Curriculum Vitæ

Ian L. Dryden

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Academic History

1986-89 University of Leeds, UK.
Ph.D. in Statistics: 'The Statistical Analysis of Shape Data'

1983-86 University of Nottingham, UK.
B.Sc (Hons) First Class in Mathematics with Statistics.

Employment

2009- Professor, Department of Statistics, University of South Carolina, Columbia, South Carolina, USA.

2000-2010 Professor of Statistics, School of Mathematical Sciences, University of Nottingham, UK.

1998-1999 Senior Lecturer, Department of Statistics, University of Leeds, UK

1996-1997 Visiting Assistant Professor, Department of Statistics, University of Chicago, USA.

1989-1998 Lecturer, Department of Statistics, University of Leeds, UK

Research Interests

Areas of interest: shape analysis; statistical image analysis; medical image analysis; spatial statistics; high-dimensional data analysis; and applications of statistics in bioinformatics, chemoinformatics, biomedical sciences, and computer science.

My broad research interests concern the development of generic statistical methodology motivated by important real-world applications. I am particularly interested in geometrical problems, for example the statistical analysis of the shapes of objects. Such data are routinely available in a very wide variety of settings, from the smallest scale of atoms and molecules in chemistry, to the study of complex organisms in biology and medicine. I am also very interested in the analysis of highly-structured complex systems, as often encountered in image analysis and in biological systems. Frequently the types of research problem I study are very high-dimensional (e.g. image or microarray data) with relatively low sample sizes. Careful modelling is required in order to cope with such problems, and new statistical methodology needs to be developed.

For further details see `http://www.stat.sc.edu/~dryden`

Publications

Book

1. Dryden, I. L. and Mardia, K. V. (1998) *Statistical Shape Analysis.* John Wiley, Chichester. 347 + xvii pages.

Journal Papers

2. Jung, S., Dryden, I.L. and Marron, J.S. (2012). Analysis of Principal Nested Spheres. To appear: *Biometrika*.

3. Kenobi, K. and Dryden, I.L. (2012). Bayesian matching of unlabelled point sets using Procrustes and configuration models. To appear: *Bayesian Analysis.*

4. Petridou, N., Caballero Gaudes, C., Dryden, I.L., Francis, S.T. and Gowland, P.A. (2012). Periods of rest in fMRI contain transient events which are related to slowly fluctuating spontaneous activity. To appear: *Human Brain Mapping*.

5. Higgins, H.M., Dryden, I.L. and Green, M.J. (2012). A Bayesian elicitation of veterinary beliefs regarding systemic dry cow therapy: variation and importance for clinical trial design. To appear: *Preventive Veterinary Medicine*.

6. Caballero Gaudes, C., Petridou, N., Francis, S., Dryden, I.L. and Gowland, P. (2012). Paradigm Free Mapping with sparse regression automatically detects single-trial fMRI BOLD responses. To appear: *Human Brain Mapping*. (Available on line 28 November, 2011) DOI: 10.1002/hbm.21452

7. Su, J., Dryden, I.L., Klassen, E., Le, H. and Srivastava, A. (2011). Fitting optimal curves to time-indexed, noisy observations of stochastic processes on nonlinear manifolds. To appear: *Journal of Image and Vision Computing*. (Available on line 21 September, 2011) DOI: 10.1016/j.imavis.2011.09.006

8. Czogiel I., Dryden, I.L. and Brignell, C.J. (2011). Bayesian matching of unlabeled point sets using random fields, with an application to molecular alignment. *Annals of Applied Statistics*, **5**, 2603–2629.

9. Chernyavsky, I.L., Leach, L., Dryden, I.L. and Jensen, O.E. (2011). Transport in the placenta: homogenizing haemodynamics in a disordered medium. *Philosophical Transactions of the Royal Society A*, **369**, 4162–4182.

10. Caballero Gaudes, C., Petridou, N., Dryden, I.L., Bai, L., Francis, S.T. and Gowland, P.A. (2011). Detection and characterization of single-trial fMRI BOLD responses: Paradigm Free Mapping. *Human Brain Mapping*. **32**, 1400–1418. DOI: 10.1002/hbm.21116

11. Kenobi, K., Dryden, I.L. and Le, H. (2010). Shape curves and geodesic modelling. *Biometrika*, **97**, 567–584.

12. Brignell, C.J., Dryden, I.L., Gattone, S.A., Park, B., Leask, S., Browne, W.J. and Flynn, S. (2010). Surface shape analysis, with an application to brain surface asymmetry in schizophrenia. *Biostatistics*, **11**, 609–630.

13. Amaral, G.J.A., Dryden, I.L., Patrangenaru, V. and Wood, A.T.A. (2010). Bootstrap confidence regions for the planar mean shape. *Journal of Statistical Planning and Inference*. **140**, 3026–3034.

14. Dryden, I.L., Kume, A., Le, H., and Wood, A.T.A. (2010). Statistical inference for functions of the covariance matrix in the stationary Gaussian time-orthogonal principal components model. *Annals of the Institute of Statistical Mathematics*. **62**, 967-994.

15. Browne, W.J., Dryden, I.L., Handley, K., Mian, S. and Schadendorf, D. (2010). Mixed effect modelling of proteomic mass spectrometry data using Gaussian mixtures. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, **59**, 617-633.

16. Mallet, X.D.G., Dryden, I.L., Vorder Bruegge, R. and Evison, M. (2010). An exploration of sample representativeness in anthropometric facial comparison. *Journal of Forensic Sciences*, **55**, 1025-1031.

17. Holman, T., Wilson, M., Kenobi, K., Dryden, I.L., Wood, A. and Holdsworth, M. (2010). Evaluation of one versus two cycle RNA amplification protocols with the Affymetrix ATH1 microarray. *Plant Methods*, **6**, 9. (11 pages).

18. Evison M.P., Dryden I.L., Fieller N.R.J., Mallett X.G.D., Morecroft L., Schofield D., Vorder Bruegge R.W. (2010). Key parameters of face shape variation in 3D in a large sample. *Journal of Forensic Sciences*, **55**, 159–162.

19. Madouasse, A., Huxley, J.N., Browne, W.J., Bradley, A.J., Dryden, I.L. and Green, M.J. (2010). Use of individual cow milk recording data at the start of lactation to predict the calving to conception interval. *J. Dairy Sci.*, **93**, 4677–4690.

20. Dryden, I.L., Koloydenko, A. and Zhou, D. (2009). Non-Euclidean statistics for covariance matrices, with applications to diffusion tensor imaging. *Annals of Applied Statistics*, **3**, 1102–1123.

21. Dryden, I.L., Bai, L., Brignell, C.J. and Shen, L. (2009). Factored principal components analysis, with applications to face recognition. *Statistics and Computing*, **19**, 229–238.

22. Duduiala, C., Wattis, J., Dryden, I.L. and Laughton, C.A. (2009). Nonlinear breathing modes at a defect site in DNA. *Physical Review E*, **80**, 061906. (15 pages).

23. Dryden, I.L., Kume, A., Le, H., and Wood, A.T.A. (2008). A multidimensional scaling approach to shape analysis. *Biometrika*, **95** 779–798.

24. Dryden, I.L., Oxborrow, N. and Dickson, R. (2008). Familial relationships of normal spine shape. *Statistics in Medicine*, **27**, 1993–2003.

25. Ball, F.G., Dryden, I.L. and Golalizadeh. M. (2008). Brownian Motion and Ornstein-Uhlenbeck Processes in Planar Shape Space. *Methodology and Computing in Applied Probability*, **10**, 1–22.

