

Nicoleta Serban

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EARNED DEGREES	PhD in Statistics Carnegie Mellon University	August 2005 Pittsburgh, PA
	MS in Statistics Carnegie Mellon University	January 2002 Pittsburgh, PA
	MS in Stochastic Processes and Theoretical Statistics University of Bucharest	February 2000 Bucharest, Romania
	BS in Mathematics University of Bucharest	June 1998 Bucharest, Romania

RESEARCH INTERESTS Multiple time series analysis
Nonparametric functional data analysis
Nonparametric additive regression models
Computational biology
Computational economics

ACADEMIC EMPLOYMENT	Georgia Institute of Technology, ISyE Assistant Professor of Statistics	Atlanta, GA Fall 2005-present
	Carnegie Mellon University Teaching Assistant	Pittsburgh, PA Fall 2000-Spring 2005
	Carnegie Mellon University. Research Assistant	Pittsburgh, PA Summer 2003, 2004

INDUSTRY EMPLOYMENT	Eli Lilly and Company Summer Research Intern	Indianapolis, IN Summer 2003
	Siemens Corporate Research Summer Research Intern	Princeton, NJ Summer 2001

- TEACHING
- A. Ph.D. students as major or co-major advisor
- Huijing Jiang, Ph.D. student in ISyE
Advisement began Fall 2006
Thesis topic: Spatial-Functional Statistics with application to US Demographics
Expected Graduation: Spring 2010
 - Baabak Ashuri, PhD student in ISyE (with Dr. William B. Rouse)
Advisement began Fall 2006
Thesis topic: Retail Store Investment Evaluation
Passed comprehensive exams in Economic Decision Analysis
Expected Graduation: Spring 2009
 - Nantachai Kantanantha, Ph.D. candidate in ISyE (with Dr. Paul Griffin)
Advisement began Winter 2006
Thesis Topic: Supply Chain Planning and Marketing Strategies for Storable Crops
Passed comprehensive exams in Economic Decision Analysis
Graduated Summer 2007
- B. Other Teaching Activities
- ISyE 2028 - Basic Statistical Methods
Co-developed with Dr. Norback a project module targeting a deeper understanding of basic statistics in applications and better presentation skills for students taking ISyE 2028.
 - ISyE 3370 - Statistical Methods and Applications
Integrated new learning and teaching techniques for large classes (200-300 students)
 - ISyE 6402 - Time Series Analysis
Redesigned the curriculum of this course to incorporate new time series methods such as heteroskedastic models and multivariate time series analysis commonly arising in applied and methodological time series studies. Two very new components of this curriculum are in-class learning by replacing some of the lectures with computer labs and hands-on project learning by requiring project work where students collect and analyze time series data and present their findings through both oral presentation and written report.
 - ISyE 8803 - Spatial Statistics
Designed a new graduate curriculum on Spatial Statistics. To advance a research-oriented course, the teaching material is integrated into in-class learning and project-based work. Students have a series of assignments including reading and presenting articles, presenting a research project and working on computer assignments.

- PUBLICATIONS
- A. Refereed Papers
10. Clustering Confidence Sets (2007), Serban, N., *Journal of Statistical Planning and Inference*, to appear.
 9. Clustering in the Presence of Heteroscedastic Errors (2007), Serban, N., *Journal of Nonparametric Statistics*, to appear.
 8. MICE: Multiple-peak Identification, Characterization and Estimation (2007), Serban, N., *Biometrics*, 63,531-539.
 7. Discovery, Visualization and Performance Analysis of Enterprise Workflow (2007). Zhang, P and Serban, N., *J. of Computational Statistics and Data Analysis*, 51, 2670-2687.
 6. CATS: Cluster Analysis by Transformation and Smoothing (2005), Serban, N.

and Wasserman, L., *J. of American Statistical Association*, 100.

5. Concerns About Unreliable Data from Spotted cDNA Microarrays Due to Cross-Hybridization and Sequence Errors (2004). Handley, D., Serban, N., Peters, N., Glymour, C., *Statistical Applications in Genetics and Molecular Biology*, 3(1).
4. Evidence of systematic expressed sequence tag IMAGE clone cross-hybridization on cDNA microarrays (2004). Handley, D., Serban, N., Peters, N., O'Doherty, R., Wasserman, L., Spirtes, P., Scheines, R., Glymour, C., *Genomics*, 83(6):1169-75.

