# Harold Malcolm Hudson

Emeritus Professor

**Curriculum Vitae**
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## Biography of Professor Malcolm Hudson (prepared 2015)

Malcolm Hudson attended University of NSW (B.Sc.(Hons) in Pure Mathematics), and Stanford University (PhD in Statistics). He spent over 30 years on the faculty of the Department of Statistics, Macquarie University, where he is Emeritus Professor. He supervised seven PhD students who graduated from Macquarie University to successful statistical careers. His research interests include multiparameter estimation in Poisson and semiparametric models, statistical computing, and development of risk models.

Hudson contributes to the biostatistics community through long-standing (since 1974) involvement in research on statistical applications in medicine. He participates in projects of the NHMRC Program Grant of the NHMRC Clinical Trials Centre, University of Sydney, in which he was a Principal Investigator (2003-2007) and is now Honorary Professor. Hudson's Biostatistics papers include both recent (e.g. Hudson, Lo, Heritier, Statistics in Medicine, 2014) and earlier publications (e.g. Glare et al, BMJ, 2003; Lumley et al, SIM, 2001, Hudson, Biometrics, 1986, Hudson and Hahn, J. Theor. Biol., 1977, ...). He taught in the Biostatistics Collaboration of Australia's postgraduate programs and assists students in statistical aspects of clinical medicine research.

Hudson's research on Medical Imaging conducted during the period 1994-2000 has very high citation impact. In 2014 he was recipient of the IEEE Marie Sklodowska-Curie Award.

## Education and qualifications

- **B.Sc. with Hons. 1 in Mathematics**,
  *University of N.S.W.*, 1970
- **Ph.D. in Statistics**,
  *Stanford University*, 1974.
  - Thesis title: Empirical Bayes Estimation.
  - Thesis supervisors: Lincoln Moses, Charles Stein.

## Current Appointments

- Emeritus Professor, Department of Mathematics and Statistics, Macquarie University
- Honorary Professor, NHMRC Clinical Trials Centre, Faculty of Medicine, University of Sydney

## Employment history

| | |
|---|---|
| 2008– | **Honorary Professor**, NHMRC Clinical Trials Centre, University of Sydney |
| 2008– | **Emeritus Professor**, Macquarie University |
| 2000–2005 | **Visiting Professor**, NHMRC Clinical Trials Centre, University of Sydney |
| 2000–2004 | **Head**, Department of Statistics, Macquarie University |
| 2000–2008 | **Professor**, Department of Statistics, Macquarie University |
| 1994–1994 | **Head**, Department of Statistics, Macquarie University |
| 1974–2000 | **Lecturer, SL, Associate Professor**, Department of Statistics, Macquarie University |

## Other positions

| | |
|---|---|
| 1981–1988 | **Associate Editor**, *International Statistical Institute* |
| 2001–2005 | **Scientific Secretary**, *IASC*, *ISI* |

## Honours and Awards

- Recipient of the 2014 IEEE Marie Sklodowska-Curie award
- Principal Investigator, NHMRC Program Grant (2003-2007) of NHMRC CTC, University of Sydney
- Statistical Society of Australia, NSW Branch, invited presentation

### Details of Awards

| | | |
|---|---|---|
| 2014 | IEEE Marie Sklodowska-Curie Award | Reconstruction algorithms for medical imaging |
| 2003 | NHMRC Program Grant | Principal Investigator (2003-2007), NHMRC CTC, University of Sydney |
| 1971 | CSIRO Postgraduate Studentship | 1971-73 |
| 1970 | Girshick Memorial Award | Stanford University |
| 1970 | Fullbright Scholar | for postgraduate study at Stanford University, U.S.A. |

## Current memberships

- Elected Member, International Statistical Institute
- Member, International Association for Statistical Computing
- Member, International Biometric Society
- Member, Statistical Society of Australia

## Professional contributions

- ISI
  - Board member - International Association for Statistical Computing, 1997-2001
  - Scientific Secretary - International Association for Statistical Computing, 1995-97
  - Associate Editor - International Statistical Review (1990-92)
- SSA
  - Council member (1980-83)
  - Branch delegate to Central Council (1980-83)
  - Honorary Secretary, NSW branch (1982-83)
  - Conference Secretary, Symposium on Medical Statistics, 1979
- Reviewer
  - Annals of Statistics, Australian J. Statistics,
  - Journal of the American Statistical Association,
  - Medical J. Australia.
- Advisory to Government
  - Scientific Secretary,
    Scientific Advisory Committee on “Agent Orange",
    Australian Government, 1983.

