Michael A. Newton

June 2004

Department of Statistics
University of Wisconsin-Madison
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Degrees

Diploma in Engineering 1985, Dalhousie University, Halifax, Nova Scotia.

BSc First Class Honours (mathematics and statistics) 1986, Dalhousie University, Halifax, Nova Scotia.

MS (statistics) 1988, University of Washington, Seattle.

Ph.D. (statistics) June 1991, University of Washington, Seattle, under the supervision of Adrian E. Raftery.

Personal Information

Born 19 July 1964, Baddeck, N.S., Canada. Canadian citizen. Permanent resident of USA.

Current Appointments

Professor, Department of Statistics and Department of Biostatistics and Medical Informatics. University of Wisconsin-Madison, since March 2002.

Associate Editor, *Biometrics*, since January 1997.

Associate Editor, *Journal of the American Statistical Association*, since fall 2003.

Member, Genome Study Section, Center for Scientific Review, National Institutes of Health, since September 2000.

Member, University of Wisconsin Comprehensive Cancer Center, since 1992.

Member, Steering Committee of UW Center for Demography and Ecology

Member, Genome Center of Wisconsin.

Previous Appointments

Visiting Scholar, Department of Statistics, Stanford University, Spring 2000.

Associate Professor of Statistics and of Biostatistics and Medical Informatics, 1996-02.

Assistant Professor of Biostatistics, University of Wisconsin-Madison, 1992-96.

Assistant Professor of Statistics, University of Wisconsin-Madison, 1991-96.

Research Assistant in Statistics, University of Washington, 1987-91.

Teaching Assistant in Statistics, University of Washington, 1986-87.

Research Assistant in Theoretical Physics, Atomic Energy of Canada Ltd., 1986.

Society Memberships

Statistical Society of Canada, American Statistical Association (ASA), Institute of Mathematical Statistics, Royal Statistical Society, International Biometric Society, American Public Health Association.

Honors

Spiegelman Award, 2003, American Public Health Association [top statistician under 40].

Presidential Invited Address, International Biometric Society WNAR, June 2002, Los Angeles.

Best Contributed Presentation Award, ASA Statistical Computing Section, 2002 Joint Statistics Meetings.

George W. Snedecor Award, Committee of Presidents of Statistical Societies, 1997 [for theoretical paper in biometry, #18].

Young Investigator Award, Biometrics Section of the ASA, 1994.

Z.W. Birnbaum Prize, Department of Statistics, University of Washington, 1989.

Natural Sciences and Engineering Research Council of Canada. Postgraduate scholarship, 1986 (declined).

Dalhousie University, scholarship 1982, 85. J. P. Jollotta scholarship, 1983. Woolco Ltd. scholarship 1982. Modern Enterprizes Ltd. scholarship 1982–85.

Research Interests: Dr. Newton studies theory, methodology, and application of statistical inference in the biological sciences. Cancer biology has been the source of many recent applied problems, such as linkage analysis to localize genes conferring resistance or susceptibility in rat mammary cancer, and signal identification in cytogenetic or molecular data on cancer genome abnormalities. Problems from microarray expression data are of current interest. Dr. Newton has also contributed to statistical problems in the phylogenetic analysis of molecular sequences. Computational problems have been a focus of his research; he has contributed to the implementation of Markov chain Monte Carlo methods for Bayesian analysis and to the implementation and theory of bootstrap sampling. Further, Dr. Newton has developed new methods of nonparametric Bayesian analysis.

Refereed papers or chapters

1. P. Guttorp, **M.A. Newton**, J. L. Abkowitz, 1990. A Stochastic Model for Hematopoiesis in Cats, *IMA Journal of Mathematics Applied in Medicine and Biology*, **7**, 125–143.

2. J. L. Abkowitz, M. L. Linenberger, **M.A. Newton**, G. H. Shelton, R. L. Ott, and P. Guttorp, 1990. Evidence for the maintenance of hematopoiesis in a large animal by the sequential activation of stem-cell clones, *Proceedings of the National Academy of Sciences* USA, **87**, 9062–9066.

3. E. Haeusler, D. M. Mason, and **M.A. Newton**, 1991. Weighted Bootstrapping of Means, *Centrum voor Wiskunde en Informatica Quarterly*, **4**, 213–228.

4. D.M. Mason and **M.A. Newton**, 1992. A rank statistics approach to the consistency of a general bootstrap. *Annals of Statistics*, **20**, 1611–1624.

