petroleum Ltd., Parker & Co investment fund).

Service

UNIVERSITY SERVICE

Massey University

Acting Head, Institute of Fundamental Sciences (2017-present); Deputy Head, Institute of Fundamental Sciences (2015-2017); Chair of Institute of Fundamental Sciences Computing Committee (2013-2014); College of Sciences Promotions Committee (2009-2016); Professorial Promotions Committee (2008-2012); Institute of Fundamental Sciences Management Committee (2008-present); Science Programme Management Committee (2007-present); Information Sciences Programme Management Committee (2007-2010); Subject Leader, Statistics (2006-present); Institute of Information Science and Technology Management Committee (2006-2007)

University of Western Australia

Administrative roles included Head of Statistics Section (2004); Science Faculty Board of Studies (2004); Mathematics and Statistics Management and Planning Committee (2002-2004); Faculty Board for Engineering, Computing and Mathematics (2001-2003); Mathematics and Statistics Research and Postgraduate Committee (2003)

EDITORIAL APPOINTMENTS

Transportmetrica B: Transport Dynamics

Member of Editorial Advisory Board 2013-present

Australian and New Zealand Journal of Statistics

Theory and Methods Co-Editor 2011-present

Associate Editor 2010-2011

EURO Journal on Transportation and Logistics

Member of Editorial Advisory Board 2011-present

Journal of the Korean Statistical Society

Associate Editor 2008-2016

Transportation Research Part B

Member of Editorial Advisory Board 2007-present

- Transportation Research Part B is generally accepted to be the premier journal in transportation science

REVIEWING

Reviewing for Journals

Acted as referee for *Journal of the Royal Statistical Society, Series A, B and C; Biometrics; Journal of Computational and Graphical Statistics; Statistics in Medicine; Annals of Applied Statistics; Biometrics; Scandinavian Journal of Statistics; Statistics and Computing; Statistics and Probability Letters; The Statistician; Transportation Research Part B; Transportation Science; Transportmetrica; Computational Statistics and Data Analysis; Australian and New Zealand Journal of Statistics; Journal of Nonparametric Statistics; Journal of Multivariate Analysis; Test; Metrika; Telecommunication Systems; Computer-Aided Civil and Infrastructure Engineering; Spatial and Spatio-Temporal Epidemiology; PLOS One; Proceedings of the National Academy of Sciences* amongst others.

Grant Assessment

Research Grants Council, Hong Kong (2012); Australian National Health and Medical Research Council (NHMRC) project grant assessor (2004-present); Israel Science Foundation, grant assessor (2006); Hong Kong City University, grant assessor (2007); Physical Sciences of the Netherlands Organisation for Scientific Research, grant assessor (2010).

Service on Conference Committees

Member of the Scientific Committee for TRISTAN VI, 10-15 June 2007, Phuket Island, Thailand; TRISTAN VII, Tromsø, Norway June 20-25, 2010; TRISTAN VIII, 9-14 June 2013, San Pedro de

Atacama, Chile; and TRISTAN 2016, 13-17 June 2016, Aruba.

Academic Programmes Review

Auckland University of Technology 2014
External Academic on Academic Approval Panel for Master of Analytics

Auckland University of Technology 2011
External Academic on Graduating Year Review panel for Bachelor of Mathematical Sciences

Biostatistical Collaboration of Australia 2008
Member of review team for Masters of Biostatistics degree

EXTERNAL EXAMINING

Masters/Honours Examination

Department of Statistics, University of Auckland 2008-2010
External Examiner for Honours and Master projects

PhD and DSc Examinations

Examiner of PhD and DSc degrees for Massey University, University of New South Wales, University of Canterbury, University of Auckland, University of Otago, Monash University, University of Western Australia, Queensland University of Technology.

LEARNED SOCIETIES

New Zealand Statistical Association

President 2014-2016
Convenor of Awards Committee 2010-2013, 2016-present

Statistical Society of Australia

West Australian Branch President 2002-2004
West Australian Branch Vice-President 2001-2002
West Australian Branch Secretary 1998-1999

Selected Presentations

Australian National University Canberra, Australia
Invited seminar October 2016
Network tomography for integer valued traffic

4th IMS Asia Pacific Rim Meeting The Chinese University of Hong Kong
Invited presentation June 2016
Multivariate log-density estimation with applications to approximate likelihood inference

2015 AUT Mathematical Sciences Symposium Auckland University of Technology
Invited plenary December 2015
Efficient MCMC samplers for network tomography