26. Alshabani, A. K. S., Dryden, I.L., Litton, C.D. and Richardson, J. (2007). Bayesian analysis of human movement curves. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, **56**, 415–428.

27. Kume, A., Dryden, I.L., and Le, H. (2007). Shape space smoothing splines for planar landmark data. *Biometrika*, **94**, 513–528.

28. Amaral, G.J.A., Dryden, I.L. and Wood, A.T.A. (2007). Pivotal bootstrap methods for k-sample problems in directional statistics and shape analysis, *Journal of the American Statistical Association*, **102**, 695-707.

29. Alshabani, A.K.S., Dryden, I.L. and Litton, C.D. (2007). Partial size-and-shape distributions. *Journal of Multivariate Analysis*, **98**, 1988–2001.

30. Dryden, I.L., Hirst, J.D. and Melville, J.L. (2007). Statistical analysis of unlabeled point sets: comparing molecules in chemoinformatics. *Biometrics*, **63**, 237–251.

31. Arato, N.M., Dryden, I.L. and Taylor, C.C. (2006). Hierarchical Bayesian modelling of spatial age-dependent mortality. *Computational Statistics and Data Analysis*, **51**, 1347–1363.

32. Dryden, I.L., Farnoosh, R., Taylor, C.C. (2006). Image segmentation using Voronoi polygons and MCMC, with application to muscle fibre images. *Journal of Applied Statistics*, **33**, 609–622.

33. Dryden, I.L. and Zempléni, A. (2006). Extreme shape analysis. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, **55**, 103–121.

34. Hodgman, T.C., Ugartechea-Chirino, Y., Tansley, G. and Dryden, I. (2006). The implications for Bioinformatics of integration across the scales. *Journal of Integrative Bioinformatics* , **3, (2)**, Article 39.

35. Dryden, I.L., Márkus, L., Taylor, C.C. and Kovács, J. (2005). Non-stationary spatio-temporal analysis of karst water levels. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, **54**, 673–690.

36. Dryden, I.L. (2005). Statistical analysis on high-dimensional spheres and shape spaces. *Annals of Statistics*, **33**, 1643–1665

37. Di Giacinto, V., Dryden, I.L., Ippoliti, L. and Romagnoli, L. (2005). Linear smoothing of noisy spatial temporal time-series. *Journal of Mathematics and Statistics*, **1**, 300-312.

38. Mian, S., Ugurel, S., Parkinson, E., Schlenzka, I., Dryden, I.L., Lancashire, L., Ball, G., Creaser, C., Rees R., and Schadendorf, D. (2005). Serum proteomic fingerprinting discriminates between clinical stages and predicts disease progression in melanoma patients. *Journal of Clinical Oncology*, **33**, 5088–5093.

39. Dryden, I.L., Scarr, M.R. and Taylor, C.C. (2003). Bayesian texture segmentation of weed and crop images using reversible jump Markov chain Monte Carlo methods. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, **52**, 31–50.

40. Hobolth, A., Kent, J.T. and Dryden, I.L. (2002). On the relation between edge and vertex modelling in shape analysis. *Scandinavian Journal of Statistics*, **29**, 355–374.

41. Dryden, I.L., Ippoliti, L. and Romagnoli, L. (2002). Adjusted Maximum Likelihood and Pseudo-Likelihood Estimation for noisy Gaussian Markov Random Fields. *Journal of Computational and Graphical Statistics*, **11**, 370–388.

42. Taylor, C.C., Dryden, I.L., and Farnoosh, R. (2001). The K-function for nearly regular point processes *Biometrics*, **57**, 224-231.

43. Free, S. L., O'Higgins, P., Maudgil, D. D., Dryden, I. L., Lemieux, L., Fish, D. R. and Shorvon, S. D. (2001). Landmark-based morphometrics of the normal adult brain using MRI. *Neuroimage*, **13**, 801–813.

44. Kent, J. T., Dryden, I. L. and Anderson, C. R. (2000). Using circulant symmetry to model featureless objects. *Biometrika*, **87**, 527-544.

45. Faghihi, M. R., Taylor, C. C. and Dryden, I. L. (1999). Procrustes shape analysis of triangulations of a two coloured point pattern. *Statistics and Computing*, **9**,43–53.

46. Dryden, I. L., Taylor, C. C. and Faghihi, M. R. (1999). Size analysis of nearly regular Delaunay triangulations. *Methodology and Computing in Applied Probability*, **1**, 97–117.

47. Dryden, I. L. and Walker, G. (1999). Highly resistant regression and object matching. *Biometrics*, **55**, 820–825.

48. Mardia, K. V. and Dryden, I. L. (1999). The complex Watson distribution and shape analysis. *Journal of the Royal Statistical Society, Series B*, **61**, 913–926.

49. Dryden, I. L., Faghihi, M. R., and Taylor, C. C. (1997). Procrustes shape analysis of planar point subsets. *Journal of the Royal Statistical Society, Series B*, **59**, 353–374.

50. Dryden, I. L., Mardia, K. V. and Walder, A. N. (1997). Review of the use of context in statistical image analysis. *Journal of Applied Statistics*, **24**, 513–538.

51. Mardia, K. V. and Dryden, I. L. (1994). Shape averages and their bias. *Advances in Applied Probability*, **26**, 334–340.

52. Mardia, K. V., Dryden, I. L., Hurn, M. A., Li, Q., Millner, P. A., and Dickson, R. A. (1994). Familial spinal shape. *Journal of Applied Statistics*, **21**, 623–641.

53. Dryden, I. L. and Mardia, K. V. (1993). Multivariate shape analysis. *Sankhya Series A*, **55**, 460–480.

54. O'Higgins, P. and Dryden, I. L. (1993). Sexual dimorphism in hominoid: further studies of craniofacial shape differences in *Pan, Gorilla, Pongo. Journal of Human Evolution*, **24**, 183–205.

55. Dryden, I. L. and Mardia, K. V. (1992). Size and shape analysis of landmark data. *Biometrika*, **79**, 57–68.

56. O'Higgins, P. and Dryden, I. L. (1992). Studies of craniofacial development and evolution. *Archaeol. Oceania*, **27**, 105–112.

57. Dryden, I. L. and Mardia, K. V. (1991). General shape distributions in a plane. *Advances in Applied Probability*, **23**, 259–276.

58. Mardia, K. V. and Dryden, I. L. (1989). The statistical analysis of shape data. *Biometrika*, **76**, 271–281.

59. Mardia, K. V. and Dryden, I. L. (1989). Shape distributions for landmark data. *Advances in Applied Probability*, **21**, 742–755.

Papers in edited volumes

60. Morecroft, L., Fieller, N.R., Dryden, I.L. and Evison, M.P. (2010). Shape Variation in Anthropometric Landmarks in 3D. In: M.P. Evison and R.W. Vorder Bruegge (eds), Computer-Aided Forensic Facial Comparison, pp.35-52, CRC Press, Boca Raton.

61. Evison, M.P., Morecroft, L., Fieller, N.R.J., and Dryden, I.L. (2010). A Large Database Sample of 3D Facial Images and Measurements. In: M.P. Evison and R.W. Vorder Bruegge (eds), Computer-Aided Forensic Facial Comparison, pp. 53–69, CRC Press, Boca Raton.

62. Dryden, I.L. (2005). Shape analysis. *In: Encyclopaedia of Biostatistics, 2nd edition*, Editors: P. Armitage and T. Colton, **7**, 4919–4928, John Wiley, Chichester.