5. J.D. Haag, **M.A. Newton**, and M. N. Gould, 1992. Mammary carcinoma suppressor and susceptibility genes in the Wistar-Kyoto rat. *Carcinogenesis*, **13**(10), 1933–1935.

6. C.A. Reznikoff, C. Kao, E. M. Messing, **M.A. Newton**, S. Swaminathan, 1993. Molecular genetic model of human bladder carcinogenesis. *Seminars in Cancer Biology*, **4**, 143–152.

7. J.L. Abkowitz, M. L. Linenberger, **M.A. Newton**, M. Persik, and P. Guttorp, 1993. Behavior of Feline Hematopoietic Stem Cells Years After Busulfan Exposure. *Blood*, **82**, 2096–2103.

8. **M.A. Newton** and A.E. Raftery, 1994. Approximate Bayesian inference with the weighted likelihood bootstrap (with discussion). *Journal of the Royal Statistical Society Series B*, **56**, 3–48.

9. **M.A. Newton**, S. Q. Wu, and C. A. Reznikoff, 1994. Assessing the significance of chromosome-loss data: Where are the suppressor genes for bladder cancer? *Statistics in Medicine*, **13**, 839–858.

10. **M.A. Newton** and C.J. Geyer, 1994. Bootstrap Recycling: A Monte Carlo alternative to the nested bootstrap. *Journal of the American Statistical Association*, **89**, 905–912.

11. C.A. Reznikoff, C. Belair, E. Savelieva, Y. Zhai, K. Pfeifer, T. Yeager, K. J. Thompson, Sandy DeVries, C. Bindley, **M.A. Newton**, G. Sekhon, and F. Waldman, 1994. Long term genome stability and minimal genotypic and phenotypic alterations in HPV16 E7, but not E6 immortalized human uroepithelial cells. *Genes and Development*, **8**, 2227–2240.

12. **M.A. Newton**, P. Guttorp, S. Catlin, R. Assunção, and J. L. Abkowitz, 1995. Stochastic modeling of early hematopoiesis. *Journal of the American Statistical Association*, **90**, 1146–1155.

13. E.M. Messing, T. B. Young, V. B. Hunt, K. W. Gilchrist, **M.A. Newton**, L. L. Bram, W. J. Hisgen, E. B. Greenberg, M. E. Kuglitsch and J.D. Wegenke, 1995. Comparison of bladder cancer outcome in men undergoing hematuria home screening versus those with standard clinical presentations. *Urology*, **45**, 387–397.

14. **M.A. Newton**, C. Czado, and R. Chappell, 1996. Semiparametric Bayesian inference for binary regression. *Journal of the American Statistical Assocation*, **91**, 142–153.

15. J.F. Pendergast, S.J. Gange, M.J. Lindstrom, **M.A. Newton**, M. Palta, and M. R. Fisher, 1996. A survey of methods for analyzing clustered binary response data. *International Statistical Review,* **64**, 1–30.

16. R.F. Jacoby, D. J. Marshall, **M.A. Newton**, K. Novakovic, K. Tutsch, C. E. Cole, R. A. Lubet, G. J. Kelloff, A. Verma, A. R. Moser, and W. F. Dove, 1996. Chemoprevention of Spontaneous Intestinal Adenomas in the Apc^{Min} Mouse Model by the Non-Steroidal Anti-Inflammatory Drug Piroxicam. *Cancer Research*, **56**, 710–714.

17. S.-Q. Wu, G. R. Hafez, W. Xing, **M.A. Newton**, X.-R. Chen, and E. Messing, 1996. The Correlation between the Loss of Chromosome 14q with Histologic Tumor Grade, Pathologic Stage, and Outcome of Patients with Nonpapillary Renal Cell Carcinoma. *Cancer*, **77**(6), 1154–1160.

18. **M.A. Newton**, 1996. Bootstrapping phylogenies: Large deviations and dispersion effects. *Biometrika*, **83**, 315–328.

19. J.M. Satagopan, B.S. Yandell, **M.A. Newton**, and T.C. Osborn. Markov Chain Monte Carlo Approach to Detect Polygene Loci for Complex Traits, 1996. *Genetics*, **144**, 805–816.

