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EDUCATION   **Ph.D.** University of Minnesota. (1993) Major in Statistics, minor in Mathematics. Thesis: Bayesian optimal designs for approximate normality. Advisor: Kathryn Chaloner.

M.S. University of California, Riverside (1988) Statistics.

M.Sc. University of Alberta (1986) Forest Science with an emphasis in Biometrics. Thesis: Variation in stem diameter increment and its effect on taper in conifers. Advisor: Steve Titus.

B.S. Honors Oregon State University (1985) Major in Forest Management, minor in Statistics. Honors thesis: Total stem volume equations for six southwest Oregon conifers. Advisor: David Hann.

RESEARCH INTERESTS

Model uncertainty and choice in prediction and variable selection problems for linear, generalized linear models and multivariate models. The impact of prior distributions for model selection and Bayesian model averaging. Non-parametric function estimation using Lévy random fields, wavelets, kernels and other overcomplete representations. Functional data analysis. Spatial-Temporal models. Experimental design. Applications in air pollution and health effects, astronomy, bioinformatics, environmental sciences, medical devices, and neuroscience.

PROFESSIONAL EXPERIENCE

Chair. Duke University, Department of Statistical Science, July 2013–.

Professor. Duke University, Department of Statistical Science, 2011–.

Associate Professor. Duke University, Department of Statistical Science, 2000 – 2011.

Senior Fellow. Statistical & Applied Mathematical Sciences Institute, 2006. Astrostatistics Program.

Senior Fellow. Statistical & Applied Mathematical Sciences Institute, 2002-2003. Stochastic Computation Program.

Assistant Professor. Duke University, Institute of Statistics and Decision Sciences, 1993 to 2000.

Visiting Scholar National Research Center for Statistics and the Environment, University of Washington, 1998-99.

Research Fellow. National Institute of Statistical Sciences, 1995

Instructor. University of Minnesota, School of Statistics, 1992-1993

AWARDS & HONORS

Elected President of the International Society of Bayesian Analysis (President-Elect 2012, President 2013, Past-President 2014)

Member of the Committee of Presidents of Statistical Societies (COPSS) President's Award Committee (2011-2014)

Fellow of the American Statistical Association, 2005

National Science Foundation CAREER Award 1998–2003

Leonard J. Savage Ph.D. Thesis Award, 1994

Graduate School Dissertation Fellowship. University of Minnesota, 1991–1992.

Graduate School Fellowship. University of Minnesota, 1988–1989.

Outstanding Teaching Assistant. Department of Statistics, University of California, Riverside, 1986–1987.

Graduate Opportunity Fellowship. University of California, Riverside, 1987–1988, 1986–1987.

Snellstrom Scholarship. Oregon State University, 1983–1984.

Slater Memorial Scholarship. Oregon State University, 1982–1983.

David Wolfson Memorial Scholarship. Oregon State University, 1981–1982.

Fernhopper Scholarship. Oregon State University, 1981–1982.

PATENTS   U.S. Patent 6,849,422: System and Method for Analyzing Antibiotic Susceptibility of Biological Samples using Redox and Turbidity Measurements to Ascertain Minimum Inhibitory Concentrations (MICS)

GRANTS   Duke University, Arts and Sciences Research Council Grants and International Travel Grants (1994, 1995, 1996)

National Science Foundation DMS-9626135 "Model Uncertainty in Prediction, Variable Selection, and Related Decision Problems". (PI) 7-1-96 to 6-30-99 $79,000

Becton Dickinson Research Center. Graduate student internship grant. (co-PI with Giovanni Parmigiani) From 7-97 to 7-99 $30,200.

Environmental Protection Agency CR 825173-01-0. "Statistical Methods in Particular Matter Air Pollution Research" (co-PI with P. Guttorp and others – University of Washington EPA cooperative agreement) 10-98 to 9-99, $184,631

Environmental Protection Agency CR 827868-01-0. "Model Uncertainty in Health Effect Models" (PI) 9/99 to 8/01, $157,000

Environmental Protection Agency R828686 "Spatial-Temporal Models for Environmental Health Effects" (PI) joint with D. Higdon and R.L. Wolpert) 1/01 to 6/05 $557,859

National Science Foundation CAREER Grant DMS-9733013 "Model Uncertainty, Model Selection, and Robustness with Applications in Environmental Sciences" (PI) 7-1-98 to 6-30-03 $241,092

National Institute of Health " Molecular Basis of Postoperative Delirium in the Elderly" PI: Madan Kwatra. 2003-2008.

National Science Foundation DMS-0342172 "Modelling of Graphs, Networks and Trees for Genomic Applications: High-Dimensional Model Search" (PI–West) 7/2004–6/2010

National Science Foundation DMS-0422400, "Screms: Distributed Environments for Stochastic Computation" (PI) 9/2004 – 8/2006

National Science Foundation DMS-0406115 "High Dimensional Model Averaging and Model Selection" (PI) 9/2004 – 8/2007

National Science Foundation AST-0507481 "Collaborative Research: Adaptive Experimental Design for Astronomical Exploration" (PI) 9/2005 - 6/2010

National Institute of Health 1-R01-HL090559-01 " Bayesian Modeling and Optimal Design for Studies of Gene-Environment Association" (co-PI, PI Iversen) 9/2007 – 7/2010.

National Institute of Health "Multimodality Word-Finding in Neurosurgical Language Mapping" (Statistician, PI Serafini) 5/07 – 4/2011.

National Institute of Health 1-RC1-HL099863-01 "Autologous EPC lining to Improve Biocompatibility of Circulatory Assist Devices" (investigator, PI Lawson) 9/2009–8/2011.

National Institute of Health 1-U19-CA148112-01 "Ovarian Cancer Post GWAS" (co-investigator, PI Schildkraut) 7/2010 – 6/2014.

National Science Foundation DMS-1106891 "Advances in Bayesian Model Choice" (PI) 7/2011 – 6/2014

National Institute of Health 1-R21-ES020796-01 "Models for Consortium Level Analysis of GxE Interaction in Complex Disease" (Co-PI)

SOFTWARE BAS - Bayesian Adaptive Sampling. An R-package for Bayesian model selection and averaging. Available from `http://www.stat.duke.edu/~clyde/BAS` and the R repository CRAN.

