

DAVID B. DAHL

Assistant Professor
Department of Statistics
Texas A&M University

dahl@stat.tamu.edu
<http://www.stat.tamu.edu/~dahl>

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EDUCATION

- University of Wisconsin – Madison, Ph.D., Statistics (2004)
Advisor: Michael A. Newton
Conjugate Dirichlet Process Mixture Models: Gene Expression, Clustering, and Efficient Sampling
- Brigham Young University, M.S., Statistics (1998)
Advisor: Scott D. Grimshaw
Comparing Classification Methods with Respect to Sampling Proportion and Model Specification using Evaluation Measures Incorporating Cost
- Brigham Young University, B.S., Statistics (1997)
Summa cum laude, Speaker at college graduation

PROFESSIONAL EXPERIENCE

- Assistant Professor, Department of Statistics, Texas A&M University Aug. 2004 - Present
- Adjunct Asst. Prof., Dept. of Biostatistics, U.T. MD Anderson Cancer Center Feb. 2007 - Present
- Consultant, Department of Ophthalmology, UW-Madison Aug. 1999 - July 2004
- Consultant, College of Agricultural & Life Sciences, UW-Madison Jan. 1999 - July 1999
- Consultant, Department of Statistics, Brigham Young University Jan. 1997 - June 1998
- Intern, 3M Corporation May 1997 - July 1997
- Intern, McBride Biostatistical Research May 1996 - Aug. 1996

RESEARCH INTERESTS: Bayesian nonparametric methods, bioinformatics, model-based clustering, protein structure prediction, statistical computing.

PUBLICATIONS

- K. P. Lennox, **D. B. Dahl**, M. Vannucci, R. Day, J. W. Tsai (2009), A Dirichlet Process Mixture of Hidden Markov Models for Protein Structure Prediction, *Annals of Applied Statistics*, accepted. [Lennox is a graduate student advised by Dahl.]
- S. Kim, **D. B. Dahl**, M. Vannucci (2009), Spiked Dirichlet Process Prior for Bayesian Multiple Hypothesis Testing in Random Effects Models, *Bayesian Analysis*, accepted.
- L. Tao, **D. B. Dahl**, L. M. Pérez, D. H. Russell (2009), The Contributions of Molecular Framework to IMS Collision Cross-sections of Gas-phase Peptide Ions, *Journal of the American Society for Mass Spectrometry*, 20, 1593-1602.
- K. P. Lennox, **D. B. Dahl**, M. Vannucci, J. W. Tsai (2009), Density Estimation for Protein Conformation Angles Using a Bivariate von Mises Distribution and Bayesian Nonparametrics, *Journal of the American Statistical Association*, 104, 586-596. [Winner of the 2008 ASA-SBSS Student Paper competition. Lennox is a graduate student advised by Dahl.]
- **D. B. Dahl** (2009), Modal Clustering in a Class of Product Partition Models, *Bayesian Analysis*, 4, 243-264.
- **D. B. Dahl**, S. Crawford (2009), RinRuby: Accessing the R Interpreter from Pure Ruby, *Journal of Statistical Software*, 29(4), 1-18.