University of the Third Age (U3A), Manawatu Branch Palmerston North, New Zealand
Invited public lecture November 2015
Statistics and the search for scientific truth

Croucher Foundation Advanced Studies Institute Hong Kong, China
Invited International Lecturer November 2014
Calibration and data issues for day to day dynamical models

Palmy Statistics Forum Palmerston North, New Zealand
Keynote speaker October 2014
Space, the Final Frontier

- Australian Statistical Conference/IMS Joint Meeting** Sydney, Australia
Invited presentation July 2014
 Network tomography for integer-valued traffic
- New Zealand Statistical Association/OR Society Conference** Hamilton, New Zealand
Invited plenary November 2013
 Some recent advances in network tomography
- Royal Society of New Zealand, Manawatu Branch** Palmerston North, New Zealand
Invited public lecture March 2013
 Statistics in the 21st century (or why statisticians are the new sexy vampires, only pastier)
- Polytechnic University of Hong Kong** Hong Kong, China
Invited seminar February 2012
 Statistical inference for origin-destination matrices
- Statistical Concepts and Methods for the Modern World Conference** Colombo, Sri Lanka
Invited plenary conference presentation December 2011
 Statistical linear inverse problems in transportation science
- Hong Kong Society for Transportation Studies** Hong Kong, China
Invited seminar October 2011
 Statistical inference for transport networks
- Workshop on Probability Theory and Mathematical Statistics** Victoria, New Zealand
Invited presentation November 2009
 From estimation of traffic flows to deconvolution of densities: Some statistical linear inverse problems
- DADDY: Workshop on Day-to-day Dynamics for Transportation Networks** Salerno, Italy
Invited conference presentation December 2009
 Calibration of dynamic traffic assignment models
- Joint Australian/New Zealand Statistics Conference** Auckland, New Zealand
Invited conference presentation July 2006
 Density deconvolution by weighted kernel estimators
- 16th Australian Statistics Conference** Canberra, Australia
Invited conference presentation July 2002
 Variable kernel density estimation

REFEREED JOURNAL PAPERS

Articles in Statistics Journals

1. **Hazelton, M.L.** (1995). Improved Monte Carlo inference for models with additive error. *Statistics and Computing* **5**, 343-350.
2. **Hazelton, M.L.** (1996). Bandwidth selection for local density estimators. *Scandinavian Journal of Statistics* **23**, 221-232.
3. **Hazelton, M.L.** (1996). Optimal rates for local bandwidth selection. *Journal of Nonparametric Statistics* **7**, 57-66.
4. **Hazelton, M.L.** (1998). Bias annihilating bandwidths for kernel density estimation at a point. *Statistics and Probability Letters* **38**, 305-309.
5. Broughton, J., **Hazelton, M.L.** and Stone, M. (1999). Influence of light-level on the incidence of road casualties and the associated effect of summertime clock changes. *Journal of the Royal Statistical Society, Series A* **162** 137-175.
Read before the Royal Statistical Society (General Meeting), 14 October 1998.
6. **Hazelton, M.L.** (2000). Marginal density estimation from incomplete bivariate data. *Statistics and Probability Letters* **47**, 75-84.
7. **Hazelton, M.L.** (2001). Estimation of origin-destination trip rates in Leicester. *Journal of the Royal Statistical Society, Series C (Applied Statistics)* **50**, 423-433.
8. Duong, T and **Hazelton, M.L.** (2003). Plug-in bandwidth selectors for bivariate kernel density estimation. *Journal of Nonparametric Statistics* **15**, 17-30.
9. Gurrin, L.C, Moss, T.J., Sloboda, D.M., **Hazelton, M.L.**, Challis, J.R.G, and Newnham, J.P. (2003). Using WinBUGS to fit non-linear mixed models with an application pharmacokinetic modelling of insulin response to glucose challenge in sheep exposed antenatally to glucocorticoids. *Journal of Biopharmaceutical Statistics* **13**, 117-139.
10. **Hazelton, M.L.** (2003). Variable kernel density estimation. *Australian and New Zealand Journal of Statistics* **45**, 271-284.
11. **Hazelton, M.L.** (2003). A graphical tool for assessing normality. *The American Statistician* **57**, 285-288.
12. **Hazelton, M.L.** (2004). Estimating vehicle speed from traffic count and occupancy data. *Journal of Data Science* **2**, 231-244.
13. **Hazelton, M.L.** (2004). Density estimation from aggregate data. *Computational Statistics* **19**, 407-423.
14. Duong, T. and **Hazelton, M.L.** (2005). Convergence rates for unconstrained bandwidth matrix selectors in multivariate kernel density estimation. *Journal of Multivariate Analysis* **93**, 417-433.
15. Duong, T and **Hazelton, M.L.** (2005). Cross-validation bandwidth matrices for multivariate kernel density estimation. *Scandinavian Journal of Statistics* **32**, 485-506.
16. Gurrin, L.C., Scurrah, K. and **Hazelton, M.L.** (2005). Tutorial in biostatistics: Spline smoothing with linear mixed models. *Statistics in Medicine* **24**, 3361-3381.