20. J.D. Haag, L.-C. Hsu, **M.A. Newton**, M.N. Gould, 1996. Allelic Imbalance in Mammary Carcinomas Induced by Either 7,12-Dimethylbenz[a]anthracene or Ionizing Radiation in Rats Carrying Genes Conferring Differential Susceptibilities to Mammary Carcinogenesis. *Molecular Carcinogenesis*, **17**, 134–143.

21. B. Mau and **M.A. Newton**, 1997. Phylogenetic inference for binary data on dendograms using Markov chain Monte Carlo. *Journal of Computational and Graphical Statistics,* **6**, 122-131. (Student paper prize, ASA, 1996).

22. E. Savelieva, C.D. Belair, **M.A. Newton**, S. DeVries, J.W. Gray, F. Waldman, and C.A. Reznikoff, 1997. 20q gain associates with immortalization: 20q13.2 correlates with

genome instability in human papillomavirus 16 E7 transformed human uroepithelial cells. *Oncogene*, **14**, 551-560.

23. W.F. Dove, L. Clipson, K.A. Gould, C. Luongo, D.J. Marshall, A.R. Moser, **M.A. Newton**, and R.F. Jacoby, 1997. Intestinal neoplasia in the *Apc-Min* Mouse: Independence from the microbial and natural killer (*beige* Locus) status. *Cancer Research*, **57** , 812-814.

24. B. Craig and **M.A. Newton**, 1997. Modeling the history of diabetic retinophathy. *Case Studies in Bayesian Statistics III*, C. Gatsonis *et al.* (eds.). New York: Springer-Verlag.

25. B.A. Craig, **M.A. Newton**, R.A. Garrott, J.E. Reynolds III, and J. R. Wilcox, 1997. Analysis of aerial survey data on Florida Manatee using Markov chain Monte Carlo. *Biometrics*, **53**, 129–146. (Student paper prize, ENAR, 1996.)

26. **M.A. Newton**, F.A. Quintana, and Y. Zhang, 1998. Nonparametric Bayes methods using predictive updating. In *Practical nonparametric and semiparametric Bayesian statistics*, (eds D. Dey, P. Muller and D. Sinha), pp 45-61. New York:Springer.

27. F.A. Quintana and **M.A. Newton,** 1998. Assessing the Order of Dependence for Partially Exchangeable Binary Data. *Journal of the American Statistical Association,* **93**, 194–202.

28. **M.A. Newton**, M.N. Gould, C.A. Reznikoff, and J. D. Haag (1998). On the statistical analysis of allelic-loss data. *Statistics in Medicine,* **17**, 1425-45.

29. T.R. Yeager, S. DeVries, D.F. Jarrard, C. Kao, S.Y. Nakada, T.D. Moon, R. Bruskewitz, W.M. Stadler, L.F. Meisner, K.W. Gilchrist, **M.A. Newton**, F.M. Waldman, and C.A. Reznikoff (1998). Overcoming cellular senescence in human cancer pathogenesis. *Genes and Development*, **12**, 163–174.

30. L.A. Shepel, H. Lan, J.D. Haag, G.M. Brasic, M.E. Gheen, J.S. Simon, P. Hoff, **M.A. Newton**, and M.N. Gould (1998). Genetic identification of multiple loci that control breast cancer susceptibility in the rat. *Genetics*, **149**, 289-299.

31. W.F. Dove, R.T. Cormier, K.A. Gould, R.B. Halberg, A.J. Merritt, **M.A. Newton**, and A.R. Shoemaker (1998). The intestinal epithelium and its neoplasms: genetic, cellular, and tissue interactions. *Philosophical Transactions of the Royal Society of London Series B*, **353**, 915-923.

32. R.R. Love, R. Jacoby, **M.A. Newton**, K.D. Tutsch, K. Simon, M. Pomplun, A.K. Verma (1998). A randomized, placebo-controlled trial of low dose $\alpha-$difluoromethylornithine in individuals at risk for colorectal cancer. *Cancer Epidemiology, Biomarkers, and Prevention,* **7**(11), 989-992.

33. A.R. Shoemaker, A.R. Moser, C.A. Midgley, L. Clipson, **M.A. Newton**, W.F. Dove (1998). A resistant genetic background leading to incomplete penetrance of intestinal neoplasia and reduced loss of heterozygosity in Apc$^{\text{Min}}$/+ mice. *Proceedings of the National Academy of Sciences USA*, **95**, 10826-10831.

34. J. Lee, M. Lascoux, **M.A. Newton**, and E. Nordheim (1999). A study of deleterious

gene structure in plants using Markov chain Monte Carlo. *Biometrics,* **55**, 376-386.

