

# Christopher M. Hans

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**Education**      DUKE UNIVERSITY      Durham, NC  
**Ph.D.** in Statistics, September 2005  
*Thesis:* Regression Model Search and Uncertainty With Many Predictors  
*Advisor:* Professor Mike West  
**M.S.** in Statistics, September 2003

HARVARD UNIVERSITY      Cambridge, MA  
**A.B.** *cum laude* in Statistics, June 2001

**Positions**      THE OHIO STATE UNIVERSITY      Columbus, OH  
Assistant Professor, Department of Statistics, October 2005 – present

DUKE UNIVERSITY      Durham, NC  
Research Assistant for Professor Mike West, May 2003 – August 2005

STATISTICAL AND APPLIED MATHEMATICAL SCIENCES INSTITUTE      Durham, NC  
Research Assistant, September 2002 – June 2003

HARVARD UNIVERSITY DEPARTMENT OF STATISTICS      Cambridge, MA  
Research Assistant for Prof. David van Dyk, June 2000 – August 2001, Summer 2002

## Funded Research

*High-Dimensional Regression Modeling via Distributed Computing (2007–2010)*  
Sole principal investigator on National Science Foundation grant DMS-0706948.

**Publications**      Hans, C. (2008). Bayesian Lasso regression. Technical Report No. 810, Department of Statistics, The Ohio State University, Columbus, OH 43210. (submitted)

Hans, C., Dobra, A. and West, M. (2007). Shotgun stochastic search for “large  $p$ ” regression. *Journal of the American Statistical Association*, **102**, 507–516.

Dressman, H.K., Hans, C., Bild, A., Olson, J., Rosen, E., Marcom, P.K., Liotcheva, V., Jones, E., Vujaskovic, Z., Marks, J., Dewhirst, M.W., West, M., Nevins, J.R. and Blackwell, K. (2006). Gene expression profiles of multiple breast cancer phenotypes and response to neoadjuvant chemotherapy. *Clinical Cancer Research*, **12**, 819–826.

Hans, C. and Dunson, D.B. (2005). Bayesian inferences on umbrella orderings. *Biometrics*, **61**, 1018–1026.

Jones, B., Carvalho, C., Dobra, A., Hans, C., Carter, C. and West, M. (2005). Experiments in stochastic computation for high-dimensional graphical models. *Statistical Science*, **20**, 388–400.

Rich, J.N., Hans, C., Jones, B., Iversen, E.S., McClendon, R.E., Rasheed, B.K.A., Dobra, A., Dressman, H.K., Bigner, D.D., Nevins, J.R. and West, M. (2005). Gene expression profiling and genetic markers in glioblastoma survival. *Cancer Research*, **65**, 4051–4058.

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**Publications (continued)**

Dobra, A., Hans, C., Jones, B., Nevins, J.R., Yao, G. and West, M. (2004). Sparse graphical models for exploring gene expression data. *Journal of Multivariate Analysis*, **90**, 196–212.

**In Books**

van Dyk, D.A. and Hans, C.M. (2002). “Accounting for Absorption Lines in Images Obtained with the Chandra X-ray Observatory,” in *Spatial Cluster Modelling* (Eds. A. Lawson and D. Denison), Chapman & Hall/CRC, 175 – 198.

**Teaching**

THE OHIO STATE UNIVERSITY  
 Statistics 427: Intro. to Prob. and Stat. for Eng. and the Sciences Autumn 2007  
 Statistics 632: Stochastic Processes I Winter 2006, 2007, 2008  
 Statistics 773: Statistical Computing Autumn 2005, 2006

**Invited Talks**

–*Bayesian Lasso Regression*–  
 Center for Statistics and the Social Sciences April 2008  
 University of Washington

–*Stochastic search in high-dimensional model spaces*–  
 Department of Statistics September 2006  
 The Wharton School, University of Pennsylvania

–*Parallel computing for stochastic model search*–  
 Conference on High Performance Computing for Statistical Inference August 2006  
 Trinity College, Dublin, Ireland

–*Regression model search and uncertainty with many predictors*–  
 Department of Statistics, University of Michigan March 2005  
 Department of Biostatistics, University of Michigan  
 Department of Statistics, Yale University

Department of Statistics, UC Irvine February 2005  
 Department of Statistics, The Ohio State University  
 Division of Biostatistics, University of Minnesota

Graduate School of Business, The University of Chicago January 2005  
 Department of Statistics & O.R., Universitat de València, Spain

–*Stochastic search and sparsity in high-dimensional regression and graphical models*–  
 Second Workshop on Monte Carlo Methods, Harvard University August 2004  
 (with Mike West)

–*Approaches to graphical models via dependency networks*–  
 Workshop on Stochastic Computation, SAMSI February 2003

**Contributed Talks**

–*Aspects of Bayesian Lasso Regression*–  
 Joint Statistical Meetings, Salt LAke City, UT July 2007

–*Sparsity in linear regression for high-dimensional problems*–  
 Joint Statistical Meetings, Seattle, WA August 2006

–*High-dimensional regression model search and uncertainty*–  
 9<sup>th</sup> Meeting of New Researchers in Statistics and Probability, Seattle, WA August 2006

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**Contributed Talks (continued)**

- Regression model search and uncertainty with many predictors*–  
 Joint Statistical Meetings, Minneapolis, MN August 2005
- Bayesian inferences on umbrella orderings*–  
 Joint Statistical Meetings, Toronto, Canada August 2004

**Software Development**

All software is available for download at <http://www.stat.osu.edu/~hans/software/>

- GGM*: Stochastic Computation for Gaussian Graphical Models (2004)  
*SSS*: Software for Shotgun Stochastic Search methods for large  $p$  regression (2007)  
*bum*: an R package for Bayesian inference on umbrella orderings (2008)  
*blasso*: an R package for Bayesian Lasso regression (2008)

**Poster Presentations**

- Aspects of Bayesian Lasso Regression*–  
 Third IMS/ISBA Joint Meeting, Bormio, Italy January 2008
- Sparsity in linear regression for high-dimensional problems*–  
 Valencia/ISBA 8<sup>th</sup> World Meeting on Bayesian Statistics, Benidorm, Spain June 2006
- Inference for regression model uncertainty with very many predictors*–  
 Second IMS/ISBA Joint Meeting, Bormio, Italy January 2005
- Stochastic search & regression model uncertainty with very many predictors*–  
 ISBA World Meeting, Viña del Mar, Chile May 2004
- Constructing high-dimensional sparse graphical models*–  
 International Workshop on Bayesian Data Analysis, UC Santa Cruz August 2003
- Understanding galactic orbits: MCMC in highly constrained parameter spaces*–  
 First IMS/ISBA Joint Meeting, Isla Verde, Puerto Rico July 2003
- Accounting for absorption lines in high energy spectra*–  
 Statistical Challenges in Modern Astronomy III, Penn. State University July 2001

**Professional Activities**

- Memberships*–  
 American Statistical Association  
 Institute of Mathematical Statistics  
 International Society for Bayesian Analysis

- Consulting** JOHN F. KENNEDY SCHOOL OF GOVERNMENT, HARVARD Cambridge, MA  
 Regression analysis support for Professor Steven Kelman, 2001 – 2004
- PROVENTYS, INC. Chapel Hill, NC  
 Predictive health modeling, 2004

- Computing** C/C++, parallel/cluster computing (MPI), Unix, R, S-Plus, Matlab