- **D. B. Dahl**, Z. Bohannon, Q. Mo, M. Vannucci, J. W. Tsai (2008), Assessing Side-Chain Perturbations of the Protein Backbone: A Knowledge Based Classification of Residue Ramachandran Space, *Journal of Molecular Biology*, 378, 749-758.
- **D. B. Dahl**, Q. Mo, M. Vannucci (2008), Simultaneous Inference for Multiple Testing and Clustering via a Dirichlet Process Mixture Model, *Statistical Modelling*, 8, 23-39.
- **D. B. Dahl**, M. A. Newton (2007), Multiple Hypothesis Testing by Clustering Treatment Effects, *Journal of the American Statistical Association*, 102, 517-526.
- **D. B. Dahl** (2006), Model-Based Clustering for Expression Data via a Dirichlet Process Mixture Model, in *Bayesian Inference for Gene Expression and Proteomics*, Kim-Anh Do, Peter Müller, Marina Vannucci (Eds.), Cambridge University Press.
- D. Kwon, S. Kim, **D. B. Dahl**, M. Swartz, M. Tadesse and M. Vannucci (2006), Identification of DNA Regulatory Motifs and Regulators by Integrating Gene Expression and Sequence Data, in *Bayesian Inference for Gene Expression and Proteomics*, Kim-Anh Do, Peter Müller, Marina Vannucci (Eds.), Cambridge University Press.
- S. Sengupta, J. A. den Boon, I.-H. Chen, M. A. Newton, **D. B. Dahl**, M. Chen, Y.-J. Cheng, W. H. Westra, C.-J. Chen, A. Hildesheim, B. Sugden, P. Ahlquist (2006), Genome-Wide Expression Profiling Reveals EBV-Associated Inhibition of MHC Class I Expression in Nasopharyngeal Carcinoma, *Cancer Research*, 66, 7999-8006.
- M. A. Croft, A. Glasser, G. Heatley, J. McDonald, T. Ebbert, **D. B. Dahl**, N. V. Nadkarni, P. L. Kaufman (2006), Accommodative Ciliary Body and Lens Function in Rhesus Monkeys, I: Normal Lens, Zonule and Ciliary Process Configuration in the Iridectomized Eye, *Investigative Ophthalmology and Visual Science*, 47, 1076-1086.
- J. A. Mattison, M. A. Croft, **D. B. Dahl**, G. S. Roth, M. A. Lane, D. K. Ingram, P. L. Kaufman (2005), Accommodative Function in Rhesus Monkeys: Effects of Aging and Calorie Restriction, *Journal of the American Aging Association*, 27, 59-67.
- S. Wamsley, B. T. Gabelt, **D. B. Dahl**, G. L. Case, R. W. Sherwood, C. A. May, M. R. Hernandez, P. L. Kaufman (2005), Vitreous Glutamate Concentration and Axon Loss in Monkeys with Experimental Glaucoma, *Archives of Ophthalmology*, 123, 64-70.
- N. Binkley, **D. B. Dahl**, T. Kawahara-Baccus, D. Krueger, R. J. Colman (2003), Bone Loss Assessment in Ovariectomized Rats Utilizing Two Dual-Energy X-Ray Absorptiometers, *Journal of Bone and Mineral Research*, 18, 370-375.
- N. T. Taylor, G. M. Burlingame, K. B. Kristensen, A. Fuhriman, J. Johansen, **D. B. Dahl** (2001), A Survey of Mental Health Care Provider's and Managed Care Organization Attitudes Toward, Familiarity with, and Use of Group Interventions, *International Journal of Group Psychotherapy*, 51(2), 243-263.
- M. Lopez, N. L. Van Zeeland, **D. B. Dahl**, R. Weindruch, J. M. Aiken (2000), Cellular Phenotypes of Age-Associated Skeletal Muscle Mitochondrial Abnormalities in Rhesus Monkeys, *Mutation Research*, 452, 123-138.

NONREFEREED PUBLICATIONS

- **D. B. Dahl** (2009), Bayesian Methods for Protein Structure Prediction, *ISBA Bulletin*, 16, 6-8.
- **D. B. Dahl** (2007), Discussion of Jain and Neal's "Splitting and Merging Components of a Nonconjugate Dirichlet Process Mixture Model," *Bayesian Analysis*, 2, 473-478.

PAPERS UNDER REVIEW

- **D. B. Dahl**, R. Day, J. W. Tsai (2009), Distance-Based Probability Distribution on Set Partitions with Applications to Protein Structure Prediction, *Journal of the Royal Statistical Society: Series B*, resubmitted.
- P. Sukhanov, K. P. Lennox, **D. B. Dahl**, M. Vannucci, R. Day, T. Ho, J. Tsai (2009), Protein Loop Modeling Using a Knowledge-based Density Estimation Method, *PLoS Computational Biology*, submitted.

GRANTS

- Co-PI: “Side Chain Driven Refinement of Protein Structure,” NIH-NIGMS, 1R01 GM81631-01 (with PI Jerry Tsai, Dept. of Chemistry, U. of the Pacific). Start date: 07/01/2007. End date: 06/30/2010. Award to support Dr. Dahl and a student for the current academic year: \$62,379.
- Co-PI: “Training Grant in Biostatistics, Bioinformatics, and Nutrition,” NIH-NCI, R25 CA090301-07 (with PI Raymond Carroll, Dept. of Statistics, Texas A&M). Start date: 07/01/2006. End date: 06/30/2011. Effort: 0.45 months per year.

INVITED PRESENTATIONS

- Joint Statistical Meetings, Washington, DC (August 2009)
- WNAR of the International Biometric Society, Portland, OR (June 2009)
- ENAR of the International Biometric Society, San Antonio, TX (March 2009)
- Brigham Young University, Provo, UT (December 2008)
- Classification Society Meeting, St. Louis, MO (June 2008)
- MD Anderson Cancer Center, Department of Biostatistics, Houston, TX (April 2008)
- ENAR of the International Biometric Society, Arlington, VA (March 2008)
- Joint Statistical Meetings, Salt Lake City, UT (August 2007)
- Third Erich L. Lehmann Symposium, Houston, TX (May 2007)
- First Annual Bioinformatics Workshop, College Station, TX (October 2006)
- Joint Research Conference on Statistics in Quality, Industry and Technology, Knoxville, TN (June 2006)
- University of Pennsylvania, Dept. of Biostatistics and Epidemiology, Philadelphia, PA (October 2005)
- Houston Area Chapter of the American Statistical Association, Houston, TX (September 2005)
- MD Anderson Cancer Center, Department of Biostatistics, Houston, TX (February 2005)
- “Second Workshop on Monte Carlo Method,” Cambridge, MA (August 2004)
- “Nucleic Acid Technologies in Animal Health,” College Station, TX (September 2004)