ODA - Orthogonal Data Augmentation. An R-package for implementing ODA for Bayesian model selection and averaging under independent priors.

BARK - Bayesian Additive Regression Kernels. An R-package for nonparametric regression and classification using Lévy Random Field priors. Available from CRAN.

An Object Oriented System for Bayesian Nonlinear Design using Xlisp-Stat Available from `http://www.stat.duke.edu/~clyde/design.html`

PUBLICATIONS

Articles

1. Clyde, M.A. and Titus, S.J. (1987) Radial and longitudinal variation in stem diameter increment of lodgepole pine, white spruce, and black spruce: species and crown class differences. *Canadian Journal of Forest Research* 17, 1223–1227.

2. Clyde, M.A. and Titus, S.J. (1987) A new computerized system for tree ring measurement and analysis. *Forestry Chronicle* 63, 23–27.

3. Furnier, G. R., Knowles, P. Clyde, M. and Dancik, B.P. (1987) Effects of avian seed dispersal on the genetic structure of whitebark pine populations. *Evolution* 41, 607–612.

4. Furnier, G. R., Stine, M., Mohn, C.A. and Clyde, M. (1991) Geographic patterns of variation in allozymes and height growth in white spruce. *Canadian Journal of Forest Research* 21, 707–712.

5. Clyde, M. A. and D. Strauss. (1991) Logistic regression for spatial pair–potential models. *In* Spatial Statistics and Imaging. *Edited by* A. Possolo. Institute of Mathematical Statistics Lecture Notes–Monograph Series 20:14–30.

6. Clyde, M.A. (1995) Bayesian designs for approximate normality. In *MODA 4 – Advances in Model–Oriented Data Analysis*, C.P. Kitsos and W.G. Müller (Eds.) Physica–Verlag. pp 25–35.

7. Clyde, M., Müller, P. and Parmigiani, G. (1995) Optimal design for heart defibrillators. In: *Bayesian Statistics in Science and Engineering: Case Studies II.* C. Gatsonis, J. S. Hodges, R. E. Kass, N. D. Singpurwalla (Eds.) Springer–Verlag. pp 278–292.

8. Clyde, M. A., Müller, P. and Parmigiani, G. (1996) Inference and design strategies for a hierarchical logistic regression model. In *Bayesian Biostatistics*, D.A. Berry and D. Stangl (Eds.) pp 297–320.

9. Clyde, M. and Parmigiani, G. (1996) Orthogonalizations and Prior Distributions for Orthogonalized Model Mixing. In *Modelling and Prediction: Honoring Seymour Geisser* edited by Jack C. Lee, Wesley O. Johnson and Arnold Zellner, Springer-Verlag. pp 206-227.

10. Clyde, M. and Chaloner, C. (1996) Equivalence of constrained and weighted designs in multiple objective design problems. *Journal of the American Statistical Association* 91, 1236–1244.

11. Clyde, M., DeSimone, H. and Parmigiani, G. (1996) Prediction via orthogonalized model mixing. *Journal of the American Statistical Association* 91, 1197–1208.

12. Clyde, M. (1997) Strategies for Model Mixing in Generalized Linear Models. In *Artificial Intelligence and Statistics 1997.* Pages 103–114.

13. Clyde, M., Parmigiani, G., and Vidakovic, B. (1997) Using Markov chain Monte Carlo to account for model uncertainty, with applications to wavelets. *Computing Science and Statistics* 28, 209–218.

14. Clyde, M., Parmigiani, G., Vidakovic, B. (1998) Multiple Shrinkage and Subset Selection in Wavelets. *Biometrika*, 85, 391–402. `http://dx.doi.org/10.1093/biomet/85.2.391`

15. Clyde, M.A. and Parmigiani, G. (1998) Protein construct storage: Bayesian variable selection and prediction with mixtures. *Journal of Biopharmaceutical Statistics* 8, 431-443.

16. Paddock, S. West, M., Young, S., and Clyde, M. (1998) Mixture models in the exploration of structure-activity relationships in drug design. In *Bayesian Statistics in Science and Engineering: Case Studies IV*. C. Gatsonis et al. eds. Springer-Verlag, NY.

17. Clyde, M. (1999) Bayesian Model Averaging and Model Search Strategies (with Discussion). In *Bayesian Statistics 6* J.M. Bernardo, A.P. Dawid, J.O. Berger, and A.F.M. Smith eds. Oxford University Press. pages 157-185. `ftp://ftp.stat.duke.edu/pub/WorkingPapers/98-20.pdf`

18. Clyde, M. and George, E.I. (1999) Empirical Bayes estimation in wavelet nonparametric regression. In *Bayesian Inference in Wavelet-Based Models* eds P. Müller and B. Vidakovic. Springer-Verlag. pages 309-322.

19. MacEachern, S.N., Clyde, M., and Liu, J.S. (1999) Sequential importance sampling for nonparametric Bayes models: The next generation. *Canadian Journal of Statistics* 27, 251–267 `http://www.jstor.org/stable/3315637`

20. Clyde, M. and George, E.I. (2000) Flexible Empirical Bayes Estimation for Wavelets. *Journal of the Royal Statistical Society, Series B* 62, 681–698. `http://dx.doi.org/10.1111/1467-9868.00257`

21. Clyde, M. (2000) Model Uncertainty and Health Effect Studies for Particulate Matter. *Environmetrics* 11, 745-763. Special Issue: Statistical Analysis of Particulate Matter Air Pollution.

22. Lamon, E.C. and Clyde, M. (2000) Accounting for Model Uncertainty in Prediction of Chlorophyll *a* in Lake Okeechobee. *Journal of Agricultural, Biological, and Environmental Statistics*, 5, 297–322.

23. Dominici, F., Parmigiani, G, Clyde, M. (2000) Conjugate analysis of multivariate normal data with incomplete observations. *Canadian Journal of Statistics*, 28, 533–550.

24. Clyde, M. and Lee, H.K. (2001) Bagging and the Bayesian Bootstrap. In *Artificial Intelligence and Statistics 2001*, T. Richardson and T Jaakkola eds. Morgan Kaufman Publishers, San Francisco, CA pp 169–174.

25. Clyde, M. (2001) Experimental Design: A Bayesian Perspective. In *International Encyclopedia of the Social and Behavioral Sciences* Edited by Smelser et al. Elsevier Science, New York.

