Anthony Nicholas PETTITT

Publications
Articles in refereed books

Pettitt A N (1980). Advanced Mathematics for Engineers & Scientists (adaptation for SI units) McGraw-Hill.

Pettitt A N (1982). Cramer-von Mises Statistic, in *Encyclopedia of Statistical Sciences, Vol. 2*, Wiley, 1982.

Pettitt A N (1982). Durbin-Watson Statistic, in *Encyclopedia of Statistical Sciences, Vol. 2*, Wiley, 1982.

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Pettitt A N (1989). Change-point Problem, in *Encyclopedia of Statistical Sciences, Supplement*, Wiley, 1989.

Pettitt A N (1998a). Proportional odds regression. *Encyclopedia of Biostatistics*. Eds. P Armitage and T Colton, Chichester:Wiley.

Pettitt A N (1998b). Kolmogorov-Smirnov tests in survival analysis. *Encyclopedia of Biostatistics* Eds. P Armitage and T Colton, Chichester:Wiley.

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Pettitt A N (1977). Tests for the exponential distribution with censored data using Cramer-von Mises Statistics. *Biometrika* **64** 629-32.

Pettitt A N (1977). Small sample percentage points of the Anderson-Darling statistic for testing normality. *Applied Statistics* **26** 156-161.

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Pettitt A N and Stephens M A (1977). The Kolmogorov-Smirnov goodness-of-fit statistic with discrete and grouped data. *Technometrics* **19** 205-210.

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Pettitt A N (1979). A non-parametric approach to the change-point problem. *Applied Statistics* **28** 126-135.

Horne J A, Brass C G and Pettitt A N (1980). Circadian performance differences between morning and evening types. *Ergonomics* **23** 29-36.

Pettitt A N (1980). Some results on estimating a change-point using non-parametric type statistics. *J Statistical Computation and Simulation* **11** 261-72.

Pettitt A N (1980). A simple cumulative sum type statistic for the change-point problem with zero-one observations. *Biometrika* **67** 79-84.

Pettitt A N and Siskind V (1981). Effect of within-sample dependence on the Mann-Whitney-Wilcoxon Statistic. *Biometrika* **68** 437-41.

Pettitt A N (1981). Posterior probabilities for a change-point using ranks. *Biometrika* **68** 443-50.

Strathie E J, Sinclair M A and Pettitt A N (1981). Widhelm and Lessing revisited: an alternative Markovian model for processing systems with imperfect review. *AIIE Transactions* **13** 363-70.

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Pettitt A N (1982). Parametric tests for agreement amongst groups of judges. *Biometrika* **69** 365-75.

Pettitt A N (1983). An approximate analysis of incomplete ranked data. *Biometrical J* **25** 361-72.

Pettitt A N (1983). Approximate methods using ranks for regression with censored data. *Biometrika* **70** 121-32.

Pettitt A N (1983). Likelihood based inference using signed ranks for matched pairs. *J Royal Statistical Society B* **45** 287-96.

Pettitt A N (1983). Inference for censored matched pairs using signed ranks. *Australian J Statistics* **25** 487-95.

Pettitt A N (1983). Fitting generalised logistic and log-logistic models to censored data using GLIM. *GLIM Newsletter* **7**.

Robinson P J, Zoring J, Bass L and Pettitt A N (1983). A Bayesian analysis of capillary heterogeneity in the intact pig liver. *Biometrics* **25** 361-72.

Horne J A and Pettitt A N (1984). Sleep deprivation and physiological response to exercise under steady-state conditions in untrained subjects. *Sleep* **7** 168-79.

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Marshall J R and Pettitt A N (1985). Discordant concordant rates. *Bulletin of the British Psychological Society* **38** 6-0.

Pettitt A N and Acar B S (1985). Prediction using non-parametric techniques: some comparisons. J Statistical Computation and Simulation 21 117-34.

Pettitt A N (1985). Re-weighted least squares estimation with censored and grouped data: an application of the EM algorithm. *J Royal Statistical Society B* **47** 253-260.

Pettitt A N (1986). Inference based on ranks with tied failure time or grouped survival data. *Biometrical J* **28** 919-26.

Pettitt A N (1986). Censored observations, repeated measures and mixed effects models: an approach using the EM algorithm and normal errors. *Biometrika 73* 635-43.

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Pettitt A N and bin Daud I (1989). Case-weighted measures of influence for proportional hazards regression. *Applied Statistics* **38** 51-68.

Pettitt A N (1989). Rough and Ready Approximations for Case Deletion Statistics for Proportional Hazards Regression. *The Statistician* **38** 259-274.

Pettitt A N and bin Daud I (1990). Investigating time dependence in Cox's proportional hazards model. *J Royal Statistical Society C (Applied Statistics)* **39** 313-329.