35. B. Mau, **M.A. Newton**, and B. Larget (1999). Bayesian phylogenetic inference via Markov chain Monte Carlo methods. *Biometrics,* **55**, 1-12.

36. H. Tao, M. Palta, B.S. Yandell, and **M.A. Newton** (1999). An estimation method for the semiparametric mixed effects model. *Biometrics,* **55**, 102-110.

37. **M.A. Newton** and Y. Zhang (1999). A recursive algorithm for nonparametric analysis with missing data. *Biometrika*, **86**, 15-26.

38. **M. A. Newton**, T. Yeager, C.A. Reznikoff, 1999. A statistical analysis of cancer genome variation. In, *Statistics in Genetics, IMA Volumes in Mathematics and its Applications*, M.E. Halloran and S. Geisser (eds), **112**, 223-236, New York:Springer.

39. J.D. Haag G. M. Brasic, L.A. Shepel, **M.A. Newton**, C.J. Grubbs, R.A. Lubet, J.G. Kelloff, and M.N. Gould (1999). A comparative analysis of allelic-imbalance events in chemically induced rat mammary colon and bladder tumors. *Molecular Carcinogenesis*, **24**, 47–56.

40. D.F. Jarrard, S. Sarkar, Y. Shi, T.R. Yeager, G. Magrane, H. Kinoshita, N. Nassif, L. Meisner, **M.A. Newton**, F.M. Waldman, and C.A. Reznikoff (1999). p16/pRb Pathway Alterations Are Required for Bypassing Senescence in Human Prostate Epithelial Cells. *Cancer Research*, **59**(12), 2957-64.

41. **M.A. Newton**, B. Mau, and B. Larget, 1999. Markov chain Monte Carlo for the Bayesian analysis of evolutionary trees from aligned molecular sequences. In F. Seillier-Moseiwitch (Ed.), *Statistics in Molecular Biology and Genetics.* IMS Lecture Notes-Monograph Series, **Vol. 33**, 143-162.

42. F. A. Quintana and **M.A. Newton**, 1999. Parametric Partially Exchangeable Models for Multiple Binary Sequences. *Brazilian Journal of Probability and Statistics.* **13**, 55-76.

43. J.G. Teeguarden, **M.A. Newton**, Y.P. Dragan, H.C. Pitot, 2000. Genome-wide loss of heterozygosity analysis of chemically induced rat hepatocellular carcinomas reveals elevated frequency of allelic imbalances on chromosomes 1, 6, 8, 11, 15, 17, and 20. *Molecular Carcinogenesis*, **28**, 51-61.

44. F.A. Quintana and **M.A. Newton**, 2000. Computational aspects of nonparametric Bayesian analysis with applications to the modeling of multiple binary sequences. *Journal of Computational Graphical Statistics*, **9**, 711-737.

45. **M.A. Newton** and Y.J. Lee, 2000. Inferring the location and effect of tumor suppressor genes by instability-selection modeling of allelic-loss data. *Biometrics*, **56**, 1088-1097.

46. M.M. Fisher, J.L. Klug, G. Lauster, **M.A. Newton** and E.W. Triplett, 2000. Effects of resources and trophic interactions on freshwater bacterioplankton. *Microbial Ecology*, **40**, 125-138.

47. Jacoby RF, Cole CE, Tutsch K., Newton MA, Kelloff G, Hawk ET, Lubet RA, 2000. Chemopreventive efficacy of combined piroxicam and difluoromethylornithine treatment of Apc mutant Min mouse adenomas, and selective toxicity against Apc mutant embryos.

Cancer Research, **60**(7), 1864-1870.

48. Reznikoff CA, Sarkar S, Julicher KP, Burger MS, Puthenveettil JA, Jarrard DF, Newton MA 2000. Genetic alterations and biological pathways in human bladder cancer pathogenesis. *Urologic Oncology*, **5**(5), 191-203.

49. **M.A. Newton**, C.M. Kendziorski, C.R. Richmond, F.R. Blattner, and K.W. Tsui, 2001. On differential variability of expression ratios: Improving statistical inference about gene expression changes from microarray data. *Journal of Computational Biology,* **8**(1), 37-52.

50. H. Lan, C.M. Kendziorski, L.A. Shepel, J.D. Haag, **M.A. Newton**, and M.N. Gould, 2001. Genetic loci controlling breast cancer susceptibility in the Wistar-Kyoto rat. *Genetics*, **157**, 331-339.