63. Dryden, I.L. (2003). Statistical shape analysis in high-level vision. *Mathematical Methods in Computer Vision. Editors: Olver, P.J. and Tannenbaum, A. IMA Volume in Mathematics and its Applications* **133***, 37–55, Springer-Verlag, New York.*.

64. Dryden, I. L. (1999). General shape and registration analysis. In *Stochastic Geometry: Likelihood and Computation* Editors: Barndorff-Nielsen, O. E., Kendall, W. S. and van Lieshout, M. N. M. Monographs on Statistics and Applied Probability, volume 80, pages 333-364, Chapman and Hall/CRC Press, Boca Raton, USA.

65. Dryden, I. L. and Mardia, K. V. (1991). Theoretical and distributional aspects of shape analysis. In Heyer, H., editor, *Probability Measures on Groups X*, pages 95–116, New York. Plenum.

Conference papers

66. Cao, Y., Zhang, Z., Czogiel, I., Dryden, I.L. and Wang, S. (2011). 2D non-rigid partial shape matching using MCMC and contour subdivision. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2345–2352, Colorado Springs, CO.

67. Czogiel, I., Dryden, I.L. and Brignell, C.J. (2011). Bayesian molecular alignment using random fields. In: K.V. Mardia, A. Gusnanto, A.D. Riley & J. Voss (eds), Next Generation Statistics and Bioinformatics, pp. 95–98, Leeds, Leeds University Press.

68. Marron, J.S., Jung, S. and Dryden, I.L. (2010). Speculation on the Generality of the Backward Stepwise View of PCA. Proceedings of MIR 2010: 11th ACM SIGMM International Conference on Multimedia Information Retrieval, Association for Computing Machinery, Inc., Danvers, MA, 227–230.

69. Dryden, I.L., Koloydenko, A., and Zhou, D. (2009). Non-Euclidean statistics for covariance matrices, with applications to diffusion tensor imaging. In A. Gusnanto, K.V. Mardia, & C.J. Fallaize (eds), Statistical Tools for Challenges in Bioinformatics, pp.43-46. Leeds, Leeds University Press.

70. Zhou, D., Dryden, I.L., Koloydenko, A., and Bai, L. (2009). Weighted generalised Procrustes analysis of diffusion tensors. In A. Gusnanto, K.V. Mardia, & C.J. Fallaize (eds), Statistical Tools for Challenges in Bioinformatics, pp.120-123. Leeds, Leeds University Press.

71. Dryden, I.L., Koloydenko, A., Zhou, D. and Bai, L. (2009). Non-Euclidean statistical analysis of covariance matrices and diffusion tensors. Proceedings of the 57th session of the International Statistical Institute, 16-22 August, 2009, Durban, South Africa. `http://arxiv.org/abs/1010.3955`

72. Petridou, N., Caballero,, C., Dryden, I., Francis, S., and Gowland, P. (2009). Spatiotemporally coordinated activation detected during apparent rest in fMRI. *Proc. Intl. Soc. Mag. Reson. Med. 17*, 1647.

73. Zhou, D., Dryden, I.L., Koloydenko, A. and Bai, L. (2009). Procrustes analysis of Diffusion Tensor Data. *Proc. Intl. Soc. Mag. Reson. Med. 17*, 3583.

74. Czogiel, I., Dryden, I.L., and Brignell, C.J. (2008). Bayesian alignment of continuous molecular shapes using random fields. In S. Barber, P.D. Baxter, A. Gusnanto and K.V. Mardia (eds), The Art and Science of Statistical Bioinformatics, pp.85-88. Leeds, Leeds University Press.

75. Zhou, D., Dryden, I.L., Koloydenko, A., and Bai, L. (2008). Bayesian multi-tensor diffusion MRI and tractography. In S. Barber, P.D. Baxter, A. Gusnanto and K.V. Mardia (eds), The Art and Science of Statistical Bioinformatics, pp.111-115. Leeds, Leeds University Press.

76. Zhou, D., Dryden, I.L., Koloydenko, A. and Bai, L. (2008). A Bayesian method with reparameterisation for diffusion tensor imaging. Proceedings, SPIE conference. Medical Imaging 2008: Image Processing, Joseph M. Reinhardt, Josien P. W. Pluim, Editors, 69142J.

77. Gaudes, C. C., Petridou, N., Francis, S., Dryden, I., Bai, L. and Gowland, P. (2008). Detection of single-trial events in BOLD fMRI without prior stimulus information. Human Brain Mapping 14th Meeting, Melbourne.

78. Gaudes, C. C., Petridou, N., Francis, S., Dryden, I., Bai, L. and Gowland, P. (2008). Detection of single-trial events in BOLD fMRI without prior stimulus information. ISMRM 16th Meeting, Toronto.

79. French, A.P., Naeem, A., Dryden, I.L., and Pridmore, T.P. (2007). Using Social Effects to Guide Tracking in Complex Scenes. In: Proceedings of the IEEE International Conference on Advanced Video and Signal-based Surveillance, pages 212–217.

80. Handley, K., Browne, W.J., and Dryden, I.L. (2005). Bayesian Analysis of SELDI-TOF data. *In: S. Barber, P.D. Baxter, K.V. Mardia and R.E. Walls (eds) LASR 2005 - Quantitative Biology, Shape Analysis, and Wavelets, 4th - 6th July, 2005, University of Leeds, UK, Leeds*, 138–141.

81. Brignell, C.J., Browne, W.J., and Dryden, I.L. (2005). Covariance weighted Procrustes Analysis. *In: S. Barber, P.D. Baxter, K.V. Mardia and R.E. Walls (eds) LASR 2005 - Quantitative Biology, Shape Analysis, and Wavelets, 4th - 6th July, 2005, University of Leeds, UK, Leeds*, 107–110.

82. Dryden, I.L., Mian, S., Browne, W.J., Handley, K., di Nisio, R., and Rees, R. (2005). Statistical analysis of SELDI protein chip data from breast cancer cell lines exposed to chemotherapeutic agents. *In: S. Barber, P.D. Baxter, K.V. Mardia and R.E. Walls (eds) LASR 2005 - Quantitative Biology, Shape Analysis, and Wavelets, 4th - 6th July, 2005, University of Leeds, UK, Leeds*, 43–46.

83. Dryden, I.L., Kume, A., Le, H.-L., Wood, A.T.A. and Laughton, C. (2002). Size-and-shape analysis of DNA molecular dynamics simulations. In Mardia, K. V., Aykroyd, R. G., and McDonnell, P. editors, *Proceedings in Statistics of Large Datasets. LASR2002, University of Leeds.*, 23–26.

84. Kume, A., Dryden, I.L., Le, H.-L., and Wood, A.T.A. (2002). Fitting cubic splines to data in shape spaces of planar configurations. In Mardia, K. V., Aykroyd, R. G., and McDonnell, P. editors, *Proceedings in Statistics of Large Datasets. LASR2002, University of Leeds.*, 119–122.

85. Leask, S.J., Park, S.B.G., Dryden, I.L., Gattone, S.A. and Flynn, S.W. (2002). Surface shape analysis from MR images. *Schizophrenia Research*, **53** (3 - Supplement 1), 98.

86. Dryden, I.L. and Gattone, S.A. (2001). Surface shape analysis from MR images. In Mardia, K. V. and Aykroyd, R. G. editors, *Proceedings in Functional and spatial data analysis. University of Leeds, University of Leeds Press*. 139–142

87. Mardia, K.V., McDonnell, P. and Dryden, I.L. (2001). Image Averaging. In Mardia, K. V. and Aykroyd, R. G. editors, *Proceedings in Functional and spatial data analysis. University of Leeds, University of Leeds Press*. 155

88. Zempleni, A., Dryden, I.L., Sümeghy, Z. and Mika, J. (2000). Modelling the monthly increments of the Palmer drought index (PDSI) for Southeast Hungary. *Proc. of the 20th Hydrogeological Conf. of the Danubian Countries, Bratislava, 2000. Ed.: J. Szolgay*.

