

LYNNE SEYMOUR
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Work

Department of Statistics
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Home

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Academic Experience

Associate Professor: 8/2002 - present. Department of Statistics, University of Georgia.

Visiting Scholar: 6/2004. Department of Sociology, Rijksuniversiteit Groningen, the Netherlands.

Assistant Professor: 9/1995 - 8/2002. Department of Statistics, University of Georgia.

Visiting Scholar: Summer, 1999 & Summer, 2000. Department of Statistics, Stanford University.

Temporary Part-Time Assistant Professor: 1/1994 - 8/1995. Department of Statistics, University of Georgia.

Visiting Assistant Professor: 8/1993 - 12/1993. Department of Statistics and Actuarial Science, University of Iowa.

Education

Ph.D., 1993. Statistics. University of North Carolina, Chapel Hill.

M.S., 1991. Statistics. University of North Carolina, Chapel Hill.

M.S., 1987. Mathematics. Auburn University.

B.S., 1984. Mathematics. Troy State University.

Minors - Physics and Computer Science.

Graduated *Summa Cum Laude* in three years.

Honors: Virgil L. Collins Award for Outstanding Performance in Mathematics, 1984; George C. Wallace Academic Scholarship, 1981-1984; Southern Standard Building Code Congress International Scholarship, 1982-1984.

Research Interests

Gibbs Random Fields - modifications for constructing probability maps of the brain via fMRI data.

Pseudo-Likelihood Estimation - properties of the maximum pseudo-likelihood estimate for Gibbs-Markov random fields; variance estimation techniques. Testing for 2-D white noise and finding structure which causes the null hypothesis to be rejected.

Applied Stochastic Modelling - programming and pedagogical challenges of using complex stochastic models -- especially those with periodic elements -- to answer research questions which arise in all branches of science, with current emphases on climate change and its effects, streamflow, satellite

precipitation data, economic value of national wilderness, mental health, and spatial distribution of plant diseases.

Refereed Publications

23. M. Dass, L. Seymour and S. K. Reddy (2010). An Investigation of Value Updating Bidders in Simultaneous Online Art Auctions. *Journal of Probability and Statistics* **2010**, Article ID 539763, 18pp.
22. A. Walthour, L. Seymour, R. Tackett and M. Perri (2010). Assessment of Changes in Utilization of Health Care Services after Policy Changes for Atypical Antipsychotic Agents. *Annals of Pharmacotherapy* **44** 809-818.
21. L. Seymour and X. Yin (2009). Estimating Stationary Ridges in Quadratic Response Surface Models. *Quality Technology and Quantitative Management* **6** 281-294.
20. M. Z. Tekeste, R. L. Raper, E. B. Schwab and L. Seymour (2009). Soil Drying Effects on Spatial Variability of Soil Hardpan Attributes on Pacolet Sandy Loam Soil. *Transactions of the American Society of Agricultural and Biological Engineers* **52** 697-705.
19. P.G.F. Gérard-Marchant, D.E. Stooksbury, and L. Seymour (2008). Methods for Starting the Detection of Multiple Undocumented Change-points. *Journal of Climate* **21** 4887-4899.
18. M. Z. Tekeste, R. L. Raper, E. W. Tollner, and L. Seymour (2006). Optimal Spatial Sampling Schemes for Mapping Soil Strength on a Southeastern US Soil. In: *Proceedings of the 2006 ASABE Annual Meeting*. Paper Number 061149. American Society of Agricultural and Biological Engineers, www.asabe.org.
17. P. A. Brevis, D. S. NeSmith, L. Seymour, and D. B. Hausman (2005). A Novel Method to Quantify Potential Pollen Dispersion in Blueberry Plantings. *HortScience* **40** 2002-2006.
16. Q. Lu, R. Lund, and L. Seymour (2005). An Update of United States Temperature Trends. *Journal of Climate* **18** 4905-4913.
15. X. Yin and L. Seymour (2005). Asymptotic Distributions for Dimension Reduction in the SIR-II Method. *Statistica Sinica* **15** 1069-1079.
14. X. Yin and L. Seymour (2005). Standard Errors for the Multiple Roots in Quadratic Response Surface Models. *Technometrics* **47** 260-263.
13. M. van Iersel and L. Seymour (2003). Temperature Effects on Photosynthesis, Growth Respiration, and Maintenance Respiration of Marigold. *Acta Horticulturae* **624** 549-554.
12. L. Seymour (2002). Regression With Periodically Correlated Errors: A New Approach to Modelling Plant Growth. *Journal of Agricultural, Biological, and Environmental Statistics* **7** 191-207.
11. L. Seymour (2002). Gibbs Regression and a Test for Goodness of Fit. In *Goodness-of-Fit Tests and Model Validity* (C. Huber-Carol, N. Balakrishnan, M. S. Nikulin, and M. Mesbah, eds.), 159-170. Birkhauser, Boston.
10. W. P. McCormick and L. Seymour (2001). Extreme Values for a Class of Shot-Noise Processes. *Selected Proceedings of the Symposium on Stochastic Processes* (I. V. Basawa, C. C. Heyde, and R. L. Taylor, eds.). *IMS Lecture Notes* **37** 33-46.