## Postgraduate student supervision

### PhD supervisor

- Li, Ling Ph.D., Macquarie University, 2009
- Ma, Jun Ph.D., 1996, Macquarie University.
  Maximum penalized likelihood solutions to linear inverse problems with generalized error distributions
- Notodiputro, K., Ph.D., 1992, Macquarie University
  Modified Fisher-scoring algorithms for image reconstruction in emission tomography

### Ph.D. co-supervisor

- Dr. P. Blinman, Ph.D., 2011, University of Sydney (co-supervisor).
- Dr. R. O’Connell, Ph.D., 2011, Macquarie University (co-supervisor).
- Dr. R. O’Connell, PhD, 2011, Macquarie University (co-supervisor).
- Dr. Z. Liu,\ Ph.D., 2010, Macquarie University (co-supervisor).
- Dr. S. Nitsuwat, University of NSW (co-supervisor).
- Dr. D. Warton, Ph.D., 2003, Macquarie University (co-supervisor).

### MA(Hons)

- Crowe, S. (1998)
  Iterative Algorithms for the Solution of Linear Systems with Poisson Data,
  Macquarie University (sole supervisor, M.A. (Hons) thesis, degree awarded).

## Grants to 2005

Not including the NHMRC Program Grant, 2003-2007, on which I was Principal Investigator, I have acquired (in most cases jointly) over $ 1.1 million in external research grants. External research grants over $20,000 are listed below.

| | | |
|---|---|---|
| 1990–1992 | “Statistical Algorithms for Image Reconstruction from Projections,”. (with L. Hamey and B. Hutton).*Funding from Australian Research Council:* | $136,700 |
| 1991–1992 | “Smoothing Multivariate Poisson Data,”. NA.*Funding from Australian Research Council:* | $35,000 |
| 1992–2000 | “NA”. (with V. Solo, A. Kozek, J. Ma).*Funding from Australian Research Council:* | $180,000 |
| 1994 | “Dynamic Activity Analysis,”. (with J. Ma).*Funding from Australian Research Council:* | $21,450 |
| 1996–1998 | “Semi parametric image reconstruction”. (with B. Hutton).*Funding from Australian Research Council:* | $174,000 |
| 1998–1999 | “Block-iterative Fisher scoring methods and their implementation in medical imaging”. NA.*Funding from Australian Research Council:* | $21,276 |
| 2001 | “Smoothed non-parametric modelling for high dimensional parameter spaces”. (with B. Hutton, A. Kozek, I. Marschner)..*Funding from Australian Research Council* | $23,000 |
| 2003–2007 | “NA”. (CIs J. Simes, A. Keeche, V. Gebski).*Funding from National Health and Medical Research Council*, | $7,500,000 |
| 2008–2010 | “NA”. (with M. Barton, G. Delaney)..*Funding from Cancer Australia* | $503,415 |

