

Ginger M. Davis

Department of Systems and Information Engineering
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Education

Ph.D., Statistics, Rice University, 2006

Dissertation: Examining some Open Problems in Time Series Analysis
Advisor: Katherine B. Ensor, Professor and Chair

M.A., Statistics, Rice University, 2005

M.E., Industrial Engineering, University of Houston, 2001

B.S., Industrial Engineering, Texas A&M University, 1997

Employment, University of Virginia

Assistant Professor

Fall 2005 - present

Teaching

SYS 421: Linear Statistical Models

Fall 2005, 2006

SYS 730: Time Series Analysis and Forecasting

Spring 2006

SYS 453/454: Systems Design I/II

2006-2007

SYS 793: Independent Study

Summer 2006

Research Areas

- Computational Finance
- Multivariate Nonlinear Time Series Analysis
- Hierarchical Bayesian stochastic volatility models

Employment, Rice University

**Instructor of Elementary Applied Statistics / Research Leader / Research Assistant /
Lab Instructor / Grader** *2000 - 2004*

Other Employment

Test Preparatory Instructor/Tutor, Knowsys Test Prep *2004 - 2006*

Service Engineer, Federal Express Corporation *1998 - 2000*

Private Mathematics Tutor *1994 - 2006*

Publications

Davis, G. M. and Ensor, K. B., "Risk: Diversification and Performance Precursors for Stocks," *American Journal of Mathematical and Management Sciences*, to appear.

Davis, G. M. and Ensor, K. B., "Multivariate Time Series Analysis with Categorical and Continuous Variables in an LSTR model," *Journal of Time Series Analysis*, to appear.

Davis, G. M. and Ensor, K. B., "Outlier detection in environmental monitoring network data: an application to ambient ozone measurements for Houston, Texas," *Journal of Statistical Computation and Simulation*, Volume 76, Number 5, May 2006, 407-422.

Davis, G. M. "A Portfolio Allocation Method Based on the Analysis of Evolving Structure in Multivariate Time Series", *5th Annual Hawaii International Conference on Statistics, Mathematics and Related Fields Proceedings*, January 2006, 399-410.

Papers

Hierarchical Bayesian Markov Switching Models with Application to Predicting Spawning Success of Shovelnose Sturgeon, Scott Holan and Ginger Davis, submitted to *Journal of the American Statistical Association: Applications and Case Studies*

Evolving Structure in Multivariate Time Series with Application to Stock Sector Data, Ginger Davis and Katherine B. Ensor, submitted to *Journal of the American Statistical Association: Applications and Case Studies*

Operational Performance as a Driver of Customer Satisfaction and Dissatisfaction in the U.S. Airline Industry, Shannon W. Anderson, Ginger Davis, and Sally K. Widener, submitted to *Manufacturing & Service Operations Management*

Working Papers

Trading Strategy Development using the Comovement between International Equity Markets, Ginger Davis and Nilav Bose

The Role of Consumer Attributions on the Relation between Service Operations Performance and Consumer Satisfaction, Shannon W. Anderson, Ginger Davis, and Sally K. Widener

Examining the relationship between Cost, Volume and Customer Satisfaction in the Airline Industry, Shannon W. Anderson, Ginger Davis, and Sally K. Widener

Presentations

Presentation of *Predicting Spawning Success of Shovelnose Sturgeon Using Reproductive Physiology and Depth Use Patterns from Archival Data Storage Devices (DSTs)*, Missouri River Natural Resource Conference and BiOp Forum, March 2007

Presentation of *Hierarchical Bayesian Markov Switching Models with Application to Predicting Spawning Success of Shovelnose Sturgeon*, Ginger Davis, at University of Missouri's Department of Statistics Colloquium, January 2007

Presentation of *Predicting Spawning Success of Shovelnose Sturgeon Using Reproductive Physiology and Depth Use Patterns from Archival Data Storage Devices (DSTs)*., Ginger Davis, at United

States Geological Survey Columbia Environmental Research Center, January 2007

Presentation of *Outlier Detection for Monitoring and/or Sensor Networks*, U.S. Army Conference on Applied Statistics, October 2006.

Presentation of *Multivariate Time Series Analysis: Introductions and Applications*, Ginger Davis, Department of Statistics, Penn State University Colloquium, September 2006.