26. Clyde, M. and Chaloner, K. (2002) Constrained Design Strategies for Improving Normal Approximations. *Journal of Statistical Planning and Inference* 104, 175– 196.

27. Dominici, F., Sheppard, L. and Clyde, M. (2003) Health Effects of Air Pollution: A Statistical Review. *International Statistical Review.* 71, 243-276.

28. Clyde, M. (2003) Model Averaging. In *Subjective and Objective Bayesian Statistics: Principles, Models, and Applications, Second Edition* edited by J. Press, John Wiley & Sons, New York.

29. Goodman, A., Clyde, M., Burdict, D., Idriss, S.F. and Wolf, P. (2004) Minimum Energy Single-Shock Internal Atrial Defibrillation in Sheep. *Journal of Interventional Cardiovascular Electrophysiology* 10, 1-8.

30. Clyde, M. and George, E.I. (2004) Model Uncertainty. *Statistical Science* 19, 81-94. `http://dx.doi.org/10.1214/088342304000000035`

31. Lee, H.K., and Clyde, M. (2004) Lossless Online Bayesian Bagging. *Journal of Machine Learning Research* 5, 143–151.

32. House, L. Clyde, M. and Huang,Y-C. (2005) Bayesian Identification of Differential Gene Expression Induced by Metals in Human Bronchial Epithelial Cells. *Bayesian Analysis* 1, 105–120.

33. Clyde, M. House, L. Tu, C. and Wolpert, R. (2005) Bayesian Nonparametric Function Estimation Using Overcomplete Representations and Lévy Random Field Priors. In Statistische und Probabilistische Methoden der Modellwahl. Oberwolfach Reports 2(4) 2628–
`http://www.ems-ph.org/journals/show_issue.php?issn=1660-8933&vol=2&iss=4`

34. Kuncel, A.M, Cooper, S.E, Wolgamuth, B.R., Clyde, M.A., S. A. Snyder, Montgomery, E.B. Jr., Rezai, A.R., and Grill, W.M. (2006) Clinical response to varying the stimulus parameters in deep brain stimulation for essential tremor. *Movement Disorders* 21, 1920–1928.

35. Clyde, M. House, L. and Wolpert, R. (2006) Nonparametric Models for Proteomic Peak Identification and Quantification, In *Bayesian Inference for Gene Expression and Proteomics.* Edited by K.-A. Do, P. Müller, and M. Vannucci. Cambridge University Press. pages 293–308.

36. Clyde, M. A. and Wolpert, R. L. (2007) Nonparametric Function Estimation using Overcomplete Dictionaries (with Discussion). In *Bayesian Statistics 8* Edited by J. M. Bernardo, M. J. Bayarri, J. O. Berger, A. P. Dawid, D. Heckerman, A. F. M. Smith and M. West. Oxford University Press, Oxford UK. pages 91–114. `http://ftp.isds.duke.edu/WorkingPapers/06-10.pdf`

37. Clyde, M. A., Berger, J. O., Bullard, F. Ford, E., Jefferys, B. Luo, R., Paulo, R. and Loredo, T. (2007) Current Challenges in Bayesian Model Choice. In *Statistical Challenges in Modern Astronomy IV*, edited by G. J. Babu and E. D. Feigelson, Astronomical Society of the Pacific Conference Series, Volume 371, pages 224–240.

38. Liang, F., Paulo, R., Molina, G., Clyde, M. and Berger, J.O. (2008) Mixtures of *g*-priors for Bayesian Variable Selection. *Journal of the American Statistical Association* 103:410-423. `http://dx.doi.org/10.1198/016214507000001337` Response to Comments by Arnold Zellner (online supplement)
`http://pubs.amstat.org/doi/suppl/10.1198/016214507000001337/suppl_file/Rejoinder.pdf`

39. Palmieri, R., Wilson, M., Iversen, E., Clyde, M. et al. (2008) Polymorphism in the IL18 gene and no risk of epithelial ovarian cancer in non-Hispanic white women. *Cancer Epidemiology, Biomarkers and Prevention* 17:3567–3572.

40. Zhou, X. K, Clyde, M. A., Garrett, J., Lourdes, V., O'Connell, M., Parmigiani, G., Turner, D.J., and Wiles, T. (2009) Statistical Methods for Automated Drug Susceptibility Testing: Bayesian Minimum Inhibitory Concentration Prediction from Growth Curves. *Annals of Applied Statistics* 3:710-730. `http://dx.doi.org/10.1214/08-AOAS217`

41. Chu, J., Clyde, M. and Liang, F. (2009) Bayesian Function Estimation using an Overcomplete Continuous Wavelet Dictionary. *Statistica Sinica* 19:1419–1438. Special Issue on Multiscale Methods and Statistics: A Productive Measure. `http://www3.stat.sinica.edu.tw/statistica/j19n4/j19n44/j19n44.html`

42. Schildkraut, J.M. Goode, E.L., Clyde, M.A, et al. (2009) Single Nucleotide Polymorphisms in the TP53 Region and Susceptibility to Invasive Epithelial Ovarian Cancer. *Cancer Research* 69:2349–2357.

43. Jesneck, J.L., Mukherjee,S. Yurkovetsky, Z., Clyde,M., Marks, J.R., Lokshin, A.E. and Lo, J.Y. (2009) Do serum biomarkers really measure breast cancer? *BMC Cancer* 9:164– `http://dx.doi.org/10.1186/1471-2407-9-164`

44. Wilson, M. A., Iversen, E.S., Clyde, M. A., Schmidler, S.C., Schildkraut, J.M. Bayesian Model Search and Multilevel Inference for SNP Association Studies. (2010) *Annals of Applied Statistics* 4:1342-1364. `http://projecteuclid.org/euclid.aoas/1287409376`

45. Schildkraut, J.M., Iversen, E.S., Wilson, M.A., Clyde, M.A., Moorman, P., Palmieri, R., Whitaker, R., Bentley, R. Marks, J., and Berchuck, A. (2010) Association between DNA Damage Response and Repair Genes and Risk of Invasive Serous Ovarian Cancer. *PLoS ONE* 5(4):e10061. `http://dx.doi.org/10.1371/journal.pone.0010061`