17. Baddeley, A., Turner, R., Moller, J. and **Hazelton, M.** (2005). Residual analysis for spatial point processes (with discussion). *Journal of the Royal Statistical Society Series B* **67**, 617-666. Read before the Royal Statistical Society (Research Meeting) on Wednesday 22nd June 2005.
18. **Hazelton, M.L.** and Turlach, B.A. (2007). Reweighted kernel density estimation. *Computational Statistics and Data Analysis* **51**, 3057-3069.
19. **Hazelton, M.L.** (2007). Bias reduction in kernel binary regression. *Computational Statistics and Data Analysis* **51**, 4393-4402.
20. **Hazelton, M.L.** and Davies, T.M. (2009). Inference based on kernel estimates of the relative risk function in geographical epidemiology. *Biometrical Journal* **51**, 98-109.
21. **Hazelton, M.L.** and Marshall, J.C. (2009). Linear boundary kernels for bivariate density estimation. *Statistics and Probability Letters* **79**, 999-1003.
22. **Hazelton, M.L.** and Turlach, B.A. (2009). Nonparametric density deconvolution by weighted kernel estimators. *Statistics and Computing* **19**, 217-228.
23. **Hazelton, M.L.** and Turlach, B.A. (2010). Semiparametric density deconvolution. *Scandinavian Journal of Statistics* **37**, 91-108.
24. Marshall, J.C. and **Hazelton, M.L.** (2010). Boundary kernels for adaptive density estimators on regions with irregular boundaries. *Journal of Multivariate Analysis* **101**, 949-963.
25. Davies, T.M. and **Hazelton, M.L.** (2010). Adaptive kernel estimation of spatial relative risk. *Statistics in Medicine* **29**, 2423-2437.
26. **Hazelton, M.L.** (2010). Statistical inference for transit system origin-destination matrices. *Technometrics* **52(2)**, 221-230.
27. Davies, T.M., **Hazelton, M.L.** and Marshall, J.C. (2011). sparr: Analyzing spatial relative risk using fixed and adaptive kernel density estimation in R. *Journal of Statistical Software* **39**, 1-14.
28. **Hazelton, M.L.** (2011). Assessing log-concavity of multivariate densities. *Statistics and Probability Letters* **81**, 121-125.
29. Turlach, B.A., and **Hazelton, M.L.** (2011). Semiparametric regression with shape constrained penalized splines. *Computational Statistics and Data Analysis* **55**, 2871-2879.
30. Fernando, W.T.P.S, Ganesalingam, S. and **Hazelton, M.L.** (2013). A comparison of estimators of the geographical relative risk function. *Journal of Statistical Computation and Simulation*, **84(7)**, 1471-1485.
31. Davies, T.M. and **Hazelton, M.L.** (2013). Assessing minimum contrast parameter estimation for spatial and spatiotemporal log-Gaussian Cox processes. *Statistica Neerlandica*, **67(4)**, 355-389.
32. **Hazelton, M.L.** (2015). Network tomography for integer-valued traffic. *Annals of Applied Statistics*, **9 (1)**, 474-506.
33. Pirikahu, S., Jones. G., **Hazelton, M.L.** and Heuer, C. (2016). Bayesian methods of confidence interval construction for the population attributable risk from cross-sectional studies. *Statistics in Medicine*, **35**, 3117-3130.
34. Davies, T.M., Jones, K. and **Hazelton, M.L.** (2016). Symmetric adaptive smoothing regimens for estimation of the spatial relative risk function. *Computational Statistics and Data Analysis*, **101**, 12-18.
35. **Hazelton, M.L.** and Cox, M.P. (2016). Bandwidth selection for kernel log-density estimation. *Computational Statistics and Data Analysis*, **103**, 56-67.