## Selected invited papers and presentations

- Annual guest lecture, JB Douglas Awards Day, SSA, NSW Branch, November 2015
- Invited presentation, Statistical Society of Australia, NSW Branch, August 2009
- Invited speaker,R workshop, ASC-2008 satellite, Sydney, July, 2008
- Invited speaker, ARCS symposium, Sydney, July, 2007
- Invited speaker, IBC2004 Satellite Workshop, Sydney, July, 2004
- Invited speaker, International Clinical Trials Symposium, Sydney, November, 2002
- Invited speaker, Nonparametric Statistics Conference, Crete, July, 2002
- Invited speaker, Summer Statistics Workshop, University of Sydney, February, 2001
- Invited speaker, ANZ Society for Nuclear Medicine, NSW Branch, Toukley, October, 1998
- Invited speaker, Meeting on Automated Medical Image Analysis, Ballarat, August, 1998
- Invited speaker, ANZ Society for Nuclear Medicine, NSW Branch, Wollongong, November, 1997
- Invited speaker, ACCV, Singapore, 1995
- Invited speaker, South-East Asian Mathematical Society, Yogyakarta, July, 1995
- Session chairman, Emission Tomography: Controversies & Future Directions, Cairns, October, 1994
- Invited speaker, Second Iranian Statistics Conference, Mashhad, September, 1994
- Invited paper, Special issue "Statistical aspects of medical imaging", Statistical Methods in Medical Research, 1994
- Invited speaker, Signal and Image Analysis, COMPSTAT'91, International Association of Statistical Computing, ISI, Greenmount, July, 1991
- Invited speaker, Joint meeting: ISI and Institute for Mathematical Statistics, Uppsala, 1990
- Invited speaker, Department of Statistics, Harvard University, 1987
- Invited speaker, Inter Faculty Statistics Group, University of Southampton, 1987
- Invited speaker, Faculty of Mathematical Studies, University of Southampton, 1987
- Invited speaker, 34th Princeton Applied Statistics Conference, 1979

## Publications

### PhD thesis

1. Hudson, HM (1974). "Empirical Bayes estimation". Technical Report No. 58, Dept. Statistics. PhD thesis. Stanford University.

### Refereed research papers

1. Gordon, L and M Hudson (1977). A characterization of the von Mises distribution. *Annals Statistics* **5**(4), 813–814.
2. Hudson, H and G Hahn (1977). The labelled mitosis curve for a population consisting of fast and slowly cycling cells. *J. Theoretical Biology* **66**, 63–67.
3. Hudson, HM (1978). A natural identity for exponential families with applications in multiparameter estimation. *Ann. Statist.* **6**(3), 473–484.
4. Gordon, L and M Hudson (1979). Acknowledgement of priority to: "A characterization of the von Mises distribution" [Ann. Statist. **5** (1977), no. 4, 813–814; MR **55** #11460]. *Ann. Statist.* **7**(4), 927.
5. Fisher, N and H Hudson (1980). A note on the multivariate linear model with constraints on the dependent variable. *Australian J. Statistics* **22**, 75–78.
6. Fisher, NI and HM Hudson (1980). A note on the multivariate linear model with constraints on the dependent vector. *Austral. J. Statist.* **22**(1), 75–78.
7. Hudson, H and K Tsui (1981). Simultaneous Poisson estimators for a priori hypotheses about means. *J. American Statistical Association* **76**, 182–187.
8. Hudson, HM and KW Tsui (1981). Simultaneous Poisson estimators for a priori hypotheses about means. *J. Amer. Statist. Assoc.* **76**(373), 182–187.