46. Clyde, M. A., Ghosh, J. and Littman, M. (2011) Bayesian Adaptive Sampling for Variable Selection and Model Averaging. *Journal of Computational and Graphical Statistics*, 20:80-101 `http://dx.doi.org/10.1198/jcgs.2010.09049`

47. House, L.L., Clyde, M.A. and Wolpert, R.L. (2011) Bayesian Nonparametric Models for Peak Identification and Quantification in MALDI-TOF Mass Spectroscopy. *Annals of Applied Statistics* 5:1488-1511 `http://dx.doi.org/10.1214/10-AOAS450`

48. Ghosh, J. and Clyde, M.A. (2011) Rao-Blackwellization for Bayesian Variable Selection and Model Averaging in Linear and Binary Regression: A Novel Data Augmentation Approach. *Journal of the American Statistical Association* 106: 1041–1052. `http://dx.doi.org/10.1198/jasa.2011.tm10518`

49. Wolpert, R. L, Clyde, M.A, and Tu, C. (2011) Stochastic Expansions with Continuous Dictionaries: Lévy Adaptive Regression Kernels. *Annals of Statistics* 39:1916-1962 `http://dx.doi.org/10.1214/11-AOS889`

50. Armagan, A. Dunson, D. and Clyde, M. (2011) Flexible Scale Mixtures of Normals for Shrinkage Estimation. *Neural Information Processing Systems*

51. Loredo, T.J., Berger,. J.O., Chernoff, D.F., Clyde, M.A., and Liu, B. (2012) Bayesian Methods for Analysis and Adaptive Scheduling of Exoplanet Observations. *Statistical Methodology* 9:101–114 Special issue on Astronomical Data Analysis) `http://dx.doi.org/10.1016/j.stamet.2011.07.005`

52. Clyde, M.A. and Ghosh, J. (2012) Finite population estimators in stochastic search variable selection. *Biometrika* 99:981–988. `http://dx.doi.org/10.1093/biomet/ass040`

53. Clyde, M. A. and Iversen, Edwin S. (2013) Bayesian Model Averaging in the M-Open Framework. In "Bayesian Theory and Applications" edited by P. Damien, P. Dellaportas, N.G. Polson and D.A. Stephens. Oxford University Press. Pages 484–498.

54. Serafini, S. Clyde, M. Tolson, M. Haglund, M. (2013) Multimodality Word-finding Distinctions in Cortical Stimulation Mapping. *Neurosurgery* 73(1): 36-47. `http://dx.doi.org/10.1227/01.neu.0000429861.42394.d8`

55. Iversen, E.S., Lipton, G., Clyde, M., Monteiro, A. (2014) Functional Annotation Signatures of Disease Susceptibility Loci Improve SNP Association Analysis. BMC Genomics 15:398 `http://dx.doi.org/10.1186/1471-2164-15-398`

Discussions

56. Clyde, M., DeSimone, H. and Parmigiani, G. (1995) Discussion of *Accounting for Model Uncertainty in Survival Analysis Improves Predictive Performance*, by A.E. Raftery, D.M. Madigan and C.T. Volinsky, in *Bayesian Statistics 5*, (J. O. Berger, J. M. Bernardo, A. P. Dawid and A. F. M. Smith eds.), Oxford University Press.

57. Clyde, M. (1999) Invited discussion of "Bayesian Model Averaging: A Tutorial" by Hoeting, J.A., Madigan, D., Raftery, A.E., and Volinsky, C.T. *Statistical Science*, 14, 401–404.

58. Clyde, M. (2001) Invited discussion of "The Practical Implementation of Bayesian Model Selection" by H. Chipman, E.I. George, R.E. McCulloch, in *Model Selection'* edited by P. Lahiri, Institute of Mathematical Statistics Lecture Notes–Monograph Series.

59. Clyde, M. (2003) Invited discussion of *Bayesian and Frequentist Multiple Testing*, by C. Genovese and L. Wasserman, in *Bayesian Statistics 7*, pages 145–162.

60. Clyde, M. and George, E.I. (2003) Invited discussion of "Wavelet-Based Nonparametric Modeling of Hierarchical Functions in Colon Carcinogenesis" by J.S. Morris, M. Vannucci, P.J. Brown, and R.J. Carroll. *Journal of the American Statistical Association*, 98, 584.

61. Clyde, M. A. and Wolpert, R.W. (2010) Discussion of "Polson and Scott: Shrink globally, act locally: Sparse Bayesian regularization and prediction" In *Bayesian Statistics 9*, edited by J. M. Bernardo, M. J. Bayarri, J. O. Berger, A. P. Dawid, D. Heckerman, A. F. M. Smith and M. West. Oxford University Press, Oxford UK. (to appear).

Other Published Articles

62. Clyde, M., Parmigiani, G., and Vidakovic, B. (1996) Bayesian Strategies for Wavelet Analysis. In *Joint Newsletter of the Statistical Computing & Statistical Graphics Sections of the American Statistical Association* Special Invited Issue on Bayesian Function Estimation) 7, 4-9.

63. Loredo, T., Benson, D., Chernoff, D., Feigelson, E., Ford, E. Gaudi, S., Gregory, P., Jeffreys, W., Geoff, M., McAuthor, B., Scargle, J. Wolszczan, A., Babu, J., Berger, J. Clyde, M. (2007) A Statistics Research Priority for Exoplanet Studies. White Paper for the NSF/NASA Exoplanet Task Force (ExoPTF) http://www.nsf.gov/mps/ast/exoptf.jsp

Under Review

64. Luo, J., Clyde, M.A. and Iversen, E.S. Shrinkage Priors for Bayesian Covariance Estimation and Classification.

65. Li,. Y. and M. A. Clyde "Locally Invariant Priors for Bayesian Model Averaging"

In Preparation

66. Ouyang, Z., Clyde, M.A. and Wolpert, R.L. Bayesian Additive Regression Kernels.

67. Wilson, M.A., Clyde, M.A., and Iversen, E.I. Model Prior Choice and Multiplicity Correction In Bayesian Model and Variable Selection.

68. Serafini S, Clyde M, Timsah J, Brigidi B, Raynor R, Haglund M. Visual, Auditory, and Sentence-Completion Word-Finding of 260 Stimuli in Epilepsy versus Healthy Control groups.

69. Chu, J.H., Clyde, M.A., Liang, F. Bayesian hierarchical models for joint analysis of gene expression and copy number data.