36. **Hazelton, M.L.** (2017). Testing for changes in spatial relative risk. *Statistics in Medicine*, **36**, 2735-2749.
37. **Hazelton, M.L.** and Bilton, T.P. (2017). Polytope samplers for network tomography. *Australian and New Zealand Journal of Statistics*, **59(4)**, 495-511.
38. Betz-Stablein, B., **Hazelton, M.L.**, Moragan, W.H. (2018). Modelling retinal pulsatile blood flow from video data. *Statistical Methods in Medical Research*, **27(5)**, 1575-1584.
39. Davies, T.M., Marshall, J.C. and **Hazelton, M.L.** (2018). Tutorial on kernel estimation of continuous spatial and spatiotemporal relative risk with accompanying instruction in R. *Statistics in Medicine*, **37**, 11911221.
40. Davies, T.M., Flynn, C. and **Hazelton, M.L.** (2018). On the utility of asymptotic bandwidth selectors for spatially adaptive kernel density estimation. *Statistics and Probability Letters*, **138**, 75-81.

Articles in Transportation Science Journals

41. **Hazelton, M.L.** (1998). Some remarks on Stochastic User Equilibrium. *Transportation Research Part B* **32**, 101-108.
42. **Hazelton, M.L.** and Pueschel, J. (1999). Estimation of link performance functions from incomplete flow data. *Journal of Advanced Transportation* **33**, 323-334.
43. **Hazelton, M.L.** (2000). Estimation of origin-destination matrices from link flows on uncongested networks. *Transportation Research Part B* **34**, 549-566.
44. **Hazelton, M.L.** (2001). Inference for origin-destination matrices: estimation, reconstruction and prediction. *Transportation Research Part B* **35**, 667-676.
45. **Hazelton, M.L.** (2002). Day-to-day variation in Markovian traffic assignment models. *Transportation Research Part B* **36**, 637-648.
46. **Hazelton, M.L.** (2003). Some comments on origin-destination matrix estimation. *Transportation Research Part A* **37**, 811-822.
47. **Hazelton, M.L.** (2003). Total travel cost in stochastic assignment models. *Networks and Spatial Economics* **3**, 457-466.
48. Watling, D.P. and **Hazelton, M.L.** (2003). The dynamics and equilibria of day-to-day assignment models. *Networks and Spatial Economics* **3**, 349-370.
49. **Hazelton, M.L.** and Watling, D.P. (2004). Computation of equilibrium distributions of Markov traffic assignment models. *Transportation Science* **38**, 331-342.
50. **Hazelton, M.L.** (2008). Statistical inference for time varying origin-destination matrices. *Transportation Research Part B* **42**, 442-452.
51. **Hazelton, M.L.** (2010). Bayesian inference for network-based modes with a linear inverse structure. *Transportation Research Part B* **44**, 674-685.
52. Parry, K. and **Hazelton, M.L.** (2012). Estimation of origin-destination matrices from link counts and sporadic routing data. *Transportation Research Part B* **46**, 175-188.
53. Parry, K. and **Hazelton, M.L.** (2013). Bayesian inference for day-to-day dynamic traffic models. *Transportation Research Part B* **50**, 104-115.
54. Smith, M., **Hazelton, M.L.**, Lo, H.K., Cantarella, G.E. and Watling, D.P. (2014). The long term behaviour of day-to-day traffic assignment models. *Transportmetrica A: Transport Science*, **10**, 647-660.

55. Shao, H, Lam W.H., Sumalee, A., Chen, A., **Hazelton, M.L.** (2014). Estimation of mean and covariance of peak hour origin-destination demands from day-to-day traffic counts. *Transportation Research Part B*, **68**, 52-75.
56. Shao, H., Lam, W.H.K, Sumalee, A., **Hazelton, M.L.** (2015). Estimation of mean and covariance of stochastic multi-class OD demands from classified traffic counts. *Transportation Research Part C: Emerging Technologies*, **59**, 92-110.
57. Parry, K., Watling, D.P. and **Hazelton, M.L.** (2016). A new class of doubly stochastic day-to-day dynamic traffic assignment models. *EURO Journal on Transportation and Logistics*, **5(1)** 5-23.
58. **Hazelton, M.L.** and Parry, K. (2016). Statistical methods for comparison of day-to-day traffic models. *Transportation Research Part B*, **92(A)**, 22-34.