Poster presentation of *Portfolio Allocation Method based on the Analysis of Evolving Structure in Multivariate Time Series*, Ginger Davis, at SAMSI Random Matrices Opening Workshop, September 2006

Presentation of *Multivariate Time Series Analysis with Categorical and Continuous Variables in an LSTR model*, Ginger Davis, at Ninth Meeting of New Researchers in Statistics and Probability, Seattle, WA, August 2006

Presentation of *A Portfolio Allocation Method based on the Analysis of Evolving Structure in Multivariate Time Series*, Ginger Davis, at Hawaii International Conference on Statistics, Mathematics, and Related Fields, Honolulu, Hawaii, January 2006

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at Twelfth International Conference of Statistics, Combinatorics, Mathematics and Applications, Auburn University, December 2005

Presentation of *Multivariate Time Series: Introductions and Applications*, Ginger Davis, at Clemson University's Department of Mathematical Sciences Colloquium, November 2005

Presentation of *Risk: Diversification and Performance Precursors for Stocks*, Kathy Ensor, at Army Conference on Applied Statistics, October 2005

Poster presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at NBER/NSF Time Series Conference at University of Heidelberg, September 2005

Presentation of *Multivariate Time Series: Introductions and Applications*, Ginger Davis, at University of Virginia's Department of Systems and Information Engineering Colloquium, September 2005

Poster presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at ASA Summer Research Conference on Statistics, June 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis and Katherine B. Ensor, at the Houston Area Chapter of the American Statistical Association meeting, April 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at Rice University's Department of Statistics Colloquium, March 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at IBM T. J. Watson Research Center's Statistical Analysis & Forecasting meeting, March 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at Tulane University's Mathematics Department Colloquium, March 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at The Ohio State University's Department of Statistics Colloquium, February 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at Texas A & M University's Department of Statistics Colloquium, February 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at Carnegie-Mellon University's Department of Statistics Colloquium, February 2005

Presentation of *Examining the Evolutionary Principal Components of a Multivariate Time Series with Application to Stock Sector Data*, Ginger Davis, at University of Virginia's Department of Systems and Information Engineering Colloquium, February 2005

Poster presentation of *Outlier Detection for Environmental Network Data*, Ginger Davis and Katherine B. Ensor, at the Southern Regional Council on Statistics / ASA Summer Research Conference on Statistics, June 2004

Poster presentation of *Investigating the Effects of a Measurement and Ranking System on Performance*, Ginger Davis and Shannon W. Anderson, at Rice University's CoFES Symposium, September 2003

Presentation of *Trading Strategy Development using the Comovement between International Equity Markets*, Ginger Davis, Jenny Zhang, Andrew Blank, Andrew Semmes, and Rob Daniel, at VIGRE Research Presentations, Rice University, August 2004

Presentation of *Nonlinear State-Space Models with State-Dependent Variances and Time Series Analysis Introduction*, Ginger Davis, at VIGRE Research Presentations, Rice University, December 2003

Grants

- Principal Investigator, *An Impact Study Regarding the Implementation of a Geofencing System for HAZMAT Transport*, \$50,000 from Science Applications International Corporation (SAIC)
- Co-Principal Investigator, *The Economics of Internet Security: Theoretical and Empirical Analysis*, \$373,239 from National Science Foundation

Students

Ph.D. Advisor

- Weide Zhang

Master's Advisor

- Nilav Bose, Comovement-based Trading Strategies in Equity Markets using Time Series Analysis
- Ernest Sohn
- Madhura Girish

Awards and Honors

Excellence In Diversity Fellow *September 2006*
 Recipient of fellowship in Excellence in Diversity Program, Teaching Resource Center at the University of Virginia

NSF/NSA Travel Grant *September 2006*
 Recipient of travel grant in order to attend and present at Ninth Meeting of New Researchers in Statistics and Probability, Seattle, WA, August 2006

NSF Travel Grant *September 2005*
 Recipient of travel grant in order to attend and present a poster at the NBER/NSF Time Series Conference at the University of Heidelberg

NSF Student Travel Grant *June 2005*
 Recipient of travel grant in order to attend and present a poster at the Southern Regional Council on Statistics / ASA Summer Research Conference on Statistics at Clemson University

R. L. Anderson Student Paper Award *June 2004*
 Winner of student paper award at the Southern Regional Council on Statistics / ASA Summer Research Conference on Statistics

George R. Brown Fellowship *May 2004*
 Recipient of fellowship (additional funding to student stipend) for leadership and scholarship in support of the Department of Statistics interdisciplinary programs with the Graduate School of Management and the NSF VIGRE program.