9. L. Seymour (2001). Estimating the Variance of the Maximum Pseudolikelihood Estimator. *Selected Proceedings of the Symposium on Stochastic Processes* (I. V. Basawa, C. C. Heyde, and R. L. Taylor, eds.). *IMS Lecture Notes* **37** 281-296.
8. R. Lund, L. Seymour, and K. Kafadar (2001). Temperature Trends in the United States. *Environmetrics* **12** 673-690.
7. R. Taylor, L. Seymour, and Y. Chen (2001). Weak Laws of Large Numbers for Fuzzy Random Sets. *Journal of Nonlinear Analysis: Series A, Theory and Methods* **47** 1245-1256.
6. W. P. McCormick and L. Seymour (2001). Rates of Convergence and Approximations to the Distribution of the Maximum of Chain-Dependent Sequences. *Extremes* **4** 23-52.
5. M. W. van Iersel and L. Seymour (2000). Growth Respiration, Maintenance Respiration, and Carbon Fixation of Vinca [*Catharanthus roseus* (L.) G. Don.]: A Time Series Analysis. *Journal of the American Society for Horticultural Science* **125** 702-706.
4. R. Lund and L. Seymour (1999). Assessing Temperature Anomalies for a Geographical Region: A Control Chart Approach. *Environmetrics* **10** 163-177.
3. R. Lund, W. J. Padgett, and L. Seymour (1998). A control chart for a general Gaussian process. *Journal of Statistical Planning and Inference* **70** 19-34.
2. C. Ji and L. Seymour (1996). A consistent model selection procedure for Markov random fields based on penalized pseudolikelihood. *The Annals of Applied Probability* **6** 423-443.
1. L. Seymour and C. Ji (1996). Approximate Bayes model selection criteria for Gibbs-Markov random fields. *Journal of Statistical Planning and Inference* **51** 75-97.

Other Publications

7. A. Jaeger, D. Stooksbury, L. Seymour and L. Dufor-Zavala (2009). Effect of Some Climatic Factors on the Prevalence of Vaccinal Laryngotracheitis in Northeast Georgia. Technical Report, Georgia Poultry Federation.
6. L. Seymour (2005). Review: *Spatial Data Analysis: Theory and Practice* by R. Haining. *Journal of the American Statistical Association* **100** 353.
5. L. Seymour (2002). An Overview of Periodic Time Series With Examples. *Periodic Control Systems 2001 (Psyco 2001): A Proceedings Volume from the IFAC Workshop, Cernobbio-Como, Italy, 27-28 August 2001* (S. Bittanti and P. Colaneri, eds.) 61-66. Pergamon Press (Elsevier), Europe.
4. R. B. Lund and L. Seymour (2002). Periodic Time Series. *Encyclopedia of Environmetrics* (A. El-Shaarawi and W. W. Piegorisch, eds.) **4** 2204-2210. Wiley, New York.
3. L. Seymour (2000). Commentary on "An Application of Bayes' Theorem to Population Genetics" by R. Gardner and M. Wooten. In *Logic, Probability and the Sciences; Poznan Studies in the Philosophy of Science* (N. Shanks, R. Gardner, eds.) **71** 149-151. Rodopi, Amsterdam/Atlanta.
2. L. Seymour (1999). Review: *Image Processing and Data Analysis, The Multiscale Approach* by J.-L. Starck, F. Murtagh, and A. Bijaoui. *Journal of the American Statistical Association* **94** 1389.