Other Journal Articles

59. **Hazelton, M.L.**, and Gurrin, L.C. (2003). A note on genetic variance components in mixed models. *Genetic Epidemiology* **24**, 297-301.
60. Sircombe, K.N. and **Hazelton, M.L.** (2004). Comparison of detrital zircon age distributions by kernel functional estimation. *Sedimentary Geology* **171**, 91-111.
61. Morgan, W.H., **Hazelton, M.L.**, Azar, S.L., Cringle, S.J., House, P.H., Yu, D.-Y. and Balaratnasingham, C. (2004). Retinal venous pulsation in glaucoma and glaucoma suspects. *Ophthalmology* **111**, 1489-1494.
62. Firth, L., **Hazelton, M.L.** and Campbell, E. (2005). Predicting the onset of winter rains using random forests. *Journal of Climate* **18**, 772-781.
63. Morgan, W.H., Balaratnasingam, C., **Hazelton, M.L.**, House, P.H., Cringle, S.J., Yu, D.-Y. (2005). The force required to induce hemivascular pulsation is associated with the site of maximal field loss in glaucoma. *Investigative Ophthalmology and Visual Science* **46**, 1307-1312.
64. Trinajstić, K. and **Hazelton, M.** (2007) The taxonomic implications of intraspecific and ontogenetic variation in *compagopiscis croucheri* (placodermi). *Journal of Vertebrate Paleontology* **27**, 571-583.
65. Balaratnasingham, C., Morgan, W.H., **Hazelton, M.**, House, P., Barry, C., Chan, H., Cringle, S, and Yu, D.Y. (2007). Retinal vein pulsation characteristics are predictive of glaucoma progression. *British Journal of Ophthalmology*, **91**, 441-444.
66. Benschop, J., **Hazelton, M.L.**, Stevenson, M.A., Dahl, J., Morris R.S. and French, N. (2008). Descriptive spatial epidemiology of subclinical Salmonella infection in Danish finisher pig herds: application of a novel method of spatially adaptive smoothing. *Veterinary Research* **39:02**.
67. Morgan, W.H., **Hazelton, M.L.**, Balaratnasingam, C., Chan, H., House, P.H., Barry, C.J., Cringle, S.J., and Yu, D.-Y. (2009). The association between retinal vein ophthalmodynamometric force change and optic disk excavation. *British Journal of Ophthalmology* **93**, 594-596.
68. Sadler R. J., **Hazelton M.**, Boer M. B. and Grierson, P. (2010). Deriving state-and-transition models of semi-arid grassland dynamics using imagery. *Ecological Modelling* **221(3)**, 433-444.
69. R.L. Sanson, R.L., Harvey, N., Garner, M.G., Stevenson, M.A., Davies, T.M., **Hazelton, M.L.**, O'Connor, J., Dubé, C., Forde-Folle, K.N. and Owen, K. (2011). Foot-and-mouth disease model verification and 'relative validation' through a formal model comparison. *Revue Scientifique et Technique-Office International des Epizooties* **30(2)**, 527-540.

70. Betz-Stablein, B.D., Morgan, W.H., House, P.H., and **Hazelton, M.L.** (2013). Disease mapping techniques applied to glaucoma visual field datasets. *Investigative Ophthalmology & Visual Science* **52(2)**, 1544-1553.
71. Fernando, W.T.P.S., and **Hazelton, M.L.** (2014). Generalizing the spatial relative risk function. *Spatial and Spatio-Temporal Epidemiology* **8**, 1-10.
72. Bilton, P.A., da Campo R., Nikzad, R., **Hazelton, M.** and Derrick, P.J. (2014). Interaction between naphthenic acids: Dependence on molecular structure revealed through statistical analysis of ultra-high resolution electrospray mass spectra. *European Journal of Mass Spectrometry*, **20(3)**, 221-232.
73. Richards, K.K., **Hazelton, M.L.**, Stevenson, M.A., Lockhart, C.Y., Pinto, J. (2014). Methods for detecting anomalies in routinely recorded animal health data, with particular reference to Foot-and-Mouth disease in Viet Nam. *Spatial and Spatio-Temporal Epidemiology*, **11**. 125-133.
74. Morgan, W.H., **Hazelton, M.L.**, Betz-Stablein, B.D., Yu, D.Y., Lind, C.R.P., Ravichandran, V., and House, P.H. (2014). Photo-plethysmographic measurement of various retinal vascular pulsation parameters and measurement of the venous phase delay. *Investigative Ophthalmology & Visual Science*, **55(9)**, 5998-6006.
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