70. Chu, J.H., Clyde, M.A., Liang, F. Hierarchical models for detecting gene copy number changes and classification.

71. Liu, B., Clyde, M.A., Loredo, T. and Berger, J.O. Adaptive Annealed Importance Sampling for Multi-Modal Posterior Exploration and Model Selection with Application to Extrasolar Planet Detection.

72. Clyde, M.A. Wolpert, R.L. and Tu, C. Beyond Correlation: LARK Time Series Models for Multivariate Air Pollution Data

73. Clyde, M.A. Wolpert, R.L. and Tu, C. A new class of Non-Stationary Spatial-Temporal Models for Air Pollutant Monitoring and Analysis.

74. House, L.L. Clyde, M.A. and Wolpert, R.L. Multi-Spectral Peak Identification and Classification

75. Clyde, M.A. Adaptive Monte Carlo Methods for Bayesian Variable Selection

Technical Reports[1]

76. Walters, D. K., Hann, D.W. and Clyde, M. (1985) Equations and tables predicting gross total stem volumes in cubic feet for six major conifers of southwest Oregon. Forest Research Laboratory, Oregon State University, Corvallis. Research Bulletin 50.

77. Clyde, M. A. (1993) An object–oriented system for Bayesian nonlinear design using XLISP–STAT. Technical Report # 587, University of Minnesota.

78. Burch, K., Clyde, M. and Vidakovic, B. (1994) Bayesian design for ecoregional assessment of Minnesota's lakes. ISDS Discussion Paper 94–19.

79. Clyde, M., DeSimone, H. and Parmigiani, G. (1994) A Comparison of Algorithms for Sampling Models, *Proceedings of the 1994 Joint Statistical Meetings; Section on Bayesian Statistical Science.*

80. Clyde, M., Müller, P., Parmigiani, G. (1995) Exploring Expected Utility Surfaces by Markov Chains. ISDS Discussion Paper 95-39.

81. House, L. Clyde, M. and Huang,Y-C. (2003) Bayesian Identification of Differential Gene Expression Induced by Metals in Human Bronchial Epithelial Cells *Proceedings of the 2003 Joint Statistical Meetings*, San Francisco, CA.

82. Pillai, N.S., Clyde, M.A, and Wolpert, R.W. 2007. A Note on Posterior Consistency of the Nonparametric Poisson Regression Model. Department of Statistical Science Discussion Paper 2007-14.

83. McBride, S, and Clyde, M. Hierarchical Bayesian calibration with reference priors: An application to airborne particulate matter monitoring data. ISDS DP 03-05.

84. Clyde, M., Guttorp, P., Sullivan, E. Effects of Ambient Fine and Coarse Particles on Mortality in Phoenix, Arizona. ISDS DP 00-05.

PRESENTATIONS

Invited Conference Presentations

1. (1989) Joint Statistical Meetings in Washington, D.C. Pseudolikelihood estimation for spatial point processes.

2. (1994) Southeastern Regional Conference of Statisticians in the Health Care Industry, Analysis of Space Filling Designs. "Stochastic exploration of a large model space."

3. (1994) Conference on Forecasting, Prediction, and Modeling in Statistics and Econometrics (CFPMSE'94), Hsinchu, Taiwan. "Prediction and Selection by Fast Model Mixing".

4. (1995) Workshop on Model Uncertainty and Model Robustness, Bath England: "Discovery Sampling for Model Spaces"

5. (1995) ASA meeting in Orlando: Discussant for invited session on "Bayesian Variable Selection"

6. (1995) International Meeting on Mixtures in Aussois, France: "Curve Fitting with Wavelets by Model Mixing"

7. (1996) ENAR "Ranking in designed experiments via model mixing: an application to protein storage"

8. (1996) ENAR "Design of Biometric Experiments: Recent Developments" discussant.

9. (1996) ORMS, Washington, DC, "Model Uncertainty in Predicting Transportation Behaviour"

10. (1996) Meeting in Honor of 25th Anniversary of the School of Statistics, University of Minnesota. "Strategies for Model Mixing in High Dimensional Spaces"

11. (1996) Computing Science & Statistics: 28th Symposium on the Interface, Sydney, Australia "Using Markov chain Monte Carlo to account for model uncertainty, with applications to wavelets"

12. (1996) ASA meeting in Chicago, In: Identifiability and Convergence Issues in MCMC Implementation "Strategies for Model Mixing in High Dimensional Spaces"

13. (1997) Statistics Week at Duke - Stochastic Model Building and Variable Selection, "Robust Empirical Bayes Shrinkage in Wavelets"

14. (1997) Sixth International Workshop on Artificial Intelligence and Statistics, "Strategies for Model Mixing in Generalized Linear Models."

15. (1997) ISBA Third World Meeting, Istanbul Turkey, "Asymptotic Approximations and Nonlinear Design"

16. (1997) Iowa State 50th Anniversary of the Department of Statistics Conference "Does Particulate Matter Particularly Matter?"

17. (1997) Statistics Week at Duke - Stochastic Model Building and Variable Selection, "Robust Empirical Bayes Shrinkage in Wavelets"

18. (1998) Particulate Methodology Workshop, National Research Center for Statistics and the Environment, "Assessment of Statistical Models"

19. (1998) Sixth Valencia International Meeting on Bayesian Statistics, "Bayesian Model Averaging and Model Search Strategies"

20. (1998) Joint Statistical Meetings, "Does Particulate Matter Particularly Matter"

21. (1998) Western North American Region of the Biometric Society, "Does Particulate Matter Particularly Matter"

22. (1998) CLAPEM (Cordoba, Argentina) "Model Uncertainty and Bayesian Model Averaging"

23. (1999) The International Environmetrics Society Meeting, "Model Uncertainty in Health Effect Studies".