1. L. Seymour (1997). Review: *Introduction to Time Series and Forecasting* by P. J. Brockwell and R. A. Davis. *Journal of the American Statistical Association* **92** 1647.

Papers Submitted for Publication

- J. S. Sanderlin, M. J. Conroy, N. Lazar, J. Nairn, J. P. Carroll, and L. Seymour (2009). State-space model incorporating multiple data structures for estimating black bear abundance in central Georgia, USA.
Under revision for *Journal of Ornithology*.
- A. Bargo, A. Mandal, L. Seymour, J. McDowell, and N. Lazar (2010). Social Network Models for Identifying Active Brain Regions from fMRI Data.
Submitted to *Annals of Applied Statistics*.

Grants

- Georgia Poultry Federation. Investigation into the Effect of Climate Factors on the Spread of Laryngotracheitis (with David Stooksbury). 6/2009-12/2009.
\$2000 (paid directly to Adam Jaeger).
- USDA DATA 1021RR193120. Modeling and Forecasting Household Outdoor Recreation Participation and Consumption at National and RPA Regional. 1/2009-8/2010. \$30,277.
- USDA DATA 1021RR193111. Modeling Visitation to National Forests for Recreation: Comparing Methods to Mitigate Missing Data Problems. 9/2007-5/2008.
\$7,800.
- USDA WLDNR 1021RR193110. Minorities and Wildfire Mitigation: A Study of What is Known. 9/2007-12/2007. \$7,500.
- Merital: Statistical Assistantship for a UGA Statistics Graduate Student. 1/2007-12/2009. \$56,713 (adjustable).
- NSF POWRE: Gibbs Regression for Social Networks (SES-0074456). 8/2000-12/2001.
\$75,000.
- Stanford University (via NSF). Summer, 2000. \$11,500.
- UGA Faculty Research Grant: Carbon Fixation and Allocation During Plant Development: a Time Series Analysis (with M. W. van Iersel, Horticulture-Griffin). 1-12/2000. \$5,800.
- Stanford University (via NSF). Summer, 1999. \$16,000.
- UGA Faculty Research Grant: Properties of the Maximum Pseudolikelihood Estimator. Summer, 1996. \$4,600.
- Travel grant from the Netherlands Organization for Scientific Research, to attend the Workshop for Spatial Statistics and Image Analysis. Centrum voor Wiskunde en Informatica, Amsterdam. 11/1995. \$593.75.

Proposals Submitted

- NSF-DMS, 11/2009. Extreme Value Analysis for Stationary and Nonstationary Time Series. With W. P. McCormick.
- NSF Focused Research Group in the Mathematical Sciences, 9/2009: Advances in the Statistical Analysis of Multi-Subject, Multi-Group Neuroimaging Data. With N. Lazar, J. McDowell, C. Park and A. Mandal. Rejected.

NSF-SES, 1/2009. Identifying Active Regions of the Brain via Social Networks Modeling. With A. Mandal. Rejected.

NSF-DMS, 11/2008. Modeling and Inference for Some Extreme Value Problems based on Nonstationary Dependent Data. With W. P. McCormick. Rejected.