9. Hudson, H (1983). Discussion of 'Construction of improved estimators in multiparametric estimation for discrete exponential families'. *Annals Statistics* **11**, 370–371.
10. Hudson, H (1983). Random effects in log-linear models. *J. Statistical Computation and Simulation* **17**, 43–50.
11. Rogerson, R and H Hudson (1983). Quartz surface microtextures and grain size characteristics of Quaternary sediments. *Canadian J. Earth Sciences* **20**, 377–387.
12. Hudson, H and I Rockett (1984). An environmental and demographic analysis of otitis media in rural Australian aborigines. *International J. Epidemiology* **13**, 73–82.
13. Adena, M, D Cobbin, L Fett M.J.and Forcier, H Hudson, A Long, J Nairn, and B O'Toole (1985). Mortality among Vietnam veterans compared with non-veterans and the Australian population. *Medical J. Australia* **143**, 541–544.
14. Hudson, HM (1985). Adaptive estimators for simultaneous estimation of Poisson means. *Ann. Statist.* **13**, 246–261.
15. Hudson, HM (1985). Adaptive estimators for simultaneous estimation of Poisson means. *Ann. Statist.* **13**(1), 246–261.
16. Piper, D, J McIntosh, and H Hudson (1985). Factors relevant to the prognosis of chronic duodenal ulcer. *Digestion* **31**, 9–16.
17. Hudson, H (1986). Evaluation of trends in middle ear disease among Australian aborigines. *Biometrics* **42**, 159–169.
18. Hudson, HM (1986). Correction: "Adaptive estimators for simultaneous estimation of Poisson means" [Ann. Statist. **13** (1985), no. 1, 246–261; MR 86d:62084]. *Ann. Statist.* **14**(1), 360.
19. Forcier, L, H Hudson, D Cobbin, M Jones, M Adena, and M Fett (1987). Mortality of Australian veterans of the Vietnam conflict and the period and location of their Vietnam service. *Military Medicine* **152**, 117–124.
20. McIntosh, J, H Hudson, and D Piper (1987). Do symptoms of gastric ulcer become less frequent with time. *Scand. J. Gastroenterol.* **22**, 573–576.
21. Barnett, G, S Crowe, M Hudson, P Leung, K Notodiputro, R Proudfoot, and J Sims (1989). The use of small scale prototypes in image reconstructions from projections. *J. Applied Statistics* **16**, 223–242.
22. Hudson, H, B Hutton, and R Larkin (1992). Accelerated EM reconstruction using ordered subsets. *J. Nucl. Med.* **33 (abs)**, 960.
23. Fulton, R, B Hutton, M Braun, B Ardekani, and R Larkin (1994). Use of 3D reconstruction to correct for patient motion in SPECT. *Phys. Med. Biol.* **39**(3), 563–574.
24. Hudson, HM and RS Larkin (1994). Accelerated Image Reconstruction using Ordered Subsetsof Projection Data. *IEEE Trans. Med. Imaging* **MI-13**(4), 601–609.
25. Hudson, HM, J Ma, and P Green (1994). Fisher's method of scoring in statistical image reconstruction: comparison of Jacobi and Gauss-Seidel iterative schemes. *Statistical Methods in Medical Research* **3**, 41–61.
26. Hudson, H and T Lee (1995). Comments on " The fast Monte-Carlo cross validation and $C_L$ procedures: Comments, new results and application to image recovery problems", by D.A. Girard. *Computational Statistics* **10**, 239–241.
27. Hudson, H, B Hutton, R Larkin, and C Walsh (1996). Investigation of Multiple Energy Reconstructions in SPECT using MLEM. *Journal of Nuclear Medicine* **37 (abs)**, 171.
28. Hudson, H, B Hutton, R Larkin, and C Walsh (1996). Investigation of multiple energy reconstructions in SPECT using MLEM. *Journal of Nuclear Medicine* **37**(5), 746–746.
29. Hutton, BF, HM Hudson, and FJ Beekman (July 1997). A clinical perspective of accelerated statistical reconstruction. *European J. of Nuclear Medicine* **24**(7), 797–808.
30. Ma, J and HM Hudson (1997). Modified Fisher scoring algorithms using Jacobi or Gauss-Seidel subiterations. *Computational Statistics* **12**(4), 467–479.
31. Hudson, HM and TC Lee (1998). Maximum Likelihood restoration and choice of smoothing parameter in deconvolution of image data subject to Poisson noise. *Computational Statistics and Data Analysis* **26**, 393–410.
32. Ma, J and HM Hudson (1998). An Augmented Data Scoring Algorithm for Maximum Likelihood. *Communications in Statistics: Theory and Methods* **27**(11), 2761–2776.
33. Hudson, HM and C Walsh (2000). Density deconvolution using spectral mixture models. *Computational Statistics and Data Analysis* **32**. Ed. by EJ Wegman, 323–336.
34. Lumley, T, R Simes, V Gebski, and H Hudson (2001). Combining components of quality of life to increase precision and evaluate tradeoffs. *Statistics in Medicine* **20**, 3231–3249.
35. Glare, P, K Virik, M Jones, M Hudson, S Eychmuller, N Christakis, and J Simes (2003). A Systematic Review of Physician Survival Predictions in Terminally Ill Cancer Patients. *British Medical Journal* **327**(7408), 195–198.
36. Warton, DI and HM Hudson (2004). A MANOVA statistic is just as powerful as distance-based statistics, for multivariate abundances. *Ecology* **85**(3), 858–874.