51. M.R. Albertini, D.M. King, **M.A. Newton**, P.M. Vacek, 2001. In vivo mutant frequency of thioguanine-resistant T-cells in the peripheral blood and lymph nodes of melanoma patients. *Mutation Research*, **476**, 83-97.

52. P.D. Hoff, R.B. Halberg, A. Shedlovsky, W.F. Dove, and **M.A. Newton**, 2002. Identifying Carriers of a Genetic Modifier Using Nonparametric Bayes Methods. *Case Studies in Bayesian Statistics*, **5**, 327-342.

53. **M.A. Newton**, 2002. On a nonparametric recursive estimator of the mixing distribution. *Sankhya* A, **64**, 1-17.

54. **M.A. Newton**, 2002. Discovering combinations of genomic alterations associated with cancer. *Journal of the American Statistical Association*, **97**, 931-942.

55. **M.A. Newton**, H. Yang, P. Gorman, I. Tomlinson, and R. Roylance, 2003. A statistical approach to modeling genomic aberrations in cancer cells (with discussion). In *Bayesian Statistics 7*, J.M. Bernardo, M.J. Bayarri, J.O. Berger, A.P. Dawid, D. Hecherman, A.F.M. Smith and M. West (Eds.) Oxford University Press.

56. **M.A. Newton** and C.M. Kendziorski, 2003. Parametric Empirical Bayes Methods for Microarrays, in *The analysis of gene expression data: methods and software.* Eds. G. Parmigiani, E.S. Garrett, R. Irizarry and S.L. Zeger, New York: Springer Verlag.

57. **M.A. Newton**. Statistical methods in laboratory and basic sciences. *The Encyclopedia of Life Support Systems.* In Press.

58. C.M. Kendziorski, **M.A. Newton**, H. Lan, and M.N. Gould, 2003. On parametric empirical Bayes methods for comparing multiple groups using replicated gene expression profiles. *Statistics in Medicine*, **22**, 3899-3914.

59. **M.A. Newton**, A. Noueiry, D. Sarkar, and P. Ahlquist (2004). Detecting differential gene expression with a semiparametric hierarchical mixture method. *Biostatistics*, **5**, 155-176.

Papers under review

1. M.A. Newton and D.I. Hastie. Assessing Poisson variation of intestinal tumor multiplicity in Min mice carrying a Robertsonian translocation. Submitted.

2. M. Tochacek, K.A. Gould, T.M. Reindl, C.R. Murrin, C.M. Lachel, K.L. Pennington, E.A. VanderWoude, L.A. Flood, J.L. Meza, **M.A. Newton**, and J.D Shull. Genetic determination of susceptibility to estrogen-induced mammary cancer in the ACI rat: Mapping *Emca1* and *Emca2* to chromosomes 5 and 18. In revision.

3. J.A. Logan, P.D. Hoff, and **M.A. Newton**. A parametric two-sided model of marriage. In revision.

4. J.M. Satagopan, **M.A. Newton**, A.E. Raftery. Easy estimation of normalizing constants and Bayes factors from posterior simulation: Stabilizing the harmonic mean estimator. In revision.

5. Y. Zhang and **M.A. Newton**. On calculating the nonparametric maximum likelihood estimator of a distribution given interval censored data. In revision.

Invited papers (not abstracts) published in conference proceedings. (not refereed)

1. **M.A. Newton**, P. Guttorp, and J. A. Abkowitz, 1992. Bayesian inference by simulation in a stochastic model from hematology. *Computer Science and Statistics*, Volume 24, 449–455. H. J. Newton, Editor. Interface Foundation of North America. Invited by A. E. Gelfand.

2. **M.A. Newton**, 1994. A diffuse prior limit in semiparametric binary regression. *American Statistical Association Proceedings of the Section on Bayesian Statistical Science,* 181–186.

3. J.K. Lee, **M.A. Newton,** E. Nordheim, and H. Kang, 1994. Inference on lethal gene studies via Bayesian Markov chain simulation. *Computer Science and Statistics*, **26**, 410–414. Interface Foundation of North America.

Published discussions of papers written by others.

1. **M.A. Newton**, 1996. Contribution to the discussion of G. A. Satten and I. M. Longini, "Markov chains with measurement error: Estimating the 'True' course of a marker of the progression of human immunodeficiency virus disease." *Applied Statistics*, **45**, 303–304.