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Sweeting F D J, Thorpe W and Pettitt A N (1991). Fault and Cause Diagnosis of Casting Effects: a Case Study. *Quality and Reliability Engineering (International)* **8** 815-825.

Chakraborty S, Pettitt A N, Cameron D F, Irwin J A G and Davis R D (1991). Anthracnose development in pure and mixed strands of pasture legume *Stylosanthes Scabra*. *Phytopathology* **81** 788-793.

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Jones P N and Pettitt A N (1992). Comparison of EEGs before and after stunning of cattle taking account of animal-to-animal variation. *Biometrical J* **34** 815-825.

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Pettitt A N (1985). Contribution to Discussion of the Paper by Mr Clayton and Dr Cuzick. *J Royal Statistical Society A* 148 p111.

Pettitt A N (1986). Contribution to Discussion of Bayesian Methods in Practice. *Applied Statistics* 37 p138.

Pettitt A N (1996). Comment on Paradox or Paradigm? New Zealand Statistician 31 14-15.

Pettitt A N and Jones P N (1997). Discussion on 'Spectral analysis of replicated biomedical time series' by P J Diggle and I Wasel. *Applied Statistics*, 46 67-68.

Pettitt A N and Hay J (1998). Discussion on "Model based Geostatistics" by P J Diggle, J A Tawn and R A Moyeed. *Applied Statistics* **47** 340-341.

Pettitt A N (1999). Discussion of paper by J T Key *et al*. Bayesian Statistics 6 (J M Bernardo, J O Berger, A P David and A F M Smith eds). Oxford University Press, 366-367.

Pettitt A N (1999). Discussion of paper by K L Mengersen *et al*. Bayesian Statistics 6 (J M Bernardo, J O Berger, A P David and A F M Smith eds). Oxford University Press, 435.

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Friel, N. and Pettitt A.N. (2007). Discussion of "Nested Sampling Bayesian Computations", Skilling, J. in Bayesian Statistics 8, pp 1-34. Bernardo, J.M., Bayarri, M.J., Berger, O.J., Dawid, A.P., Heckerman, D., Smith, A.F.M. and West, M. (Eds). Oxford: Oxford University Press.

Reviews/Reports

Pettitt A N. Reviews of books in Biometrics, Journals of the Royal Statistical Society.

Pettitt A N. DMS, CSIRO Consulting Reports, VT85/21, VT85/32 described in Biennial Report of DMS, 1985 and 1986, pp 62-63.

Pettitt A N. Reviews in Mathematical Reviews, 1978 – 1986.

Pettitt A N. DMS, CSIRO Consulting Report Q88/2.

Pettitt A N. CSIRO Biometrics Unit Consulting Report BU88/1.

Contract Consulting and Expert Witness Reports

Pettitt A N (March 1992). *Federal Office of Road Safety*: Road Safety Division Research Project 90R/6/4. Factors Affecting Fatal Road Crash Trends, (80 pages + tables).

Pettitt A N and Low Choy (January 1993). *National Board of Employment, Education and Training*: Commissioned Report No 21, Research Performance Indicators Survey, (111 pages).

Pettitt A N, Baade, I, Low Choy S and Darnell R E. *Federal Office of Road Safety*: Road Safety Division Research Project 90R3/1/4. Analysis of Single Vehicle Rural Crashes (88 pages).

Pettitt A N and Darnell R E (November 1992). *Queensland Electricity Commission*: Statistical analysis of Coal Testing Options for Stanwell Power Station (Contract CC 192/92) (48 pages).

Saunders I, Darnell R, Kozan E and Pettitt A N (1993). *Collins Food International*: Simulation Study of Queuing at Sizzlers Restaurants (through Key Centre Strategic Management).

Pettitt A N and Haynes M A (March 1994). *Great Barrier Reef Marine Park Authority*: Statistical Review of the Aerial Surveillance Database. Two reports (41 pages + tables, 72 pages).

Pettitt A N and Low Choy S (April 1994). *National Board of Employment, Education & Training*: Commissioned Report No 27, Quantitative Indicators of Australian Academic Research (contribution of statistical analysis to the report).

Pettitt A N. (2004) Review of Methodological Aspects of Generic Import Risk Analysis for Pig Meat. Expert Witness report for the Federal Court of Australia, New South Wales Registry: Australian Pork Limited v Director of Quarantine (35 pages).

Pettitt A N. (2004) Review of Methodological Aspects of Generic Import Risk Analysis for Pig Meat: Supplementary Report. Expert Witness report for the Federal Court of Australia, New South Wales Registry: Australian Pork Limited v Director of Quarantine (17 pages).