89. Mardia, K. V., McCulloch, C., Dryden, I. L. and Johnson, V. (1997). Automatic Scale-Space Method of Landmark Detection. In Mardia, K. V., Gill, C. A. and Aykroyd, R. G. editors, *Proceedings in Current Issues in Statistical Shape Analysis*. University of Leeds, University of Leeds Press. pages 17-29

90. Scarr, M. R., Taylor, C. C. and Dryden, I. L. (1997). Discrimination of weeds and horticultural row crops in images using texture models. In Mardia, K. V., Gill, C. A. and Aykroyd, R. G. editors, *Proceedings in Current Issues in Statistical Shape Analysis*. University of Leeds, University of Leeds Press. pages 116-123

91. Dryden, I. L. and Walker, G. (1997). Shape analysis using highly robust regression. *Proceedings of the 51st ISI conference, Istanbul, Turkey* Volume 2, pages 127-130

92. Scarr, M. R., Taylor, C. C. and Dryden, I. L. (1997). Automatic Recognition of Weeds and Crops. In J. V. Stafford editor, *Proceedings of Precision Agriculture '97, Warwick* BIOS Scientific Publishers. Volume I, pages 429-437.

93. Scarr, M. R., Taylor, C. C. and Dryden, I. L. (1997). The use of texture and shape in discrimination of weeds and crops. *Proceedings of 1st IAPR TCI Workshop on Statistical Techniques in Pattern Recognition, Prague* pages 147-153. Czech Academy of Sciences.

94. Dryden, I. L., Faghihi, M. R., and Taylor, C. C. (1995). Investigating regularity in spatial point patterns using shape analysis. In Mardia, K. V. and Gill, C. A., editors, *Proceedings in Current Issues in Statistical Shape Analysis*, pages 40–48. University of Leeds, University of Leeds Press.

95. Taylor, C. C., Faghihi, M. R. and Dryden, I. L. (1995). An understanding of muscle fibre images. *Image Analysis and Processing, ICIAP95 conference proceedings.* Edited by C. Braccini, L. DeFloriani and G. Vernazza. Lecture Notes in Computer Science 974. Springer-Verlag. pages 223-228.

96. Dryden, I. L. (1993). Shape analysis of landmark data. In *Proceedings of 8th European Young Statisticians Conference, Palanga, Lithuania*, pages 42–46, Vilnius. LOTUS.

Miscellaneous

97. Dryden, I.L. (2011). Discussion on the paper by Girolami and Calderhead. *Journal of the Royal Statistical Society, Series B*, **73**, 180.

98. Dryden, I.L. (2011). `shapes` package, R Foundation for Statistical Computing, Vienna, Austria, Contributed package. http://www.R-project.org

99. Srivastava, A. and Damon, J. N. and Dryden, I. L. and Jermyn, I. H. (2010). Guest Editors' Introduction to the Special Section on Shape Analysis and Its Applications in Image Understanding. *IEEE Pattern Analysis and Machine Intelligence*, **32**, 577 - 578.

100. Dryden, I. L. (2007). Discussion to "Fast Bayesian shape matching using geometric algorithms" by S. C. Schmidler. Bayesian Statistics 8, Oxford Science Publications: Oxford, 471-490.

101. Dryden, I.L. (2007). Book review of 'Stereology for Statisticians' by A.Baddeley and E. B. Vedel Jensen, Journal of the Royal Statistical Society: Series A (Statistics in Society), **170**, 252.

102. Ball, F.G., Dryden, I.L. and Golalizadeh, M. (2006). Discussion to the paper by Beskos, Papaspiliopoulos, Roberts and Fearnhead. *Journal of the Royal Statistical Society, Series B*, **68**, 367–368.

103. Dryden, I.L. (2001). Discussion to the paper by Glasbey and Mardia. *Journal of the Royal Statistical Society, Series B*, **63**, 497–498.

104. Dryden, I.L. (2000). Discussion to the paper by Dominici, Samet and Zeger. *Journal of the Royal Statistical Society, Series A*, **160**, 291.

105. Mardia, K. V., Aykroyd, R. G. and Dryden, I. L. (1999). Editors. *Proceedings in Spatial Temporal Modelling and Applications.* Leeds University Press.

106. Mardia, K. V., Gill, C. A. and Dryden, I. L. (1996). Editors. *Proceedings in Image Fusion and Shape Variability Techniques.* Leeds University Press.

107. Dryden, I. L. (1994). Discussion to the paper by U. Grenander and M.I. Miller. *Journal of the Royal Statistical Society, Series B*, **56**, 586.

108. Dryden, I. L. (1991). Discussion to 'Procrustes methods in the statistical analysis of shape' by C.R. Goodall. *Journal of the Royal Statistical Society, Series B*, **53**, 327–328.

Papers under review or revision

- Brignell, C.J., Browne, W.J., Dryden, I.L., Francis, S.T. and Gowland, P.A. (2011). Mixed effect modelling of single trial variability in ultra-high field fMRI. *Submitted for publication. (Under revision)*

- Dryden, I.L., Pennec, X. and Peyrat, J.-M. (2011). Power Euclidean metrics for covariance matrices with application to diffusion tensor imaging. *Submitted for publication (under revision)*. `http://arxiv.org/abs/1009.`

- Chernyavsky, I.L., Dryden, I.L. and Jensen, O.E. (2011). Characterising the multiscale structure of fluctuations of transported quantities in a disordered medium *Submitted for publication*.

Honors and Awards

2007 Leverhulme Research Award.
2005 EPSRC Discipline Hopping Award
2004 Elected member of the International Statistical Institute
2002 Chartered Statistician (CStat) of the Royal Statistical Society
1999 John Wiley and Sons Statistics Book of the Year.

Editorial service

2008-2010 Joint Guest Editor: Shape Analysis Special Issue in IEEE Pattern Analysis and Machine Intelligence (April 2010 issue).
2007-2008 Royal Statistical Society Research Section Committee Chair
The Research Section Committee deals with the editorial processes for handling the Royal Statistical Society's prestigious discussion papers, and other research related issues.
2006-2007 Royal Statistical Society Research Section Committee member
2007- Member of the Editorial Board of Methodology and Computing in Applied Probability
2002-2005 Associate Editor of the Journal of the Royal Statistical Society, Series C
1998-2000 RSS Research Section Honorary Secretary
1995-1998 Editorial board of Computerized Medical Imaging and Graphics Journal
1997-1998 Associate Editor of the Journal of the Royal Statistical Society, Series B
1994-1997 Royal Statistical Society Research Section Committee member
1993-1998 Book Review Editor for Journal of Applied Statistics

Professional and learned societies

Elected Fellow of the Institute of Mathematical Statistics (2012)
Elected Member of the International Statistical Institute (2004)
Chartered Statistician (CStat) of the Royal Statistical Society (2002)
Member of the International Biometric Society (ENAR) Fellow of the Royal Statistical Society
Member of the American Statistical Association

Funding

2010-2013 National Science Foundation. QuasiNovo: An Information Theoretic Approach to De Novo Peptide Sequencing. Co-PI. PI: John Rose. ($643,747). Award Id : 0959427
September-October 2010 SAMSI Research Fellow, SAMSI, Research Triangle Park, North Carolina.
2007-2012 BBSRC/EPSRC Centre for Integrative Plant Biology (£9.2M). Co-investigator.
2007-2008 Leverhulme Research Fellowship. Stochastic modelling and inference for medical image analysis.