37. Li, L and M Hudson (2007). International differences in 30-day mortality following acute myocardial infarction: statistical analysis of site level data from the HERO-2 trial. *Australasian Epidemiologist*. ( Abstract, Proc. of the Joint Scientific Meeting of the AEA and the IEA Western Pacific Region, Hobart, August, 2007), 107.
38. Ma, J and M Hudson (2008). Block-iterative Fisher scoring algorithms for maximum penalized likelihood image reconstruction in emission tomography. *IEEE Trans. Med. Imaging* **27**(8), 1130–1142.
39. Grimison, PS, RJ Simes, HM Hudson, and MR Stockler (2009). Deriving utility measures from a health-related quality-of-life questionnaire for comparing treatments in cancer trials. *Value in Health* **12**(5). Published Online: Mar 11 2009 2:27AM. DOI: 10.1111/j.1524-4733.2009.00505.x, 800–807.
40. Grimison, PS, RJ Simes, HM Hudson, and MR Stockler (2009). Preliminary Validation of an Optimally Weighted Patient-Based Utility Index by Application to Randomized Trials in Breast Cancer. *Value in Health* **12**(6). Published Online: Mar 16 2009 11:09AM. DOI: 10.1111/j.1524-4733.2009.00536.x, 967–976.
41. Lo, S, S Heritier, and M Hudson (2009). Saddlepoint Approximation for Semi-Markov Processes with Application to a Cardiovascular Randomized Study. *Computational Statistics and Data Analysis* (53). (Special Issue in Clinical Trials), 683–698.
42. O'Connell, RL and HM Hudson (2009). Risk of mortality after acute myocardial infarction: Performance of model updating methods for application in different geographical regions. *Computational Statistics and Data Analysis* **53**(3). Computational Statistics within Clinical Research, 834–846.
43. Blinman, P, V Duric, AK Nowak, P Beale, S Clarke, K Briscoe, A Boyce, D Goldstein, M Hudson, and M Stockler (2010). Adjuvant chemotherapy for early colon cancer: what survival benefits make it worthwhile? *European Journal Of Cancer* **46**(10). Accepted 23 December, 2009. In press. doi:10.1016/j.ejca2009.12.032, 1800–1807.
44. Hudson, M and J Ma (2010). On asymptotic convergence of the block-iterative Fisher scoring algorithm. *Statistics and Probability Letters* **80**(11-12), 922–925.
45. Barton, M, H Hudson, G Delaney, P Gruver, and Z Liu (2011). Patterns of Retreatment by Radiotherapy. *Clinical Oncology* **23**(1). Accepted 30 October, 2010. doi:10.1016/j.clon.2010.09.013, 10–18.
46. Hudson, M (2011). Book Review: Analysing Seasonal Health Data by Adrian G. Barnett and Annette J. Dobson. *Australian and New Zealand Journal of Statistics* **53**(3). Book review. Article first published online : 19 JUL 2011.
47. Lee, Hudson, Stockler, Coates, Ackland, Gebski, Lord, Friedlander, Boyle, and Simes (2011). A nomogram to predict survival time in women starting first-line chemotherapy for advanced breast cancer. *Breast Cancer Research and Treatment* **129**(2), 467–476.
48. Fox, P, M Hudson, C Brown, S Lord, V Gebski, P DeSouza, and CK Lee (2013). Markers of systemic inflammation predict survival in patients with advanced renal cell cancer. *British Journal of Cancer* **109**, 147–153.
49. Hudson, H, S Lô, R Simes, A Tonkin, and S Heritier (May 2014). Semiparametric methods for multistate survival models in randomised trials. *Statistics in Medicine* **33**(10), 1621–1645.
50. Blinman, P, B Hughes, C Crombie, T Christmas, M Hudson, A Veillard, N Muljadi, M Millward, G Wright, P Flynn, M Windsor, M Stockler, and S McLachlan (2015). Patients' and doctors' preferences for adjuvant chemotherapy in resected non-small-cell lung cancer: what makes it worthwhile? *European Journal Of Cancer*. (accepted for publication 19/5/2015).
51. Lee, C, A Coates, S Gelber, J Simes, M Hudson, and B Jurg (2015). Prognostic impact of self-reported quality of life from early stage to advanced breast cancer – an individual patient data meta-analysis. *Psycho-Oncology*.
52. Leung, M, VW Wong, M Hudson, and DY Leung (2016). Impact of Improved Glycemic Control on Cardiac Function in Type 2 Diabetes Mellitus. *Circulation: Cardiovascular Imaging* **9**(e003643), 1–9.
53. Moth, E, SA McLachlan, AS Veillard, N Muljadi, M Hudson, MR Stockler, and P Blinman (May 2016). Patients' preferred and perceived roles in making decisions about adjuvant chemotherapy for non-small-cell lung cancer. *Lung Cancer* **95**, 8–14.
54. Al-Rubaie, ZT, LM Askie, HM Hudson, JG Ray, G Jenkins, and SJ Lord (2018). Assessment of NICE and USPSTF guidelines for identifying women at high risk of pre-eclampsia for tailoring aspirin prophylaxis in pregnancy: an individual participant data meta-analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology* **229**, 159–166.
55. Lee, CK, M Hudson, J Simes, K Ribi, J Bernhard, and AS Coates (2018). When do patient reported quality of life indicators become prognostic in breast cancer? *Health and quality of life outcomes* **16**(1), 13.
56. Al-Rubaie, ZT, H Malcolm Hudson, G Jenkins, I Mahmoud, JG Ray, LM Askie, and SJ Lord (2019). The association between ethnicity and pre-eclampsia in Australia: A multicentre retrospective cohort study. *Australian and New Zealand Journal of Obstetrics and Gynaecology*.
57. Tjokrowidjaja, A, D Goldstein, HM Hudson, SJ Lord, V Gebski, S Clarke, P de Souza, RJ Motzer, and CK Lee (2019). The impact of neutrophil-lymphocyte ratio on risk reclassification of patients with advanced renal cell cancer to guide