2. **M.A. Newton**, 1999. Contribution to the discussion of K.L. Mengersen, C.P. Robert, and C. Guihenneuc-Jouyaux, "MCMC Convergence Diagnostics: A Reviewww." In *Bayesian Statistics 6*, (eds. J.M. Bernardo, J.O. Berger, A.P. Dawid, and A.F.M. Smith), Clarendon Press: Oxford, pp 432-434.

3. **M.A. Newton** and F.A. Quintana, 1999. Contribution to the discussion of S.G. Walker, P. Damian, P.W. Laud, and A.F.M. Smith, "Bayesian nonparametric inference for random distributions and related functions." *J. Roy. Statist. Soc. B*, **61**, (3).

4. **M.A. Newton**, 2001. Contribution to the discussion of Liu, J., Gupta, M., Lin, X. Mayerhofere, L., and Lawrence, C., "Statistical models for motif discovery." Fifth Carnegie Melon Workshop on Case Studies in Bayesian Statistics, held September 2001.

Other papers

1. J.A. Logan, P.D. Hoff, and M.A. Newton, "Estimation for the Marriage Model." CDE Working Paper 99-31, Center for Demography and Ecology, University of Wisconsin-Madison, August, 1999.

(Published abstracts are not listed here.)

Other Research Activity

Program Co-director (with Peter Ney and Tom Kurtz). Summer Internship Progam in Probability and Stochastic Processes: Markov chain Monte Carlo Methods. Sponsored by the National Science Foundation. Held at the Center for Mathematical Sciences, University of Wisconsin, Madison, June 19 to August 11, 1995.

Program Director. Second Sewall Wright Symposium, UW Madison, May 5-6, 1997, featuring Joe Felsenstein and resident luminaries.

Program Co-director (with Don Waller). Third Sewall Wright Symposium, UW Madison, May 4-5, 1998, featuring Elizabeth Thompson, Augustine Kong, and Ruth Shaw.

Adjunct Faculty, Departamento de Probabilidad y Estadistica Universidad Catolica de Chile, 1998 - present.

Long-term visitor in the program, "Biomolecular function and evolution in the context of the genome project" at the Isaac Newton Institute of Mathematics, Cambridge, UK, July 20 to August 31, 1998.

Workshop Coordinator, "Statistical methods in mammalian and cancer genetics." In Wisconsin Symposium: Genetics, Genomics, and Molecules, May 23-25, Madison, WI.

Delegate,"The Microarray Meeting: Technology, Application, and Analysis," Scottsdale, Arizona, September 22-25, 1999 (poster).

Delegate,"Upper Midwest Biostatistics Symposium," Mayo Clinic, Rochester, MN, August 23, 1999 (poster).

Delegate, "The Eighth International Conference on Chromosomes in Solid Tumors," Tucson, Arizona, January 29 - February 1, 2000.

Consultant, NIH U01, Consortium for Mouse Models of Human Cancer, W.F. Dove, PI.

Session Organizer, "Probability and Statistics in Evolutionary Genetics." 5th World Congress of the Bernoulli Society/IMS Annual Meeting, Guanajuato, Mexico, 15-21 May, 2000.

Invited Session Organizer, "DNA Expression Arrays." Biometrics Section of the ASA, Joint Statistics Meetings, Indianapolis, 13-17 August, 2000.

Program Committee Member for the year 2003-2004 program, "Probability and Statistics in Complex Systems: Genomics, Networks, and Financial Engineering." Institute for Mathematics and its Applications, Minneapolis.

Program Committee Member for Wisconsin Symposium II: The analysis of Human Biology Genes, Genomes, and Molecules, June 12-16, 2001, UW Madison. (And an organizer for the affiliated NCI Satellite meeting on mouse models of human cancer, June 12.)

Delegate, the Joint Statistics Meetings. San Francisco, August 2003.