($£30K$)

2006 Royal Society Travel Award. ($£1,370$)

2005-2006 EPSRC Discipline-hopping grant, as Principal Investigator (PI). EP/C549066/1 Stochastic and Computational Face Recognition ($£57,484$)

2005-2006 Nuffield Summer Undergraduate Research Bursary. Statistical analysis of archaeological field survey data using Bayesian techniques, with C.D.Litton. ($£1,400$)

2003-2005 Collaborator on a $£1M+$ funded project on face identification with Universities of Sheffield, Nottingham and Kent, sponsored by the US government (TSWG/FBI). ($£10,000$)

2003 NERC-EPSRC EMS workshop on modelling uncertainty in complex environmental and biological systems ($£15,000$) [held April, 2004, Nottingham], with N.Crout and A.T.A.Wood.

2001-2004 EPSRC Research Assistant, as PI. Identifying structure from shape and image data, with H. Le and A.T.A. Wood ($£157,196$)

2001-2004 JREI/EPSRC Compute-intensive facility for mathematical and stochastic modelling in biomedicine, with P. Matthews, F. Ball, P. O'Neill, H. Byrne, J. Wattis. ($£121,735$)

2000 St James Hospital, Leeds: Spinal Shape ($£1000$)

1999 The British Council and Hungarian Science Academy. ($£10,100$) Principal UK investigator on a project on investigating a karstwater basin in Hungary using spatial statistics, image analysis and shape analysis, with Dr. C.C. Taylor, M. Arato, L. Markus, A. Zempleni.

1998 Royal Society and Indian National Science Academy ($£900$): study visit to India.

1998 Collaborator with Dr. P. O'Higgins on a project with the Institute of Neurology, London to further examine brain shape in MR images of epileptic patients. Travel costs.

1996 EPSRC ($£4600$) Image fusion and shape variability workshop (jointly with Prof. K.V. Mardia).

1995 Collaborator with Drs. P. O'Higgins on a project with the Institute of Neurology, London to examine brain shape in MR images of epileptic patients. Travel costs.

1995 EPSRC ($£125,904$) Multi-scale approaches to shape change and image warping (jointly with Prof. K.V. Mardia, Prof. J.T. Kent, Dr. C.C. Taylor, Dr. R.G. Aykroyd).

1994 IMS Young Researchers Travel Fund (US$600) Travel to Toronto ASA conference.

1993 Silsoe/MAFF ($£42,000$) Automatic identification of crops and weeds (jointly with Dr. C.C. Taylor). PhD studentship and computing equipment.

1993 British Gas ($£7000$) A review into the use of context in image analysis (jointly with Prof. K.V. Mardia). Post-doctoral research fellow (six weeks) and teaching relief.

1993 Enterprise in Higher Education ($£6000$) To devise and implement task-focused group projects (jointly with Mr. E.J. Redfern). Teaching relief.

1993 and **1994** EPSRC earmarked studentships (with Prof. J.T. Kent and with Dr. C.A. Glasbey, BioSS).

1992 and **1993** Royal Society ($£2700$) Short study and travel awards to Australia and USA.

1992 EPSRC ($£108,000$) Shape analysis in 2D and 3D images (jointly with Prof. K.V. Mardia, Prof. J.T. Kent, Dr. C.C. Taylor, Prof. M.A. Smith). Post-doctoral research fellow (3 years) and computing equipment.

Presentations

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields', Department of Biostatistics, MD Anderson Cancer Center, Houston, May 10, 2012.

- 'Sparse Paradigm Free Mapping: detection of activations and resting state networks in fMRI', NOGGINS Workshop, Department of Statistics, University of Georgia, April 19, 2012.

- 'Sparse Paradigm Free Mapping: detection of activations and resting state networks in fMRI', Applied Mathematics Colloquium, New Jersey Institute of Technology, February 17, 2012.

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields', Department of Biostatis-

tics, Georgia Health Sciences University, February 2, 2012.

- 'Power Euclidean metrics for covariance matrices, with application to Diffusion Tensor Imaging', Biostatistics Forum, University of South Carolina, September 28, 2011.

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields', Department of Mathematical Sciences, Clemson University, September 15, 2011.

- 'Curve modeling in shape spaces', Computation for Anatomy Workshop, Banff International Research Station, Banff Canada, August 28, 2011.

- 'Manifold data analysis', Joint Statistical Meetings, Miami, August 3, 2011.

- 'Bayesian molecular alignment using random fields', Leeds LASR Workshop, Leeds, UK, July 6, 2011.

- 'Manifolds, metrics and geometric correspondence', AOOD Transitional Workshop, SAMSI, North Carolina, June 10, 2011.

- 'Paradigm Free Mapping with Sparse Regression', SRCOS meeting, Hickory Knob State Park, McCormick, South Carolina, June 7, 2011.

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields', Department of Electrical and Computer Engineering, North Carolina State University, April 15, 2011.

- 'Face shape identification', South Carolina Chapter of the ASA, 41st Annual Meeting, April 8, 2011.

- 'Mixed effect modelling of proteomic mass-spectrometry data' ENAR, Miami, March 21, 2011.

- 'Curve modeling in shape spaces.' Biostatistics seminar, University of North Carolina, Chapel-Hill. February 23, 2011.

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields.' Statistics Seminar, Cornell University, October 1, 2010 and Signal Processing and Communications Seminar, University of Cambridge, November 17, 2010.

- Several presentations as part of the Analysis of Object Data Program: Paradigm Free Mapping in fMRI, Metrics for Covariance Matrices, Shape matching using random fields, Autumn 2010, SAMSI, North Carolina.

- Three sessions on Statistical Shape Analysis as part of the 'Analysis of Object Data I' course, SAMSI, North Carolina, September/October, 2010.

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields.' European Meeting of Statisticians, University of Piraeus, Greece, August 21, 2010.

- 'Statistical analysis of brains using diffusion tensor images.' International Workshop on Statistical Modelling, University of Glasgow, July 8, 2010.

- 'A Statistical Journey: Florence Nightingale Meets Homer Simpson.' Open Day, University of Nottingham, June 26, 2010.

- 'Curve modelling in shape spaces.' Second UK One-day Meeting on Morphometrics and Statistical Shape Analysis, University of Kent, June 7, 2010.

- 'Statistics of faces.' UCAS talk, University of Nottingham, March 3, 2010.

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields.' Department of Statistics, Florida State University, December 4, 2009.

- 'Face shape identification: how different are we?' Research Seminar, Department of Statistics, University of South Carolina. November 24, 2009.

- 'Bayesian Alignment of Unlabeled Marked Point Sets Using Random Fields.' Department of Statistical Science, Duke University, November 13, 2009.

- 'Non-Euclidean statistics for covariance matrices, with applications to diffusion tensor imaging.' Shape Stats/Medial Geometry Group. University of North Carolina, Chapel Hill. October 9, 2009.

- 'Non-Euclidean statistics for covariance matrices, with applications to diffusion tensor imaging', Department of Statistics Colloquium, University of Georgia, October 1, 2009.

- 'Non-Euclidean statistical analysis of covariance matrices and diffusion tensors' ISI Congress, Durban, South Africa, August 19, 2009.

- 'Non-Euclidean statistics for covariance matrices, with applications to diffusion tensor imaging' Leeds LASR Workshop 2009, July 7, 2009.

- 'Face shape identification' RSS East Kent Local Group, July 2, 2009.