NSF Focused Research Group in the Mathematical Sciences, 9/2007: Characterizing the High-Dimensional Spatio-Temporal Distributions of the Null and Alternative Hypotheses for fMRI Data. With N. Lazar, A. Sornborger, C. Park and A. Mandal. Rejected.

Invited Presentations at Professional Meetings

Human Brain Connectivity via fMRI. Workshop on Mathematical Biology and Numerical Analysis. Athens, GA. 8/2009.

Periodically Correlated Time Series - An Overview. International Federation of Automatic Control Workshop on Periodic Control Systems. Cernobbio-Como, Italy. 8/2001.

Testing the Fit of a Gibbs Distribution - A Markov Chain Monte Carlo Modification of Pearson's Goodness-of-Fit Test. Symposium on Goodness of Fit Tests and Model Validity. L'Université de Paris V "René Descartes", Paris, France. 5/2000.

Image Models as Social Networks. Invited Paper Session: Statistical Problems in Image Analysis. SRCOS Meeting. Mountain View, AR. 6/1999.

Periodic Time Series. IMS Invited Paper Session: Current Issues in Time Series Analysis. Spring IMS-ENAR Meeting. Atlanta, GA. 3/1999.

Pseudo-Likelihood is Interesting and Easy to Use. IMS Invited Paper Session: Difficult Likelihoods and Simple Solutions. JSM. Dallas, TX. 8/1998.

Bootstrapping for Properties of the Maximum Pseudo-likelihood Estimator. Miniconference on Computer Intensive Statistical Methods. Utah State University. Logan, UT. 7/1997.

Selecting Markov Random Field Models for Images. Featured Speaker, Joint Meeting of the Atlanta Chapter of the ASA and Clemson University. Commerce, GA. 2/1994.

Contributed Presentations at Professional Meetings

Probability Maps for Brain Activity via fMRI. Joint Statistical Meetings. Vancouver, British Columbia. 8/2010.

Precipitation and Crop Yield: A Statistical Model. 4th Workshop of the International Precipitation Working Group. China Meteorological Administration, Beijing, China. 10/2008.

A Social Network Probability Map of the Brain. Joint Statistical Meetings. Denver, CO. 8/2008.

Gibbs Regression for Social Networks. International Sunbelt Social Network Conference. Budapest, Hungary. 4/2001.

On the Variance of the Pseudolikelihood Estimator. Symposium on Inference for Stochastic Processes. Athens, GA. 5/2000.

A Trend Analysis of United States Temperatures. 7th International Meeting on Statistical Climatology. Whistler, British Columbia, Canada. 5/1998.

Bootstrapping for Properties of the Maximum Pseudo-likelihood Estimator. IMS North American New Researchers' Conference. Laramie, WY. 7/1997.

Bootstrapping for Properties of the Maximum Pseudo-likelihood Estimator.
Contributed Papers Session, IMS Meeting. Park City, UT. 7/1997.

Bootstrapping the Pseudo-likelihood Estimator. Contributed Papers Session on
Statistical Inference. IMS Special Topics Meeting: 50th Anniversary
Commemorative Conference. Chapel Hill, NC. 10/1996

Bootstrapping the Pseudo-likelihood in Ising-type Models. Contributed Papers
Session, Symposium on Estimating Functions. Athens, GA. 3/1996.

*A Simulation Study of Selection Procedures for Markov Random Field Texture
Models.* IMS Contributed Papers Session: Methods for Images and Signals.
JSM. Boston, MA. 8/1992.

*Parameter Estimation and Model Selection for Markov Random Field Texture
Models.* Workshop on Statistical Methods in Imaging. MSRI, Berkeley, CA.
12/1991.

Departmental Colloquia & Recruiting Talks

Evolutionary Algorithms. (Recruiting Talk to Students)
Department of Statistics, Miami University, Oxford, OH. 9/2009.
Department of Mathematics and Statistics, Mississippi State University. 4/2008.
Department of Statistics, Rice University, Houston, TX. 10/2005.