Papers submitted and/or under review or revision

Simpson, D.P., Turner, I and Pettitt A.N. Sampling from a Gaussian Markov random field: a comparison of methods.

Webster, R., Djamaludin, I. and Pettitt, A.N. Risks of risk adjustment for cardiac surgery and ICU patients.

Webster, R.A., Pettitt, A.N. and Cook, D.A. Risk-adjusted charts for medical monitoring: sources of uncertainty.

Tran, T.T. and Pettitt, A.N. Deviance information criteria for models with imputed missing covariates.

Kruger, S.J., Hastie, M., Gruber, C., McVinish, R., Bartley, J., Pettitt, A.N., Clements, J.A., Gardiner, R.A. and Walsh, T.P. Application of MALDI-TOF Mass Spectrometry and Wavelet analysis to unfractionated seminal plasma from biopsy-negative and Prostate Cancer-positive patients.

Friel, N., Pettitt, A.N., Reeves, R. and Wit, E. Bayesian inference in hidden Markov random fields for binary data defined on a large lattices.

Graves, N, Faddy, M.J and Pettitt, A.N. A Markov model for length of stay in hospital.

Chief Investigator on Nationally Competitive Grants 1993 – 2007

*First named Chief and Principal Investigator

*ARC Large (with P N Jones) 1993-5 $90,000 (Statistical techniques for fractional factorial experiments with incomplete data).

*ARC Large (with D Huang and N Spencer) 1994-96 $90,000 (Improved statistical techniques for time series data with explanatory variables).

ARC SPIRT (with E Kozan) 1997 $13,000 (Blood Inventory Management).

ARC SPIRT (with K Harding) 1997-98 $41,000 (Wood conversion modelling).

ARC Small* 1998 $8,000 (Development of diagnostic techniques).

ARC SPIRT (with E Kozan) 1998-2000 $105,000 (Integrated Production Planning)

*ARC SPIRT (with W M Strong & D G Butler) 1999-2001 $62,000 (Statistical Decision Analysis for Optimizing Grain Production).

*ARC Large (with K Mengersen) 1999-2001 $180,000 (New Statistical theory and methodology for Applied Bayesian analyses).

ARC SPIRT (with K Mengersen) 2000-2002. $305,000 (Statistical methodology contributing to decision support capability for Evidence-Based Practice using two public hospitals in Brisbane as models for Australia.

ARC RIEF* 2000 $692,000 (Queensland High Performance Computing (HPC) Meta Centre Enhancement Project.

*ARC SPIRT 2001-2003 $290,000. Development of New Statistical methodology for longitudinal survey methodology.

*Grains R&D Corp 2001-2002 $160,000. On farm experiments using precision agriculture.

ARC Linkage 2002-2004 (with E Kozan) $240,000. Optimisation of rail Network Infrastructure.

08.07.10

*ARC Discovery 2003-2005 (with I.Turner) $135,000 New developments for Bayesian statistical models and computational methods.

*ARC Linkage 2003-2007 (with E Kozan, DLS McElwain, J Hay, A Morton, J Fleming & M Whitby) $997,000 Statistical and Mathematical modeling to improve health care outcomes in hospitals.

.*ARC LIEF Grant 2004 (with J Patterson, DLS McElwain, V Anh, M Mahendran, S Hurn, S Connolly and others) $636 000. A Computational Research Grid Serving Regional and Metropolitan Queensland

*ARC Linkage 2004 – 2007 (with R Henderson and V Vegh) $150 000 Motor Unit Numbers Estimation (MUNE) Using Bayesian Statistical Methodology for Monitoring of Progression of Neuromuscular Diseases

Queensland Cancer Fund 2004 – 2006 (with J Clements, R Gardiner, T Walsh, J Bartley, J Gorman, J Yaxley and others) $70 000 Proteomic Approaches to the Early Detection of Prostate Cancer

ARC Linkage 2004 – 2007 (with G Ledwich, P O'Shea and E Palmer) $200 000 Reducing Blackout Risk through Live Modelling and Monitoring

NHMRC Project 2004 – 2005 (with N Graves, P Collignon, M Whitby, D Battistutta, F Birrell, and M Tilse) $117 000 The Economics of reducing the Risk of Healthcare-acquired Intravascular Device Related Bloodstream Infections

*ARC Discovery 2005-2007 (with M J Faddy) $348 000 Bayesian Statistical Inference for Implicitly defined Probability Models.

*ARC Linkage 2006-2008 (with R Reeves) $225 000 Novel statistical analysis for traffic modeling.

*ARC Discovery 2008-2010 (with G Ridall as APD, N. Friel, R Henderson, P. McCombe and J Blok) $450,000. Motor Unit Number Estimation.