- 'Non-Euclidean statistics for covariance matrices, with applications to diffusion tensor imaging' SRCOS 2009, Jekyll Island, Georgia , June 10, 2009.

- 'Mixed effect modeling of proteomic mass-spectrometry data' Department of Statistics Colloquium, University of South Carolina, February 26th, 2009.

- 'A short introduction to Bayesian statistics' Sir Peter Mansfield MR Centre, University of Nottingham, December 5th, 2008.

- 'Non-Euclidean statistics for diffusion tensors in brain imaging', RSS General Applications Section, RSS Headquarters, December 3rd, 2008.

- 'Face shape identification', Young Statisticians Training Day, Royal Statistical Society International Conference 2008, University of Nottingham, September 1st, 2008.

- 'Non-Euclidean statistics for covariance matrices, with applications to diffusion tensor imaging', University of Warwick, June 19th, 2008.

- 'Non-Euclidean statistics for shapes and covariance matrices', INRIA, Sophia Antipolis, France, June 6th, 2008.

- 'Shape analysis and molecule matching', Shape and Size in Medicine, Biotechnology and Materials Science, Workshop, Universita degli Studi di Milano, Italy, April 29th, 2008.

- 'Face shape identification', Research Students Conference, Plenary presentation, University of Nottingham, March 31st, 2008.

- 'Multilevel modelling of proteomic mass spectrometry data', Newton Institute, University of Cambridge, March 13th, 2008.

- 'The statistical analysis of diffusion tensor images', Seminar, University of Lancaster, February 15th, 2008.

- 'Shape analysis and molecule matching', RSS North East Group, University of Newcastle, January 17th, 2008.

- 'Shape analysis and molecule matching', Isaac Newton Institute Workshop, January 7th, 2008 (poster).

- 'Face shape identification', Internal Seminar, Division of Statistics, University of Nottingham, December 19th, 2007.

- 'Shape analysis and molecule matching', Seminar, University of Southampton, December 6th, 2007.

- 'The statistical analysis of diffusion tensor images', Seminar, University of Bristol, November 30th, 2007.

- 'Shape analysis and molecule matching' Seminar, University of South Carolina, USA, September 27th, 2007.

- 'Factored principal components analysis and likelihood based face recognition' International Workshop on Statistical Modelling, Barcelona, July 4th, 2007.

- 'Face shape identification: how different are we?' Seminar, University of Bath, April 27th, 2007.

- 'Travels in Shape Spaces' Seminar, University of Glasgow, November 29th, 2006.

- 'Statistical shape analysis and its applications' Data Sciences Meeting, Unilever, Port Sunlight, Wirral, October 4th, 2006.

- 'Face shape identification: how different are we?' RSS Conference, Belfast, September 11th, 2006.

- 'Ornstein-Uhlenbeck shape processes, simulation and inference' IMS Annual Meeting, Rio de Janeiro, Brazil, July 30th, 2006.

- 'Travels in Shape Spaces' Swiss Statistics Seminar, Berne, Switzerland, May 19th, 2006.

- 'Shape space smoothing splines for planar landmark data' IMA workshop on Shape Spaces, Minneapolis, USA, April 3rd-7th, 2006 (poster).

- 'Summarizing shape variability and hypothesis testing'. MICCAI Tutorial on Statistics of Anatomic Geometry, Palm Springs, USA, October 26th, 2005.

- 'Statistical analysis of unlabelled point sets: comparing molecules'. Stochastic geometry and its applications, Berne, Switzerland, October 7th, 2005.

- 'Statistical analysis of SELDI protein chip data from breast cancer cell lines exposed to chemotherapeutic agents LASR workshop', University of Leeds, July 4th, 2005.

- 'Shape densities, shape diffusions and some old friends'. RSS General Applications and Statistical Computing Sections, London. June 8th, 2005.

- 'Non-stationary spatio-temporal analysis of karst water levels' RSS/EPSRC funded workshop on Spatio-temporal Modelling, University of Southampton, May 26th, 2005.

- 'Surface shape analysis, with applications to MR brain images and spine profiles' RSS Medical Section, London. April 26th, 2005.

- 'Statistical analysis on high-dimensional spheres and shape spaces' Bernoulli World Congress, Barcelona. July 30th, 2004.

- 'Shape analysis in mathematical medicine' Keynote, ECCOMAS, Jyväskylä, Finland. July 25th, 2004.

- 'Size and shape analysis of DNA molecular dynamics simulations' Minisymposium, ECCOMAS, Jyväskylä, Finland. July 25th, 2004.

- 'Hierarchical Bayesian modelling of spatial age-dependent mortality' EPSRC/NERC EMS workshop, Nottingham. April 15th, 2004.

- 'Statistical shape analysis [short course]' 3e cycle romand de statistique et probabilités appliqués, Les Diablerets, Switzerland. March 7th-10th, 2004.

- 'Statistical shape analysis of points, functions, curves and surfaces' Young Researcher's Day, Université Catholique Louvain, Belgium. 19th May, 2003.

- Three lectures at the CNRS funded workshop Mathematics in Computer Vision, Cachan, France, May, 2003.

- 'Surface shape analysis from MR images' Sesto Convegno Internationale Metodi Quantitativi per le Scienze Applicate, Sienna, Italy, September 19th, 2002.

- 'Statistical Shape Analysis [short course]' Jyväskylä Summer School, Jyväskylä, Finland. August 12-16, 2002.

- 'Statistical Shape Analysis [short course]' SINAPE (Brazilian National Symposium of Probability and Statistics), Aguas de Lindoia, Brazil. 29th July-2nd August, 2002.

- 'Surface shape analysis from MR images' SINAPE (Brazilian National Symposium of Probability and Statistics), Aguas de Lindoia, Brazil. 29th July-2nd August, 2002.

- 'Nonparametric shape analysis' Nonparameterics conference, Crete, Greece. July 17th, 2002.

- 'Surface shape analysis from MR images' Stochastic geometry, spatial statistics and statistical physics workshop. Oberwolfach, Germany. 10th-16th, February, 2002.

- 'Statistical Shape Analysis [short course]' Danish Technical University, Copenhagen. November, 2001.

- 'Statistical Shape Analysis [short course]' RSS conference Glasgow, July, 2001.

- 'Surface shape from MR images' Leeds LASR conference on Functional and spatial data, July 2001.

2000 Computational Stochastics workshop, Århus, Denmark; Leeds LASR Workshop: Shape, directions and images; Pescara, Italy: Spatial Statistics in Archaeology; Minnesota, USA: Computer Vision Workshop; RSS Statistics in Image Analysis and Processing study group meeting Bath.

1999 A series of 8 workshops and a conference presentation on shape analysis at the Indian Statistical Institute, Calcutta; Statistical image analysis workshop, Gothenburg, Sweden; Shape Analysis short course at the JSM, Baltimore, USA.

1998 Oberwolfach, Germany (Stochastic Geometry and Spatial Statistics); Sherbrooke, Canada (Statistical Society of Canada); Vilnius, Lithuania (EMS); Strathclyde (RSS98)

1997 Duke University, USA (Statistics workshop, three lectures); Auckland (New Zealand Statistical Association conference); Newcastle University, Australia (Image matching workshop); Istanbul, Turkey (ISI Biennial conference); Open University (8th one day conference on Spatial Statistics)

1996 Toulouse (Semstat3)

1995 Oberwolfach, Germany (Stochastic Geometry conference); Leeds (CISSA shape conference)

1994 Toronto (ASA joint meetings); Newcastle (RSS94)

1993 Philadelphia (IMS/ENAR Regional Meeting); Paris (ORSA Probability in Engineering); Lithuania (European Young Statisticians Meeting); Leeds (Shape workshop).