24. (1999) International Workshop on Objective Bayesian Methodology, Valencia, Spain (discussant)

25. (2000) International Society for Bayesian Analysis Sixth World Meeting Hersonissos, Crete "Empirical Bayes' priors distributions for model uncertainty"

26. (2000) Workshop on Hierarchical Modeling in Environmental Statistics Ohio State University, Columbus, Ohio. "Hierarchical Models and Statistical Issues in Health Effects of Ambient Airborne Particulate Matter"

27. (2000) Third International Workshop on Objective Bayesian Methodology Ixtapa, Mexico "Empirical Bayes and Model Averaging in Nonparametric Regression"

28. (2001) Joint Statistics Meetings, Atlanta, GA, "Empirical Bayes estimation for nonparametric regression"

29. (2001) Pacific Northwest Statistics Meeting (Spring), Simon Fraser University, British Columbia, Canada. "Empirical Bayes Prior Distributions and Model Uncertainty"

30. (2002) International Workshop on Objective Bayesian Methods, Granada, Spain. "Hyper-G Prior Distributions for Bayesian Variable Selection and Model Averaging".

31. (2002) US EPA Workshop on GAM-Related Statistical Issues in PM Epidemiology. RTP, NC. "Alternative Strategies for Model Specification and Selection"

32. (2002) Seventh Valencia International Meeting on Bayesian Statistics, Tenerife, Spain. Discussion of "Bayesian and Frequentist Multiple Testing" by C. Genovese and L. Wasserman

33. (2003) Fourth Int'l Workshop on Objective Prior Methods, Aussois, France. Discussion of "A Bayesian Reference Approach to Variable Selection" by J. M. Bernardo.

34. (2003) Joint Statistical Meetings, San Francisco, CA. Discussion of "Wavelet-based nonparametric modeling of hierarchical functions in colon carcinogenesis" by JS Morris, M Vannucci, PJ Brown, RJ Carroll.

35. (2003) Joint Statistical Meetings, San Francisco, CA. "StoCom: Stochastic Computation at SAMSI"

36. (2004) Workshop for Datamining and Machine Learning, Statistical and Applied Mathematical Sciences Institute, RTP "Theory and Methods Working Group Technical Highlights"

37. (2004) Eleventh Annual Spring Research Conference on Statistics in Industry and Technology, National Institute of Standards and Technology, "Nonparametric Regression, Overcomplete Dictionaries, and Bayesian Model Averaging"

38. (2004) International Society of Bayesian Analysis 2004 World Meeting, Vina del Mar, Chile, "Bayesian Model Averaging for Nonparametric Function Estimation"

39. (2004) Workshop on Data Mining Methodology and Applications, Fields Institute, Toronto, CA. "Bayesian Perspectives on Combining Models"

40. (2005) International Conference/Workshop on Bayesian Statistics and its Applications, Varanasi, India "Bayesian Nonparametric Models for Proteomic Expression"

41. (2005) Eastern North American Region of the Biometrics Society, Austin TX. "Bayesian Nonparametric Models for Proteomic Expression"

42. International Conference on the Interactions between Wavelets and Splines, Athens Georgia "Bayesian Nonparametric Function Estimation using Overcomplete Representations and Levy Process Priors"

43. (2005) Objective Bayes 5, Missouri "Bayesian Perspectives on Combining Models"

44. (2005) Keynote Speaker at 36th Symposium on the Interface: Computing Science & Statistics "Bayesian Perspectives on Combining Models"

45. (2005) Joint Statistical Meetings, Minneapolis, MN "Bayesian Perspectives on Combining Models"

46. (2005) Statistische und Probabilistische Methoden der Modellwahl, Oberwolfach, Germany "Bayesian Nonparametric Function Estimation Using Overcomplete Representations and Lévy Random Field Priors"

47. (2005) Estimations Are Approximations: Multiresolution Modeling and Statistical Inference, Cambridge, MA, " Nonparametric Regression and Overcomplete Representations"

48. (2006) Valencia 8 International Meeting on Bayesian Statistics "Nonparametric Function Estimation using Overcomplete Dictionaries"

49. (2006) Graybill Conference "Bayesian Function Estimation using Continuous Overcomplete Dictionaries"

50. (2006) Statistical Challenges in Modern Astronomy IV "Current Challenges in Bayesian Model Choice"

51. (2006) Joint Statistics Meetings Seattle, WA "Nonparametric Models for Proteomic Peak Identification, Quantification, and Classification"

52. (2006) Random Matrices: Bayesian Focus Week at SAMSI "Classification and Covariance Estimation via Bayesian Shrinkage"

53. (2007) Joint Statistics Meetings, Salt Lake City Utah. "Bayesian Model Selection and Lévy Random Field Priors"

54. (2008) University of Florida Tenth Annual Winter Workshop: Bayesian Model Selection and Objective Methods "Towards Objective Priors and Nonparametric Regression and Classification"

55. (2009) 2009 International Workshop on Objective Bayes Methodology: Invited Discussion of "Handling Sparsity via the Horseshoe" by C. Carvalho and "Bayesian Thresholding Rules" by L. Zhao.

56. (2010) Frontiers of Statistical and Decision Analysis: Conference in Honor of James O. Berger. "Adaptive Monte Carlo and Model Uncertainty" San Antonio, TX

57. (2010) Seminar on Bayesian Inference in Econometrics and Statistics "Adaptive Sampling and Model Uncertainty", Austin, TX.

58. (2010) Workshop on Recent Advances in Bayesian Computation, "Adaptive Sampling and Model Uncertainty", Singapore.

59. (2011) Harvard Workshop on Infusing Statistics and Engineering, "Bayesian Nonparametric Models using Levy Random Fields and Overcomplete Dictionaries", Boston, MA

60. (2011) Joint Statistics Meetings,"Bayesian Perspectives on Combining Models", Miami, FL

Contributed Conference Presentations

1. (1986) International Biometrics Conference, Seattle, Washington. "Development of a stem diameter increment model for coniferous tree species" (poster)

2. (1986) Forestry Microcomputer Software Symposium, Morgantown, West Virginia. "The Tree Ring Measurement System: a new computerized system aiding stem analysis and dendrochronology" (poster)

3. (1993) Joint Statistical Meetings, San Francisco, CA. "Bayesian Optimal Design for Approximate Normality" (special contributed talk)

4. (1993) Bayesian Statistics in Science and Technology: Case Studies. Carnegie Mellon University, Pittsburgh, PA. "Optimal design for heart defibrillators" (poster)

5. (1994) Fifth Valencia International Meeting on Bayesian Statistics, Alicante, Spain. "Protein Construct Storage: Bayesian Variable Selection and Prediction with Mixtures" (poster)

6. (1994) Second international Meeting of ISBA, Alicante Spain. "Bayesian design for ecoregional assessment of Minnesota's lakes" (poster)