risk-directed therapy. *Acta Oncologica* **0**(0). PMID: 31462137, 1–8. eprint: https://doi.org/10.1080/0284186X.2019.1656342.

### Books

1. Forcier, L, H Hudson, and M Fett (1984). *The relationship between aspects of Vietnam service and subsequent mortality among Australian National Servicemen of the Vietnam Conflict era*. Australian Veterans Health Studies. Australian Government Publishing Service, Canberra.
2. Hudson, H, J Martins, and F Yusuf, eds. (1985). *Population and Business*. Australian Population Association and Statistical Society of Australia.

### Book chapters

1. Braun, M, G Town, H Hudson, and L Holley (1993). "Multi-University postgraduate course run over UNINET in Sydney". In: *Distance Education Futures*. Ed. by E Nunan. University of South Australia, pp.73–80.
2. Glasbey, C, M Berman, and H Hudson (1998). "Image analysis and tomography". In: *Encyclopaedia of Biostatistics*. Ed. by P Armitage and T Colton. J. Wiley, pp.1980–1988.
3. Hudson, M (2002). "Analysing decision trees". In: *Decision Making in Medicine: from trial evidence to clinical practice and policy.* (Pre symposium workshop, International Clinical Trials Symposium, 20 October 2002). NHMRC Clinical Trials Centre, University of Sydney.
4. Hudson, M, A Langlands, and J Simes (2002). "Risk Models for Individual Decision Making in Medicine". In: *Advances in Statistics, Combinatorics and Related Areas*. Ed. by C Gulati, YX Lin, S Mishra, and J Rayner. (International Conference on Statistics, Combinatorics and Related Areas, December 19-21, University of Wollongong, 2000). World Scientific, pp.120–132.
5. Warton, D and M Hudson (2002). "Testing hypotheses concerning multivariate abundance data". In: *Advances in Statistics, Combinatorics and Related Areas*. Ed. by C Gulati, YX Lin, S Mishra, and J Rayner. (International Conference on Statistics, Combinatorics and Related Areas, December 19-21, University of Wollongong, 2000). World Scientific, pp.349–360.