NSF Student Travel Grant *June 2004*
 Recipient of travel grant in order to attend and present a poster at the Southern Regional Council on Statistics / ASA Summer Research Conference on Statistics at Virginia Tech

VIGRE Fellowship *June 2003*
 Recipient of NSF-funded VIGRE Fellowship in support of the Computational Finance research group.

Other Awards and Scholarships *1994 - 2000*
 Magna Cum Laude graduate of Texas A&M University
 Rotary Youth Leadership Award
 Texas A&M College of Engineering Dean's List
 State of Texas Valedictorian Scholarship

Coca-Cola Scholarship
National Honor Society Scholarship
Tillie & Tom McDonald Foundation Scholarship

Service

Graduate Student Committee Member 2006-2007
Member of graduate student committee, Department of Systems & Information Engineering

Jefferson Scholars Essay Committee 2006
Judge of essay component for Jefferson Scholar selection

SIEDS judge 2006
Judge of paper competition for 2006 IEEE Systems and Information Engineering Design Symposium

Skills

Computer Languages

Proficient in S-Plus/R, SAS, Gauss, WinBUGS, Minitab, HTML. Experience with MATLAB, Fortran, Pascal. Easily adaptable to other computer packages.

Professional Memberships

American Statistical Association, HACASA, Institute of Mathematical Sciences, Institute of Industrial Engineering, Tau Beta Pi officer, Golden Key National Honor Society

Community Service

Judge for Science and Engineering Fair of Houston *2003 - 2004*

Tutor for underprivileged high school students *2003 - 2004*

Continuing Education

Random Matrices Workshop *September 2006*
SAMSI workshop participant, Research Triangle Park, NC

Statistical Applications in Computer and Network Security *May 2006*
American Statistical Association workshop participant, Instructor: David Marchette, Alexandria, VA.

Time Series Workshop *December 2005*
Workshop participant for Benjamin Kedem's Time Series Workshop at Statistics, Combinatorics, Mathematics, and Applications conference, Auburn University.

Modeling Financial Derivatives for the Management of Risk *August 2004*
Short course participant at Joint Statistical Meeting.

Hierarchical Modeling and Analysis for Spatial Data *October 2004*
American Statistical Association LearnSTAT course participant.

Editorial Duties

Referee, *Computers & Industrial Engineering* *February 2007*

Referee, *American Journal of Mathematical and Management Sciences* *April 2006*

Referee, *Risk Analysis: An International Journal* *December 2005*

Reviewer, *Journal of the American Statistical Association* *April 2006*
Review of Levenbach and Cleary's *Forecasting: Practice and Process for Demand Management*

Reviewer, *W.H. Freeman and Company* *August 2004*
Review of Moore & McCabe's *Introduction to the Practice of Statistics, Fifth Edition*

Reviewer *February 2004*
Review of Carmona's *Statistical Analysis of Financial Data in S-Plus* under Katherine B. Ensor for Springer

Conference Duties

Session Chair *January 2006*
Chair for Business Statistics session for Hawaii International Conference on Statistics, Mathematics, and Related Fields, Honolulu, Hawaii

Session Organizer and Chair *December 2005*
Organizer and Chair for Time Series Analysis session for Statistics, Combinatorics, Mathematics and Applications Conference, Auburn University

Session Chair *June 2004*
Chair for Statistical Finance and Time Series session for Southern Regional Council on Statistics / ASA Summer Research Conference on Statistics, Virginia Tech

References

Dr. Katherine B. Ensor
Professor and Chair, Statistics Department, Rice University
713-348-4687
ensor@rice.edu

Dr. Shannon Anderson
Associate Professor, Jones Graduate School of Management, Rice University
713-348-5393
swa@rice.edu

Dr. James Thompson
Noah Harding Professor, Statistics Department, Rice University
713-348-4828
thomp@rice.edu

Dr. Scott Baggett

Senior Statistician, Jones Graduate School of Management; Lecturer, Department of Statistics, Rice
University
713-348-6309
baggett@rice.edu