1992 Hong Kong (Multivariate Analysis symposium); Sydney (Anatomy symposium); Sheffield (RSS92).

1990 Princeton, USA (SS Wilks Workshop); Oberwolfach, Germany (Probabilities on Groups conference).

1989 Leuven, Belgium (Statistics, Earth and Space Sciences); Glasgow (Research students' conference).

1988 Surrey (Research students' conference)

plus additional statistics seminars at

2004 Sheffield. **2003** Lancaster, Kent, York. **2001** Newcastle, Manchester, Cambridge. **2000** Sheffield, Bristol, Eötvös Lorand University (Budapest), Edinburgh. **1999** Bath, Stathclyde. **1998** University of Western Ontario, Canada; Joint Reading/Surrey/Royal Holloway seminar at Reading; Birmingham. **1997** Australian Statistical Association, Canberra Chapter; ANU, Canberra and University of Queensland, Brisbane, Australia. **1996** Imperial College, University of Chicago (USA). **1995** Bristol, Birmingham, Highland RSS Group, Leeds (Medical Statistics). **1994** UMIST, Warwick. **1993** Penn State (USA), Rutgers (New Jersey, USA), Temple (Philadelphia, USA), Bell Labs (New Jersey, USA), Lancaster. **1992** Sydney (CSIRO), Western Australia (Mathematics), Western Australia (Biology), London (LSE). **1991** Surrey, Bristol, Glasgow, Edinburgh, Manchester. **1990** Sheffield, Nottingham, Leeds (Medical Statistics). **1988** Leeds. **1987** Leeds.

Student supervision

- Current PhD students

    - Jiejun Du. (Joint supervisor: Xianzheng Huang) Measurement error in shape analysis.

    - Nicole Lewis. (Joint supervisor: David Hitchcock) Mass spectrometry data analysis

    - Wen Cheng. Classification of protein shapes.

    - Blake Hill. Shape analysis and covariance metrics.

- Past PhD students

    - Mohammad Faghihi (joint supervisor: Dr. C.C. Taylor: PhD awarded 1996). Shape analysis of spatial point patterns.

    - Catherine Anderson (joint supervisor: Prof. J.T. Kent: PhD awarded 1997). Object recognition using statistical shape analysis.

    - Mark Scarr (joint supervisor: Dr. C.C. Taylor: PhD awarded 1998). Texture modelling and classification using statistical image analysis.

    - Gary Walker (joint supervisor: Prof. J.T. Kent: PhD awarded 1999). The automatic matching of 2D electrophoretic gel images.

    - Rahman Farnoosh (joint supervisor: Dr. C.C. Taylor: PhD awarded 2000). Size analysis of spatial point patterns.

    - Paul McDonnell (Leeds: joint supervisor: Prof. K.V. Mardia, PhD awarded 2001). Image averaging and shape distributions.

    - Getulio Amaral (joint supervisor: Prof. A.T.A. Wood, PhD awarded 2004). Bootstrap and empirical likelihood methods in statistical shape analysis.

    - Ali Alshabani (joint supervisor: Dr. C.D. Litton, PhD awarded 2005). Statistical analysis of human movement data.

    - Mousa Golalizadeh (joint supervisor: Prof. FG Ball, PhD awarded 2006). Statistical modelling and inference for shape diffusions.

    - Kim Evans (joint supervisor: Dr. H. Le, PhD awarded 2007). Statistical analysis of shape curves and surface matching.

    - Christopher Brignell (joint supervisor: Dr WJ Browne, PhD awarded 2007). Shape analysis and statistical modelling in brain imaging.

- Kelly Handley (joint supervisor: Dr. WJ Browne, PhD awarded 2007). Statistical analysis of mass-spectrometry data.

- Ciprian-Ionut Duduiala (joint supervisor: Dr. J. Wattis, PhD awarded 2009). Stochastic nonlinear models of DNA breathing at a defect.

- Irina Czogiel. Statistical inference for molecular shapes (joint supervisor: Dr CJ Brignell, PhD awarded 2010). Winner of a 2012 Gustav-Adolf-Lienert-Preis, International Biometric Society, German region.

- Cesar Caballero Gaudes (joint supervisors: Bai Li, Penny Gowland, PhD awarded 2010). Single trial fMRI analysis.

- Diwei Zhou (joint supervisors: Alexey Koloydenko, Bai Li, PhD awarded 2010). Statistical analysis of diffusion tensor imaging.

- Aurélien Madouasse (joint supervisor: Martin Green, PhD awarded 2010). Statistical modelling and analysis of diary milk herd infections.

- Nicola Stone (joint supervisor: Andrew Cliffe, 2011, PhD awarded 2011). Statistical analysis of computer models.

- Igor Chernyavsky (joint supervisors: Oliver Jensen, Lopa Leach, PhD awarded 2011). Modelling placenta blood flow.

- Visiting PhD students: Luigi Ippoliti (Italy, 5 months), Antonio Gattone (Italy, 1 year), Simone di Zio (Italy, 5 months), Riccardo di Nisio (Italy, 4 months) and Asger Hobolth (Denmark, 6 months).

- Masters dissertations: several dissertations since 2000, including 2007: Lutfor Rahman. The analysis of genetic SNP data in a study of Alzheimer's Disease using functional mixed effect models.
2010: Helen Higgins. Elicitation of the effect of treatment in veterinary medicine.
2010: Qiao Huang: Using Gaussian Graphical Models to estimate gene networks.
2010: Christine Skittides: Analysis of a questionnaire of HPV vaccine knowledge in Greek women.

- Undergraduate summer projects

  - 2006 Justly J.J. Jiang: Bayesian spatial modelling and analysis in archaeology.

  - 2007 Jennifer Ware: Statistical analysis of cDNA microarray data.

- Undergraduate projects. I have supervised a large number of undergraduate projects on a range of topics, e.g. extreme value theory, survival analysis, classification and directional data analysis.

PhD examinations conducted

External PhD examiner (1999): Imperial College, University of Wales Swansea, University of Glasgow.
External PhD examiner (2000): University of Edinburgh, University of Sheffield, University of Newcastle.
External PhD examiner (2001): University of Bath, Open University, University of Trondheim (Norway).
External PhD examiner (2003): University of Lancaster.
External PhD examiner (2005): University of Leeds.
External PhD examiner (2006): University of Sheffield.
External PhD examiner (2007): University of Cambridge, University of Hertfordshire.
External PhD examiner (2008): University of Glasgow, Imperial College, University of Cambridge, University of Leeds.
External PhD examiner (2011): University of Warwick.

Internal PhD examiner: Leeds (four times), Nottingham (twice).
USC (2012): Several PhD Committees and an undergraduate honors dissertation committee.

Teaching

University of South Carolina: 2011-

STAT 205: Elementary Statistics for Biology and the Life Sciences (100 students).
STAT 714: Linear Statistical Models (10 students).
STAT 705: Data Analysis II (twice, 9 students and 18 students).

University of Nottingham: 2010

HG1M11: Engineering Mathematics I (250 students)
G14CST: Computational Statistics (8 students)
G13TST/G13TS2 Topics in Statistics (60 students)
G14ANS: Applications of Statistics (25 students).

University of South Carolina: 2009

STAT 718A: Statistical shape and image analysis (9 students).
STAT 714: Linear Statistical Models. (14 students)

University of Nottingham: (2000-2008) In brackets the number of times I gave the module and the approximate number of students.