CONTRIBUTED PRESENTATIONS

- Joint Statistical Meetings, Denver, CO (August 2008)
- ENAR of the International Biometric Society, Atlanta, GA (March 2007)
- Joint Statistical Meetings, Seattle, WA (August 2006)
- IMS New Researchers Conference, Seattle, WA (August 2006)
- Valencia / ISBA Eighth World Meeting on Bayesian Statistics, Benidorm, Spain (June 2006)
- ENAR of the International Biometric Society, Tampa, Florida (March 2006)
- Joint Statistical Meetings, Minneapolis, MN (August 2005)
- UW-Madison, Department of Biostatistics and Medical Informatics, Madison, WI (January 2004)
- “Statistical Methods for Gene Expression: Microarrays and Proteomics”, Minneapolis, MN (September 2003) [Poster]
- “International Workshop on Bayesian Data Analysis,” Santa Cruz, CA (August 2003) [Poster]
- Joint Statistical Meetings, San Francisco, CA (August 2003)
- UW-Madison, Department of Biostatistics and Medical Informatics, Madison, WI (April 2003)
- Joint Statistical Meetings, New York, NY (August 2002)

COURSE INSTRUCTION

STAT 302: Statistical Methods	Fall ‘09
STAT 605: Advanced Statistical Computations	Spring ‘09
STAT 651: Statistics in Research I	Spring ‘05-‘07, Fall ‘04, ‘07-‘08
STAT 604: Introduction to Statistical Computing	Fall ‘05, ‘06, ‘07

STUDENT ADVISING

- Ph.D. committees chaired:
 - Kristin Lennox (2010)
 - Adarsh Joshi (2010), with Valen Johnson
 - Jaesik Jeong (2008), with Marina Vannucci
- Other Ph.D. committees: 5
- M.S. committees chaired:
 - Yiyi Wang (2009)
 - Adarsh Joshi (2007), with Marina Vannucci
- Other M.S. committees: 5

SOFTWARE

- **modalclust** — Software described in: D. B. Dahl (2009), Modal Clustering in a Class of Product Partition Models.
- **RinRuby** — Software described in: D. B. Dahl, S. Crawford (2009), RinRuby: Accessing the R Interpreter from Pure Ruby.
- **Isclust** — A program implementing the least squares clustering described in: D. B. Dahl (2006), Model-Based Clustering for Expression Data via a Dirichlet Process Mixture Model.
- **xtable** — An R package to export tabular data into LaTeX and HTML tables.

AWARDS

- Travel Award, “Valencia / ISBA 8th World Meeting on Bayesian Stat.,” Benidorm, Spain (June 2006)
- National Eye Institute Traineeship (tuition + stipend) in Biostatistics at UW-Madison (1999-2004)
- Ellis R. Ott Scholarship (\$5000) from the American Society for Quality (1997)
- Research Award (\$1000) from the BYU’s Office of Research and Creative Activities (1996)

SERVICE

- Associate Editor, *Bayesian Analysis* (2009-present)
- Member, Institute of Mathematical Statistics Committee on New Researchers (2009-2012)
- Vice-President, Southeast Texas Chapter of the American Statistical Association (2008-present)
- Member, Ph.D. Examination Committee (2008-present)
- Member, Bioinformatics Faculty Committee (2004-present)
- Member, Computing Faculty Committee (2005-present)
- Member, Theory Qualifying Exam Committee (January 2007)
- Referee for *American Statistician*, *Annals of Applied Statistics*, *Bayesian Analysis*, *Bioinformatics*, *Biometrics*, *Biostatistics*, *Journal of Computational and Graphical Statistics*, *Journal of the Royal Statistical Society: Series B*, *Journal of Statistical Planning and Inference*, *Journal of Statistical Software*, *Journal of the American Statistical Association*, *Statistical Modelling*, *Statistics and Computing*, and *Statistics in Medicine*
- Student Representative, Department of Statistics, UW-Madison (2002-2003)

PROFESSIONAL MEMBERSHIPS

- Institute of Mathematical Statistics (IMS)
- American Statistical Association (ASA)
- International Society for Bayesian Analysis (ISBA)
- ASA Sections: Bayesian Statistical Science, Biometrics, Statistical Computing