Organizer, "Statistical Methods for Gene Expression: Microarrays and Proteomics," Institute for Mathematics and its Applications Workshop, September 29 to October 3, 2003, Minneapolis. `http://www.ima.umn.edu/complex/fall/c1.html`

Recent Invited Conference Presentations (since 1999)

ENAR Biometrics Conference, Atlanta, GA, 3/99

Workshop on Bayesian Nonparametric Methods, Reading, UK, 7/99

Conference on Medical Statistics, Oberwolfach, 2/00

C.R. Rao 80th Birthday Conference, San Antonio, TX, 3/00

Joint Statistics Meetings, Indianapolis, IN, 8/00

Conference on Expression Arrays, Genetic Networks and Diseases, at the Institute of Pure and Applied Mathematics, Los Angeles, CA, 11/00

ENAR Biometrics Conference, Charlotte, NC, 3/01

Interface Meeting, Costa Mesa, CA, 6/01

Evolution Meetings, Knoxville, TN, 6/01

International Society for Clinical Biostatistics, Stockholm, 8/01

Sixth Workshop on Case Studies in Bayesian Statistics, CMU, Pittsburgh, PA, 9/01

Statistical Genetics Workshop to honor David Andrews, Fields Institute, Toronto, 5/02

Statistical Society of Canada Annual Meeting, Hamilton, 5/02

Seventh Valencia Meeting on Bayesian Statistics, Tenerife, 6/02

WNAR Biometrics Conference, Los Angeles, CA, 6/02

Statistics in Genetics Workshop, Ludwig-Maximilians-University, Munich, 8/02

First Cape Cod Workshop on Monte Carlo Methods, Hyannis, MA, 9/02

Gordon Conference: Quantitative Genetics and Genomics, Ventura, CA, 2/03

Wye Gene Expression Conference, Wye, UK,

Statistical Society of Canada Annual Meeting, Halifax, 6/03

Jackson Laboratories short course, Mathematical approahes to the analysis of complex traits, Bar Harbor, ME,10/03.

Institute for Mathematics and its Applications, Gene Expression Workshop, Minneapolis, MN, 10/03.

ENAR Biometrics Conference, Pittsburgh, PA, 3/04.

Departmental colloquia in this same period at: University of Wisconsin, University of Washington, University of California Berkeley, Stanford University, Emory University, University of Chicago, ETH Zurich, University of British Columbia, and Medical College of Wisconsin, University of Minnesota, Johns Hopkins University.

Active Grants

Principal investigator: *Statistical Methods for Molecular Cancer Data.* National Cancer Institute. Reference number: R01 CA64364. Year 8.

Principal investigator: *Training in Cancer Biostatistics.* National Cancer Institute. Reference number: T32 CA09565.

Co-investigator: *Genes controlling neoplasia of the intestinal epithelium*, W.F. Dove PI. National Cancer Institute. Reference number: R37-CA63677.

Co-investigator: *Novel approaches to detect virus-cancer associations*, P. Ahlquist PI. National Cancer Institute. Reference number: P21 CA97944.

Co-investigator: *Surrogate selection for immunocompetent T-cells in human melanoma*, M.R. Albertini PI. Department of Veterans Affairs.

Completed grants

Principal investigator: *Statistical methods for molecular cancer data*, FIRST Award, National Cancer Institute. 7/95 - 6/00. Total direct costs $349,995. Reference number: R29 CA64364.

Principal investigator: *Modeling chromosome changes to infer suppressor gene status*, American Cancer Society Institutional Research Grant. 12/93-12/94. Amount $8300. IRG 35-35-13.

Summer Support. UW Madison Graduate School. 1992, 1993, 1997, 2000.

Co-PI on NIH grants and contracts with Drs. M.N. Gould, C.A. Reznikoff, R.F. Jacoby, P. Ahlquist, and W.F. Dove.

Biostatistician on the NCI Core Grant supporting the University of Wisconsin Comprehensive Cancer Center.

Research-related travel grants from either external agencies or UW Madison Graduate School: twelve since 1992.

Teaching

Statistics 312; Mathematical Statistics for Engineers and Scientists. Fall 1991, 1992, 1993, Spring 1992.

Statistics 992; Special topics: Topics in Inference and the Monte Carlo method. Spring 1993.

Statistics 692; Mathematical Statistics I, Fall 1994.

Statistics 610; Mathematical Statistics II, Spring 1995, 2001, 2002, 2003.

Statistics 609; Mathematical Statistics I, Fall 1995, 2000, 2001, 2002.

Statistics 775; Bayesian Analysis, Fall 1996, Spring 1999.

Statistics 771; Statistical Computing, Fall 1997.

Statistics 692*; Introduction to Bayesian Analysis, Spring 04

Graduate Students

Fernando Quintana: Inference with partially exchangeable random variables; Graduated May, 1994; Associate Professor, Department of Statistics, Pontificia Universidad Catolique de Chile, Santiago, Chile.