Probability Maps for Brain Activity Via fMRI.
TianMing Liu's Neuroimaging Group, Department of Computer Science, UGA,
Athens, GA. 11/2009.
Department of Mathematics, College of William & Mary, Williamsburg, VA.
12/2008.
Department of Mathematics and Statistics, Auburn University, Auburn, AL.
8/2008.
Department of Mathematics and Statistics, Mississippi State University. 4/2008.

Graduate Study in Statistics at UGA. (Recruiting Talk to Students)
Department of Mathematics and Statistics, Auburn University, Auburn, AL.
8/2008.

An Updated Trend Analysis of United States Temperatures.
School of Industrial and Systems Engineering, Georgia Institute of Technology,
Atlanta, GA. 4/2008.
Department of Economics & Finance, Institut für Höhere Studien, Vienna,
Austria. 6/2005.

Periodically Correlated Time Series.
Department of Statistics, University of Virginia. 2/2002.

Image Models and Social Networks.
Department of Statistics, University of South Carolina. 12/2000.
Department of Statistics, University of Georgia. 1/2000.
Department of Statistics, Stanford University. 8/1999.

Regression With Periodically Correlated Errors.
Crop Physiology Laboratory, Utah State University. 8/1999.

A Trend Analysis of United States Temperatures.
Department of Statistics, University of Georgia. 2/1999.

A Control Chart Approach to Modelling Regional Climate.
Department of Statistics, University of North Carolina. 3/1998.

Pseudo-Likelihood: A Fair Way to Cheat.

Department of Statistics, University of South Carolina. 11/1996.

Department of Statistics, University of Georgia. 1/1996.

Statistical Laboratory, University of Cambridge, England. 11/1995.

Department of Discrete and Statistical Sciences, Auburn University. 8/1994.

Selection Procedures for Gibbs-Markov Random Field Texture Models.

Statistical Laboratory and Department of Statistics, Iowa State University.
11/1993.

Department of Statistics, Colorado State University. 11/1993.

Department of Statistics and Actuarial Science, University of Iowa. 9/1993.

Department of Mathematics, Auburn University. 5/1993.

Department of Mathematical Sciences, Virginia Commonwealth University.
2/1993.

Department of Statistics, University of Georgia. 1/1993.

Graduate Students

Ph.D.

Cong Feng (jointly with Lily Wang)

Christopher O'Neal (jointly with W. P. McCormick)

Ana Moura Bargo (jointly with Abhyuday Mandal).

QiQi Lu (jointly with Robert Lund) - Summer, 2004.

M.S.

Stephanie Cooke.

Justin Slaughter - Fall, 2007.

Mayukh Dass - Summer, 2007.

JianPing Zhu (jointly with Michael Bowker, US Forest Service) - Spring, 2007.

Lanier Senter (jointly with Bill McCormick) - Summer, 2004.

Darren Williams - Spring, 2004.

Susan Turner - Fall, 2002.

Nadine Schröder - Summer, 2001.

Hicham Elhassani - Summer, 2001.

Elizabeth Parlier - Summer, 2000.

R. J. Marquette - Spring, 1999.

Other Statistical Experience

Statistical Consultant:

2/2002-12/2006. Dr. Anne Cordes Bothe, Department of Speech
Communication and Disorders, University of Georgia. Preschool Stuttering:
Measurement, Treatment, and Recovery. NIH-National Institute on
Deafness and Other Communication Disorders (1 R01 DC04838-01A1).

4/2002-5/2004. Dr. Shobana Raghupathy, Sociometrics, Los Altos, California.
Evaluation of Planned Parenthood Golden Gate's Hispanic Outreach
Methods. David and Lucile Packard Foundation.

9/2000. Dr. Grady Cornish, Carl Vinson Institute of Government, University of
Georgia.

10/1996 - 12/1999. Dr. Michael O. Calloway, Cecil G. Sheps Center for Health
Services Research, University of North Carolina, Chapel Hill.