### Papers in published refereed conference proceedings

1. Hutton, B, H Hudson, R Larkin, and S Meikle (1993). An accelerated statistical algorithm for incorporation of measured attenuation in 180 degree SPECT reconstruction. In: *1st International Congress of Nuclear Cardiology, Cannes*.
2. Hudson, HM and TCM Lee (1994). Deblurring Poisson Count Data. In: *Proceedings, Second Iranian Statistical Conference, Ferdowsi University of Mashhad*.
3. Town, G, M Braun, and M Hudson (1994). Collaborative teaching of advanced courses by videoconference. In: *Proceedings, 6th Annual Convention and Conference of the Australasian Association for Engineering Education, UTS, Sydney*.
4. Hudson, M (1995). Statistical Models and Algorithms for Tomography. In: *Proceedings of the Second Asian Conference on Computer Vision(ACCV'95)*. Vol. 1. Nanyang Technological University, Singapore, pp.169–173.
5. Hudson, M (1996). Statistical Models and Algorithms for Tomography. In: *Lecture Notes in Computer Science No. 1035: Recent Developments in Computer Vision*. Ed. by SZ Li, DP Mital, E Teoh, and H Wang. Springer-Verlag, pp.289–296.
6. Hudson, HM and C Walsh (1997). Density deconvolution using spectral mixture models. In: *Computing Science and Statistics*. Ed. by EJ Wegman and SP Azen. Vol. 29:2. Proceedings: Second World Congress of the IASC, Pasadena, California, February 19-22, 1997. Interface Foundation of North America, pp.593–599.
7. Hudson, HM and C Walsh (1997). Density deconvolution using spectral mixture models. In: *Computing Science and Statistics*. Ed. by L Billard and N Fisher. Vol. 28. Proceedings: Interface meeting, Sydney, 8-12 July 1996. Interface Foundation of North America, pp.671–676.
8. Ma, J and HM Hudson (1997). Penalized likelihood solutions to discrete linear inverse problems. In: *Computing Science and Statistics*. Ed. by L Billard and N Fisher. Vol. 28. Proceedings: Interface meeting, Sydney, 8-12 July 1996. Interface Foundation of North America, pp.579–584.
9. Baccarne, V, H Hudson, B Hutton, K Kim, and C Walsh (1999). Incorporation of temporal information in 4D reconstruction of gated cardiac SPECT using an ordered subsets implementationof the EM-PIRA algorithm. In: *Proceedings of the 1999 International Meeting on Fully 3D Image Reconstructionin Radiology and Nuclear Medicine*, pp.29–32.
10. Hudson, HM and B Hutton (1999). Statistical Algorithms for Large Systems of Linear Equations in Medical Imaging. In: *Automated Medical Image Analysis, Proceedings, Ballarat, 1998*. Ed. by B Pham, M Braun, A Maeder, and M Eckert. Vol. 3747. SPIE Proceedings, pp.77–92.
11. Nitsuwat, S, JS Jin, and HM Hudson (Sept. 1999). Video Segmentation Based on the Presence and/or Absence of Moving Objects. In: *Proceedings of SPIE*. Ed. by S Panchanathan, SF Chang, and CCJ Kuo. Vol. 3846. SPIE, pp.35–45.