Robert Mau: Bayesian methods for phylogenetic trees; Graduated August 1996; Senior Scientist, Department of Oncology and Department of Animal Health and Biomedical Sciences, UW Madison.

Bruce Craig: Bayesian methods for hidden Markov models. Graduated July 1996; Associate Professor of Statistics at Purdue University.

Yunlei Zhang: Nonparametric Bayesian Methods; Graduated July 1997; Senior methodologist, Cendant Corp, CT.

Peter Hoff: Constrained nonparametric estimation via mixtures. Graduated June 2000; Assistant Professor of Statistics, University of Washington, Seattle.

David Dahl; Conjugate Dirichlet process mixture models: gene expression, clustering, and efficient sampling. June 2004.

Other Graduate Student Advising

Committee member on more than 50 preliminary and final PhD exams since 1991.

External examiner: C. Loredo-Osti. Dalhousie University, 8/99; M. Black, Purdue University, 7/02.

Advisor for David Hastie, PhD student with Peter Green, U. of Bristol, on a Worlwide Universities Network Fellowship, 9/02-5/03.

Other Service, UW Madison

Co-author and member of hiring committee for the Molecular Biometry Cluster; Chancellor's 4th cluster hiring initiative (3 faculty lines).

Co-director of the training program, Department of Biostatistics and Medical Informatics (D. DeMets, PI).

Hiring Committee, Statistics, 1995-96, 2000-2001. Biostatistics 1996-97. Both 1997-98; 2002-03. Biostatistics/Preventative Medicine 1998-99.

PhD Exam Committee, Statistics, 1996-2001.

Masters exam committee, Statistics, 1991-94, 2003.

Mentoring and review committees for M. Kosorok, J. Fine, D. Page, and T. Anantharaman.

Seminar Committee, Biostatistics, 1992-93; Statistics 1997-99.

Tutorial service committee, Statistics, 1991-93.

Editorial Service and Reviewing

Associate editor *Biometrics* since January 1997.

Site visit member, NIH PO1 Review, May 1997, Fred Hutchison Cancer Center.

Quantitative Genetics Study Section, NIH, Bethesda, MD, Member, July 16-17, 1998.

Genome Study Section, Genetic Sciences Initial Review Group, NIH. Ad hoc member, June 1999 and November 1999. Regular member, Fall 2000 to June 2004 (three meetings per year; approximately 10 grant reviews per meeting).

Ad hoc reviewer; California Breast Cancer Research Program, April 2003.

Reviewer. Modeling of Microarray Data Special Emphasis Panel, NIH/SNEM5. July 1, 2003.

Site visit member, NIH P01 Review, October 2001, Dana Farber Cancer Center.

External Reviewer, Division of Biostatistics, U. of Minnesota, Mach 3-5, 2002.

Grant reviews for SERC, NSERC, NSF, FONDECYT, and BCHRF.

Book reviews for Springer-Verlag and Harper-Collins.

Extensive refereeing. From 1990 to March 2003:

American Naturalist (1)

American Statistician (1)

Annals of Statistics (11)

Applied Environmental Microbiology (1)

Bernoulli (1)

Bioinformatics (2)

Biometrical Journal (1)

Biometrics (4) (in addition to AE work)

Biometrika (5)

Biostatistics (3)

Canadian Journal of Statistics (7)

Cancer (1)

Combinatorics, Probability and Computing (1)

Computational Statistics and Data Analysis (1)

Environmental and Ecological Statistics (1)

Evolution (1)

Genetics (3)

IEEE Symposium on Informtation Theory (1)

International Journal of Cancer (1)

Journal of Computational and Graphical Statistics (1)

Journal of Scientific and Statistical Computation (1)

Journal of Statistical Education (1)

Journal of Statistical Planning and Inference (1)

Journal of the American Statistical Association (19)

Journal of the Royal Statistical Society, Series B (5)

Molecular Biology and Evolution (4)

Nature Biotechnology (1)

Nucleic Acids Research (1)

Pacific Symposium on Biocomputing (1)

Proceedings of the American Mathematical Society (2)

Proceedings of the National Acadamy of Sciences (6)

Statistics and Computing (2)

Statistics and Probability Letters (12)

Statistics in Medicine (1)

Statistical Science (1)

Statistica Sinica (1)

Further details are available from Dr. Newton upon request.