Supervision of Completed Research Students (as the principal supervisor)

At Loughborough University of Technology.

S Acar   PhD   awarded in   1983
In the area of rank statistics

I bin Daud   PhD   awarded in   1987
In the area of case deletion statistics for survival analysis

J H Dodgson   PhD   awarded in   1987
In the area of conditional tests using the t statistic.

I also played a significant advisory role in the PhD of R McCaffer on the statistical analysis of bidding data for construction projects.

At Queensland University of Technology

G Price   PhD   awarded in   1996
"Application of time series analysis techniques to the human electroencephalogram in real time, in order to synchronise event related potentials (ERPs) with background EEG"

I Baade   PhD   awarded in   1997
"Survival Analysis Diagnostics"

J Hay   PhD   awarded in   1998
"Statistical modelling for non-Gaussian time series data with explanatory variables"

N Ismail   PhD   awarded in   2000
"Statistical   methods   for   the   improvement   of   health   care"

J Kelly   PhD   awarded in   2000
"Topics in the statistical analysis of positive and survival data"

B Walduck   Masters   awarded in   2000
"Computer simulation of the generation of trees and their conversion into wood products"

S Low Choy   PhD   awarded in   2001
"Hierarchical models for presence/absence data observd on a two-dimensional lattice with ambiguous zeros with application to a case study on dingo behaviour"

S Kim   PhD   awarded in   2001
"New methodology for the measurement of underemployment with regards to questions of survey and data quality, statistical efficiency and cost with application to the labour force survey (LFS)"

D Butler   Masters   awarded in   2002
"A model of adult emergence from overwintering insect pupae"

M. Morphett*   Masters   awarded in   2002
"Method for identification of effective first-line treatment for HAART Naive HIV/AIDS patients"

P. Kuhnert*   PhD   awarded in   2003
"New methodology and comparisons for the analysis of binary data using Bayesian and tree based methods."

S. Norng   Masters   awarded in   2004
"Statistical decisions in optimising grain yield"

S Sando   PhD   awarded in   2005
"Estimation of a class of nonlinear time series models"

M. Kynn   PhD   awarded in   2005
"Eliciting expert knowledge for Bayesian logistic regression in species habitat modelling"

G Ridall   PhD   awarded in   2005
"Bayesian latent variable models for biostatistical applications"

S Hoyle   PhD   awarded in   2006
"Statistical methods for assessing and managing wild populations"

M Forrester   PhD   awarded in   2006
Epidemic models and inference for the transmission of hospital pathogens.

N Domrow   Masters   awarded   2007
In the area of longitudinal survey planning and data analysis

T Tran   PhD   awarded in   2008
In the area of statistical modeling for longitudinal data analysis and model choice for missing data

R Webster   PhD   awarded in   2008
In the area of control chart applications in health improvement for hospitals.

(*jointly with Kerrie Mengersen)

I also played a significant role (greater than 30% responsibility)

H Gustafson   PhD   awarded in   1996
"Automated statistical methods for measuring the strength of block ciphers"

FBJ Sweeting   PhD (U Qld)   awarded in   1994
"The management of quality and productivity in a grey iron foundry"

E McBryde   PhD   awarded in   2006
"Mathematical and statistical modeling of infectious diseases in hospitals"

Current PhD and Masters Students

B Wu   PhD   continuing (due 2008)
In the area of data mining telecommunication customers' call data

C Hincksman   PhD

D Ngweso   Masters   continuing (due 2008)
In the area of spatial statistical analysis for tropical vector-borne infectious diseases.

I also play a significant role (greater than 30%) in the supervision of

D Simpson   PhD   continuing (due 2008)
In the area of computational methods for Gaussian Markov fields

Examination of PhD Theses
Theses from the universities of Queensland, Adelaide, Western Australia, Wollongong and Melbourne, Griffith, Monash, Newcastle-upon-Tyne, Lancaster.

Training and Supervision of Postdoctoral Research Fellows.

I have trained the following postdoctoral fellows in research

Dr Iain Weir , 1998-1999. Currently senior lecturer, University West England.
Dr Nial Friel, 2000. Currently Associate Professor, University College Dublin.
Dr Gareth Ridall, 2005-2007. Appointed lecturer, Lancaster University, August 2007.
Dr John Hay, 2002. Appointed lecturer, QUT, 2003.
08.07.10

Dr Rob Reeves, 2003-2005. Appointed lecturer, QUT, 2005 -.
Dr Michele Haynes, 2002-2003. Appointed senior lecturer, University of Queensland. 2003.
Dr Marie Forrester, 2006. Apointed lecturer, Universidad de los Andes, Bogota, Columbia, 2007.