12. Peter, J, R Jaszczak, B Hutton, and H Hudson (1999). Fully Adaptive Variable Order Temporal Regression Smoothing in Gated Cardiac SPECT Image Reconstruction. In: *Proceedings of the IEEE Medical Imaging Conference, Seattle, MIC 99*. (on CDROM).
13. Hudson, H, N Arghami, and G Kontaxakis (2000). Generalized Iterative Scaling algorithm evaluation. In: *Proceedings in Computational Statistics 2000*. Ed. by W Jansen and J Bethlehem. Statistics Netherlands, pp.37–38.
14. Nitsuwat, S, JS Jin, and HM Hudson (2000). Motion-based Video Segmentation using Fuzzy Clustering and Classical Mixture Model. In: *Proceedings of the International Conference on Image Processing (ICIP 2000)*. Vol. 1. IEEE Press, pp.300–303.
15. Hudson, M (2002). Modelling Health State Transitions. In: *International Clinical Trials Symposium 2002: Improving health care in the new millenium*. (abs). NHMRC Clinical Trials Centre, University of Sydney, pp.39–40.
16. Hudson, M and A Kirby (2005). Relative efficiency of parametric and bootstrap estimates of cost. In: *Proceedings of ISI 2005, Sydney*. Conference CD.
17. Liu, Z, M Hudson, S Lord, and V Gebski (2005). Decision models for valuing effectiveness of new diagnostic technologies – with application to PET diagnostic testing. In: *Proceedings of ISI 2005, Sydney*. Conference CD.
18. Li, L and M Hudson (2006). Applying Bootstrap in Multilevel Modelling of Cardiovascular Disease. In: *Abstracts of Meeting, XXIII International Biometric Conference*.
19. Hudson, M (2007). Quality adjusted survival analysis. In: *ARCS Annual Scientific Conference, Sydney, 4-6 June*. (Invited paper, conference CD).
20. Li, L, M Hudson, and J Ma (2007). Aggregation Gain Or Loss? Modelling the Effects of Group Variables with Binary Responses. In: *MODSIM07 Proceedings*. (Conference CD, ISBN 978-0-9758404). The Modelling, Simulation Society of Australia, and New Zealand Inc., pp.2854–60.
21. Ma, J and M Hudson (2007). Block-iterative Fisher scoring algorithms for Emission Tomography. In: *Biomedical Imaging: From Nano to Macro, IEEE International Symposium on Biomedical Imaging (ISBI'07)*, pp.153–156.
22. Blinman, P, V Duric, A Nowak, P Beale, S Clarke, K Briscoe, A Boyce, G Marx, J Simard-Lebrun, M Hudson, and M Stockler (2008). Patients' Preferences for Adjuvant Chemotherapy (ACT) in Early Colon Cancer (ECC): What Makes it Worthwhile. In: *American Society of Clinical Oncology Annual Meeting*. (abs, poster accepted in the general gastrointestinal session, MH conducted statistical analyses).
23. Hudson, HM (2009). Power comparisons of parametric and rank tests: grouped outcomes with zero-spike. In: *Proceedings of the 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation*. Ed. by R Anderssen, R Braddock, and L Newham. (ISBN: 978-0-9758400-7-8. http://www.mssanz.org.au/modsim09/A2/hudson_hm.pdf. Refereed.) Modelling et al., pp.143–149.
24. Lee, C, A Coates, M Hudson, K Ribi, and J Bernhard (2013). Prognostic significance of quality-of-life scores in early stage and relapsed breast cancer: Results from seven randomized trials of the International breast cancer study group. In: *Cancer Research*. Vol. 73. 2013 San Antonio Breast Cancer Symposium, December 10-14, 2013. AMER ASSOC CANCER RESEARCH 615 CHESTNUT ST, 17TH FLOOR, PHILADELPHIA, PA ...
25. McLachlan, SA, B Hughes, M Hudson, C Brown, et al. (2013). Lung cancer clinicians' preferences for adjuvant chemotherapy (ACT) in non-small cell lung cancer (NSCLC): what makes it worthwhile? In: *Journal of Thoracic Oncology*. 15th World Conference on Lung Cancer, pp.S625–S625.

### Technical reports and working papers under review or revision

1. Gidas, B and HM Hudson (1991). *A two stage EM algorithm with applications in emission tomography*. Tech. rep. 39. Brown University: Brown University, Complex System Report.
2. Gidas, B and HM Hudson (1991). *A non-linear multi-grid EM algorithm for emission tomography*. Tech. rep. 38. Brown University, Complex System Report.
3. Hudson, HM and TCM Lee (1994). *Maximum Likelihood reconstruction and choice of smoothing parameter in deconvolution of image data subject to Poisson noise*. Tech. rep. S-94-09. (submitted to J. Comp. Graph. Statist.) Macquarie Univ., Dept. of Statistics.
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## Statistical consulting reports

## Software (including R packages)

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- 1983, Software development in association with the Statistical Unit of the Clinical Trials Data Centre, Clinical Oncological Society of Australia (C.O.S.A.)
- 1980-81, Statistical computing software development. ARGC supported research project (with D.R. McNeil). Life table methods for the statistical system SPIDA were programmed.