7. (1994) North American Meeting of the ISBA, Toronto, Ontario. "Exploration of model spaces via orthogonal Variables" (poster)

8. (1994) MODA-4 meeting in Spetses, Greece: "Bayesian designs for approximate normality" (talk)

9. (1995) Joint Statistical Meetings in Orlando: "Bayesian Optimal Designs for Approximate Normality - Savage Award Session" (special contributed talk)

10. (1995) Joint Statistical Meeting in Orlando: "Semiparametric Bayesian Bioassay with Shape Constraints" (special contributed talk)

11. (1995) International Society for Bayesian Analysis Meeting in Oaxaca, Mexico: "Curve Fitting with Wavelets by Model Mixing" (poster)

12. (1997) RSS Meeting on Practical Bayesian Statistics, Nottingham, UK, "Does Particulate Matter Particularly Matter?" (poster)

13. (1999) Joint Statistical Meetings, Baltimore, MD. Panel Discussant " Understanding Particulate Matter Air Pollution" (special contributed session)

14. (1999) International Workshop on Objective Bayesian Methodology, Valencia, Spain (poster)

15. (2000) Joint Statistical Meetings, Indianapolis, Discussant Topic Contributed Session on Spatial Statistics.

16. (2000) PM 2000; Charleston, SC.

17. (2001) Artificial Intelligence and Statistics (AISTATS) Key West, Florida "Bagging and the Bayesian Bootstrap"

18. (2002) Seventh Valencia International Meeting on Bayesian Statistics, Scaling Up Bayesian Model Averaging

Invited Seminars

1. (1993) Carnegie Mellon University, Statistics Department
2. (1993) University of Chicago, Business School
3. (1993) Iowa State University, Department of Statistics and Statistical Laboratory
4. (1993) University of Minnesota, Biostatistics
5. (1993) University of Missouri, Department of Statistics
6. (1993) University of Florida, Department of Statistics
7. (1993) Duke University, Institute of Statistics and Decision Sciences
8. (1993) Local North Carolina ASA Chapter
9. (1994) University of North Carolina, Department of Biostatistics, Chapel Hill
10. (1994) Duke University, Division of Biometry
11. (1994) AT&T Bell Labs, Murray Hill, NJ
12. (1995) University of Chicago, Business School
13. (1996) University of Texas, Austin, Statistics Seminar series.
14. (1996) University of North Carolina, Chapel Hill, Department of Statistics.
15. (1998) Carnegie Mellon University, Department of Statistics
16. (1998) University of Washington, National Research Center for Statistics and the Environment
17. (1998) University North Carolina, Chapel Hill, Department of Biostatistics
18. (1999) North Carolina State University, Working Group on Environmental Statistics
19. (1999) University of Colorado, Denver, Department of Statistics
20. (1999) National Center for Atmospheric Research
21. (1999) University of Washington, Department of Environmental Health
22. (1999) University of Washington, Working Group on Mixture Models and Model Averaging
23. (2003) University of Pennsylvania, Department of Statistics
24. (2004) University of North Carolina, Department of Biostatistics
25. (2005) Duke University, Department of Biostatistics and Bioinformatics
26. (2005) University of Chicago, Department of Statistics
27. (2005) MD Anderson Cancer Center, University of Texas, Houston
28. (2012) Purdue University "Bayesian Nonparametric Models using Lvy Random Fields and Overcomplete Dictionaries" selected as GSO Spring Speaker.

TEACHING EXPERIENCE

I have developed course material and web resources for the following classes at Duke University:

STA 102 Introduction to Biostatistics

STA 110E Statistics and Data Analysis for Psychology and Biological Sciences

STA 112   Introduction to Applied Statistics

STA 121 Regression Analysis

STA 122 Bayesian and Modern Statistics

STA 210B Introductory Statistics for Biological Sciences

STA 216 Generalized Linear Models

STA 242 Applied Regression Analysis

STA 244 Linear Models

STA 290 Statistical Laboratory

STA 290 Modern Statistical Data Analysis

STA 293 Special Topics: Bayesian Experimental Design

STA 294 Special Topics: Model Mixtures and Mixture Models.

STA 294 Special Topics: Bayesian Model Choice.

STA 376 Advanced Modelling and Scientific Computing

I have also led Independent Study courses on "Model Selection and Model Uncertainty", "Bayesian Wavelet Analysis" and "Causal Inference" at Duke University.

At the University of Minnesota, I taught a two term undergraduate sequence on introductory statistics.

MENTORING

Post-Doctoral Advisees

1. Jarrett Barber
2. Bin Liu
3. Rui Paulo
4. Sandra McBride
5. Jenise Swall

PhD Advisees
1. Nick Jarrett (DSS Prelim 2013)
2. Yingbo Li (DSS - 2013)
3. Melanie Wilson (DSS – 2010) (co-adviser with Ed Iversen) Thesis: "Bayesian Model Uncertainty and Prior Choice with Applications to Genetic Association Studies". Current position: Postdoctoral research fellow, University of Southern California
4. Zhi Ouyang (DSS – 2008) (co-adviser with Robert Wolpert) Thesis: "Bayesian Additive Regression Kernels" Current position: Researcher Google, CA.
5. Joyee Ghosh (DSS – 2008) Thesis: "Efficient Bayesian Computation and Model Search in Linear Hierarchical Models" Current Position: Assistant, Professor Department of Statistics and Actuarial Science, University of Iowa
6. Jen-Hwa Chu (ISDS – 2007) Thesis: "Bayesian Function Estimation using Overcomplete Dictionaries with Applications to Genomics" Postdoctoral Research Fellow, Channing Laboratory, Brigham and Women's Hospital, Harvard Medical School

7. Rosy Luo (ISDS – 2006) (co-adviser with Ed Iversen) Thesis: "Model Selection, Covariance Selection and Bayes Classification via Shrinkage Estimators". Current Position: Assistant Professor Division of Biostatistics, Washington University

8. Leanna House (ISDS – 2006) (co-adviser with Robert Wolpert) Thesis: "Nonparametric Bayesian Models in Expression Proteomic Applications". Current Position: Assistant Professor Department of Statistics Virginia Tech

9. Chong Tu (ISDS – 2006) (co-adviser with Robert Wolpert) Thesis: "Bayesian Nonparametric Modeling Using Levy Process Priors with Applications for Function Estimation, Time Series Modeling and Spatio-Temporal Modeling". Current Position: Vice President PIMCO