Level 1: G1ASTA Statistics (three times, 250 students)
Level 1: HGBMPS/HG1IST Probabilistic and Statistical Techniques for Engineers (twice, 150 students)
Level 2: G12LIN Linear models (three times, 50 students)
Level 2: G12PRT Probability Techniques (once, 150 students)
Level 2: G12SCM Statistical Concepts and Methods (twice, 100 students)
Level 3: G13INF Statistical Inference (once, 80 students)
Level 3: G13TST Topics in Statistics (once, 20 students)
Level 3 and 4: G13AOD/G14FOS: Analysis of Data (once, 10 students)
Level 4: G14TS2 Topics in Statistics (Spatial Statistics and Image Analysis) (three times, 2-6 students)
Level 4: G14TFG Time series and forecasting (once, 10 students)
Tutorials in Mathematics
Level 4: G14CST Computational statistics (once, 10 students)
MMath Dissertation supervisions
BSc/MMath Project supervisions
Introduction to R (workshops)
Personal Tutorials (pastoral support for undergraduates)

University of Leeds, UK: (1989-1996, 1997-1999)

Level 1: MATH1730/1740 Introduction to Statistics I, II (89-96: 15 times, including repeated lectures)
Level 1: MATH1910 Modelling and Investigations (97-99: twice)
Level 3: MATH3722 Statistical Inference (89-91,93-94, 97-99: four times)
Level 3: MATH3761 Sequential and Bayesian Analysis (91-94, three times)
Level 3: MATH3792 Statistics and Images (94-96, twice)
Level 3: MATH3750 Project supervision (94-96,97-99)

Consultancy courses in Elementary and Introductory Statistics.
Tutorials in Statistics, Projects and Dissertations.

University of Chicago, USA: (1996-1997)

Level 1: STAT200 Elementary Statistics
Level 1: STAT220 Introduction to Statistics for Economists
Level 2: STAT224 Applied Regression Analysis
Level 4: STAT338 Statistical Shape Analysis

External Undergraduate Examiner

The external examiner oversees all examinations and procedures and grading at another institution

University of Warwick, 2004-2007
BSc, MMorse, MSc Statistics

Open University, 2005-2007
Course MDST242

University of Surrey, 2001-2004
BSc, MMath Mathematics and Statistics

Lancaster University, 1999-2002
BSc, MStat Mathematics and Statistics

Administration and Service

Conference or Workshop Committees

2010-11 SAMSI Program on the Analysis of Object Oriented Data, North Carolina.
2011 Mathematical Foundations of Computational Anatomy, Toronto.
2009 The 10th European Congress of Stereology and Image Analysis, Milan.
2008 Mathematical Foundations of Computational Anatomy, New York.
2006 Mathematical Foundations of Computational Anatomy, Copenhagen.
2004 NERC-EPSRC EMS workshop on modelling uncertainty in complex environmental and biological systems, Nottingham.
1995-96, 1998-99 Leeds Research Workshop joint organizer
1994-1997 Royal Statistical Society: Research Section Committee. Joint organizer of RSS/BMVA meetings 1995 and 1996.
1995-1996 The RSS96 Conference Planning Committee (Research Section Representative)
1995 European Young Statisticians' Meeting (EYSM95) UK Organizer

Review Panel Membership

2006 EPSRC Doctoral Training Grant Mathematics Panel (Postgraduate Training Allocations, December 2006)
2006 EPSRC Review panel for Statistics Mobility Fellowships (May 2006)
2003 Statistics assessor for University of Hong Kong RAE internal review

2000-2008 EPSRC Peer Review College member
2000-2002 EPSRC Cross-disciplinary panel
2000 FCT Portuguese Foundation of Science Mathematics visiting panel

Refereeing

I have carried out a large amount of refereeing for all the main Statistics journals, biomedical journals, image analysis journals, book publishers, as well as many research funding councils.

Recent Outreach Activities

2010 Mathematics presentation for University of Nottingham Open Day.
2010 UCAS presentation for undergraduate degree applicants and parents.
2006, 2007, 2008 Sutton Trust Summer School presentation.
2007 EPSRC Showcase Event at the House of Commons, UK Parliament, London, launching EPSRC's brochure on Engaging Maths which had an article on my work on face recognition.

Further Service

2011- Department of Statistics Hiring Committee Member.
2011- Colloquium Chair, Department of Statistics, University of South Carolina.
2011- Palmetto Lecturer Chair, Department of Statistics.
2011 May Qualifying Exam Committee Chair, Department of Statistics, University of South Carolina.
2009-2011 Program Organizer SAMSI program on the Analysis of Object Data.
2011- Department of Statistics Computing Committee Member, University of South Carolina.
2009 Department of Statistics Hiring Committee Member.
2009 Department of Statistics Computing Committee Chair, University of South Carolina.
2009- Theme Leader, Highly Structured Data, Department of Statistics, University of South Carolina.
2006-2009 Management Group, Centre for Medical Imaging and Analysis on the GRID (CMIAG), University of Nottingham.
2007-2008 Bridging-the-Gaps Strategy Group. Large Datasets Theme Leader. *A University wide scheme for encouraging interdisciplinary research. The scheme is funded by EPSRC.*
2007-2008 Knowledge Transfer Network (KTN) for Industrial Mathematics Scientific Committee member, Smith Institute.
2006-2008 Honours Committee, Royal Statistical Society
2006-2008 Royal Statistical Society Consultation Group
2004-2007 Director of Research and Chair of Research Committee, School of Mathematical Sciences.
2005-2006 Postgraduate Training Working Group (Chair). *Implemented a formal taught element into our 3.5 and 4 year PhD programme.*
2005-2007 Engineering and Physical Sciences Strategy Group for research, University of Nottingham.
2004-2005 Faculty of Science Postgraduate Taught Courses Committee
2002-2004 Honorary Secretary (Membership Secretary), Royal Statistical Society.
2002-2004 Member of Council, Royal Statistical Society,
2002-2004 Executive Committee member, Royal Statistical Society,
2002-2004 Professional Affairs Committee member, Royal Statistical Society.
2002-2004 Education Committee member, Royal Statistical Society

2002-2004 Examinations Committee member, Royal Statistical Society.

2002-2004 Membership Services Group (Chair), Royal Statistical Society.

2000-2004 Resources Committee Chair. *In charge of computing facilities, including budget of computing equipment, and the management and recruitment of computing officers.*

2000-2004 Examinations Monitoring Group.

2001 Major Course Review Committee

2000-2008 Statistics Web Co-ordinator. *Initiated the Divisional web pages.*

1997-2000 Postgraduate Research and Admissions Tutor for Statistics

1998-2000 School of Mathematics Staff/Postgraduate Committee (Chair)

1998-2000 Programme Committee of the RSS

1997-2000 Statistics Seminar Organizer

1998-2000 PG training organizer for the School of Mathematics

1990-96, 97-99 (Leeds), 2000-01 (Nottingham) UCAS Interviewer

1998-1999 Faculty Research Committee

1995-96, 97-2000 School of Mathematics IT Committee

1997-2000 Department of Statistics Teaching and Learning Committee

1994-2000 RSS Leeds-Bradford Local Group Committee

1995-1996, 1997-1999 Centre of Medical Imaging Research steering group, University of Leeds

1997-2000 School of Mathematics/Education Liason Committee

1997-2000 School of Mathematics Public Relations Committee.

1998-2000 School of Mathematics Research Advisory Group

1999-2000 School of Mathematics Staff Development Group.

1991-1997 University of Leeds: Board of the Faculty of Science

1994-1996 Web developer for Department of Statistics, Leeds.

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