8/1994 - 1996. ACT (American College Testing).
Programmer/Statistician: 6/1988 - 8/1988. Computer Science Corporation,
Eastern Environmental Radiation Facility, Montgomery, AL.
Technical Assistant: 6/1986 - 6/1988. Formal Systems Design and Development,
Auburn, AL.

Professional Society Memberships

The Institute of Mathematical Statistics
The American Statistical Association

Professional Activities

Dissertation External Evaluator, Department of Electrical Engineering, Indian
Institute of Technology, Kanpur, India: "Computationally Efficient
Nonparametric Markov Random Field Based Texture Synthesis" by Arnab
Sinha, under the direction of Dr. Sumana Gupta. 12/2009.

Associate Editor, *Journal of Statistical Computation and Simulation*. 8/2002 -
7/2006.

NSF Proposal Evaluation Panel, DMS. 12/2002.

Co-Organizer, Session on Periodic Processes and Environmental Applications
(with R. Lund). International Federation of Automatic Control Workshop on
Periodic Control Systems. Cernobbio-Como, Italy. 8/2001.

Referee for:

Bernoulli, 5/10

The American Statistician

Environmetrics

Computing in Science and Engineering

Annals of Statistics

IEEE Transactions on Software Engineering

Journal of Statistics Education

Communications in Statistics: Theory and Methods

IEEE Transactions on Pattern Analysis and Machine Intelligence

Journal of Speech, Language, and Hearing Research

Journal of Agricultural, Biological, and Environmental Statistics

Journal of the American Statistical Association

Fuzzy Sets and Systems

*Selected Proceedings of the Symposium on Inference for Stochastic
Processes*

Journal of Statistical Computation and Simulation

Biometrics

IEEE Transactions on Neural Networks

Journal of Statistical Planning and Inference

Grant Proposal Reviewer for:

U.S. Civilian Research & Development Foundation Cooperative Grants
Program (a joint venture between the NSF and the Former Soviet Republics)

Book Reviewer for:

Journal of the American Statistical Association

Sessions Chaired:

Session on Environmental Statistics. International Indian Statistical Association 5th Biennial International Conference on Statistics, Probability and Related Areas. Athens, GA. 5/2004.

IMS Invited Paper Session on Statistical Climatology. JSM. Atlanta, GA. 8/2001.

Contributed Papers Session. IMS Meeting. Park City, UT. 7/1997.

Session on The Gibbs Sampler and Applications. SRCOS and ASA Summer Research Conference in Statistics. Williamsburg, VA. 6/1994.

Session on Resampling and Bootstrap Methods. Joint Meeting of the IMS and Bernoulli Society. Chapel Hill, NC. 6/1994.

Local Arrangements Committee. International Indian Statistical Association 5th Biennial International Conference on Statistics, Probability and Related Areas. Athens, GA. 5/2004.

Local Assistance Committee. JSM. Atlanta, GA. 8/2001.

Local Arrangements Committee. Symposium on Inference for Stochastic Processes. Athens, GA. 5/2000.

IMS Local Arrangements Chair. Spring IMS/ENAR Meeting. Atlanta, GA. 3/1999.

Other Noteworthy Accomplishments

Practice *shorinji-ryu* karate since 1/2000, and hold the rank of *nidan* (*i.e.*, a second-degree black belt). Practice *goju-ryu* karate since 1/1989, and hold the rank of *shodan* (*i.e.*, a first-degree black belt). Practiced Chen-style *t'ai chi ch'uan* for three years. Studied Yang-style *t'ai chi ch'uan* for one year; studied *hapkido* and *shotokan* each for two years. Conduct self-defense seminars both on campus and in the community.

Named Student of the Year, 2004, Ogasawara-Ha (formerly, Sakugawa Koshiki) Shorinji Ryu Karatedo.

Elected Coolest Professor, 2003 and 2004, by the Graduate Students in the Department of Statistics, the University of Georgia.

Hold a General Class amateur radio license (originally earned as a Technician Class license in 1985). Call sign: KB4PNC.