10. Heather DeSimone (ISDS PhD – 1996) Thesis: "Prediction using Orthogonalized Model Mixing". Current Position: Vice President and COO INCOGEN

Masters of Science

1. Nick Jarret (DSS MS)
2. Jeff Sipe (DSS MS)
3. Leanna House (ISDS MS)
4. Christine Kohnen (ISDS MS)
5. Conrad Lamon (ISDS MS)

Undergraduate

1. Matt Tolsen (Thesis Advisor DSS – 2009)
2. Jamal Timsah (Thesis Advisor DSS – 2011)
3. Katee Magee (Thesis Advisor DSS – 2011)
4. Sara Gustafson (Thesis Advisor DSS – 2012)
5. Gabby Levac (Thesis Advisor DSS – 2014)

Committees (in addition to advisor for those listed above)

Department of Statistical Science Ph.D dissertation committee member for Fernando Bonassi, Floyd Bullard, Kate Calder, Carlos Carvalho, Avishek Chakraborty, Sining Chen, Andrew Cron, Laura Gunn, Chris Hans, Matthew Heaton, Gabriel Huerta, Fei Liu, Jane Liu, Kristian Lum, Robin Mitra, Erik Moledor, German Molina, Rui Paulo, Natesh Pillai, Fabio Rigat, Huiyan Sang, James Scott, Minghui Shi, Fusheng Su, Jianyu Wang, Xiaojing Wang, Gangquianq Xia

Ph.D. Prelim Committee Member (in addition to the above list) for Beth Brown, Betsy Enstrom, Zhenglei Gao, Simon Lunagomez, Jeff Sipe.

Other Ph.D. Prelim/Dissertation Committees: Mike Dickison (Biology), Amy Goodwin (BME), Weizi Huang (CBB), Alexis Kuncel (BME), Conrad Lamon (SOE), (BME), Xin Wang (Fuqua), Li Xu (Fuqua), Yibin Zhang (Econ)

MS Committee Member: James Box (ISDS), Betsy Enstrom (DSS), Zhenglei Gao (DSS), Weizi Huang (CBB), Jonathon Jesnick (ISDS), Conrad Lamon (ISDS), Denis Valle (DSS), Nan Zheng (DSS), Jieru Zheng (DSS)

UNIVERSITY SERVICE

Departmental Coordinator for Masters Program in ISDS 2000–2006
ISDS Computing Committee 1993–present
ISDS Graduate Consultative Committee
ISDS First Year Exam Coordinator (1999, 2000, 2003, 2004, 2005)
Assistant/Associate Professor Search Committee 2007 (chair)
Assistant Professor Search Committee 2008 (chair)
Assistant Professor Search Committee 2009 (chair)

University Advisory Board Member of the Senior Women in Science (2006–present)
Working Group Member "Multi-School Initiative on Energy and Environment" (2007-2008)
Computational and Systems Biology Search Committee 2008
Executive Committee of the Graduate Faculty 2008–2012
Discussion Leader for Graduate School "Responsible Conduct of Research" Training (2010-2012) Faculty Compensation Equity Comittee (2012-2013)

PROFESSIONAL SERVICE

International Society for Bayesian Analysis, President (2013)

Member of the Committee of Presidents of Statistical Societies (COPSS) President's Award Committee (2011-2013)

International Society for Bayesian Analysis, Executive Secretary (2010-2012)

Journal of the American Statistical Association, Associate Editor JASA Applications (2005-2007)

Bayesian Analysis Associate Editor (2004-2006)

Institute of Mathematical Statistics' Council of Representatives (2005-2008)

International Society for Bayesian Analysis Board Member (2004-2006)

Program Chair American Statistical Association Section on Bayesian Statistical Science; 2006-2007

Savage Fund Committee (2004-2007) Chair 2004-2006.

International Society for Bayesian Analysis Program Committee for the Valencia/ISBA Eight World Meeting on Bayesian Statistics

Publications Officer for the American Statistical Association Section on Bayesian Statistical Science; 2002-2003.

Secretary-Treasurer for the American Statistical Association Section on Statistical Computing 2000-2002

Secretary-Treasurer for the American Statistical Association Section on Statistical Computing 1998-2000

Program Chair for the Institute of Mathematical Statistics Spring 2001 meeting (joint with ENAR)

Associate Editor for *Proceedings of ISBA 2000 - The Sixth World Meeting of the International Society for Bayesian Analysis*

American Mathematical Society Committee on Women in the Mathematical Sciences (2000-2002)

Organizing Committee "Particulate Methodology Workshop", October 19-22, 1998, Seattle, WA.

Institute of Mathematical Statistics New Researchers Committee, 1996-1998.

International Society of Bayesian Analysis Constitution Committee (2000 - 2011)

Initial Editor of Web page for the American Statistical Association's Section on Bayesian Statistical Science. Redesigned web pages for SBSS in 2002.

Member of the EPA-NSF 1999 Review Panel for the Environmental Statistics Program

Member of the NSF 2000 Review Panel for the University/Industry Cooperative Research Program

Member of the NIH 2000-2001 Review panel SNEM-5

Member of the 2004 NSF Human and Social Dynamics Review Panel

Member of the 2004 NSF/NIGMS Mathematical Biology Review Panel

Member of the 2005 NSF Statistics Panel

Member of the 2009 Health Effects Institute Review Panel

Member of the 2009 NSF Math Institutes Panel

External Advisor Health Effects Institute 2009-2010

Member of the 2012 NSF Statistics Panel

Referee for *Bayesian Analysis*, *Biometrika*, *Biometrics*, *Journal of the American Statistical Association*, *Journal of Multivariate Analysis*, *Journal of the Royal Statistical Society Series B*, *Statistical Science*, *Technometrics*, *Journal of Statistical Planning and Inference*, *American Statistician*, *Econometrics*, *Applied Statistics*, *Psychometrika*, and *Communications in Statistics*

Referee for NSF Division of Mathematical Sciences grant proposals

PROFESSIONAL MEMBERSHIPS

American Statistical Association

Institute of Mathematical Statistics (Life)

International Society for Bayesian Analysis (Life)

Eastern North American Region of the Biometrics Society (ENAR)