B. Papers under Review

3. Multi-Dimensional Biomolecular NMR Studies: Noise Reduction and Component Identification (2008), Serban, N.
2. Large Scale Clustering of Dependent Curves (2008), Jiang, H., Serban, N.
1. Yield and Price Forecasting for Stochastic Crop Decision Planning (2008), Kantanatha, N., Serban, N., Griffin, P.

D. Technical Reports

4. Cross-Temporal and Industry-Dependent Relationships of Cash Flow to Market Value via Functional Regression (2008), Serban, N., Han, S.W., Rouse, B.W.
3. Identifying genes altered by a drug in temporal microarray data: A case study (2003). Serban, N. and Wasserman, L., *Joint Statistical Meeting*, Biopharm Student Paper Award.
2. Analysis of microarray data for treated adipose cells (2002). Serban, N., Wasserman, L., Peters, D., Spirtes, P., O'Doherty, R., Handley, D., Scheines, R., Glymour, C., *tech report*, Computational Gene Group, Carnegie Mellon University.
1. Facial Asymmetry: A New Biometric (2001), Y. Liu, R. Weaver, K. Schmidt, N. Serban, J. Cohn, *tech report* Robotics Institute, Carnegie Mellon University.

- PRESENTATIONS
14. "High-Dimensional NMR Spectral Peak Analysis for Protein Structure Studies", September 2007, *Statistics Department, University of Georgia*, Athens, GA
 13. "High-Dimensional NMR Spectral Peak Analysis for Protein Structure Studies", April 2006, *Statistics Department, Harvard University*, Cambridge, MA
 12. "Integrating Workforce Communication into an Engineering Introduction to Statistics Course" (with Norback, J. S.), November 2006, *The Institute of Operations Research and the Management Sciences Meeting*, Pittsburgh, PA
 11. "High-Dimensional NMR Spectral Peak Analysis for Protein Structure Studies", October 2006, *Biostatistics Department, Emory University*, Atlanta, GA
 10. "Analysis of NMR signals for Protein Structure Determination", April 2006, *Center for Signal & Image Processing*, Georgia Institute of Technology, Atlanta, GA
 9. "Multidimensional NMR Spectra Identification for Protein Structure Determination", March 2006, *Statistics Department, University of Illinois*, Urbana-Champaign, IL
 8. "MICE: Multiple Peak Identification, Characterization and Estimation", March 2006, *Eastern North American Region Meeting*, Tampa, FL
 7. "CATS: Clustering After Transformation and Smoothing", November 2005, *The Institute of Operations Research and the Management Sciences Meeting*, San

Francisco, CA

6. "Cluster Estimation Error", August 2004, *Joint Statistical Meeting*, Toronto, Canada
5. "Clustering Multiple Gene Expression Profiles", March 2004, *Eastern North American Region Meeting*, Pittsburgh, PA
4. "Clustering Multiple Curves", May 2004, *Cleveland Clinic Foundation, Department of Biostatistics and Epidemiology*, Cleveland, OH
3. "Identifying genes altered by a drug in temporal microarray data: A case study", August 2003, *Joint Statistical Meeting*, San Francisco, CA
2. "Bootstrap confidence intervals for functions of parameters in indirect response models", July 2003, *Eli Lilly and Company*, Indianapolis, IN
1. "Analysis of microarray data for treated adipose cells", November 2002, *Statistics Department, Carnegie Mellon University*, Pittsburgh, PA

SERVICE A. Professional Contributions

1. Referee:

- Invited Review for the following prestigious international journals: *Statistics in Medicine* (6 reviews), *Bioinformatics* (5 reviews), *Journal of the Royal Statistical Society, Series B*, *International Journal of Statistics and Management Systems*, *IIE Transactions*, *Journal of Computational and Graphical Statistics*, *Journal of the American Statistical Association*
- Member of the *The Manufacturing and Service Operations Management Society* 2006 Review Board

2. Conference organizer/co-chair positions:

- Organizer and Chair of the Scientific Invited Session "Multi-level and multi-scale Spatial Modeling and Simulation", *Spring Conference on Statistics in Research and Technology* 2008
- Co-organizer (with Prof. Julie Ivy and Jing Li from the University of Michigan) of a series of invited sessions in *Quality and Statistical Decision-Making in Healthcare Applications*, The Institute of Operations Research and the Management Sciences Meeting 2006
- Organizer and Chair of the Scientific Invited Session "Nonparametric Function Estimation", *Eastern North American Region Meeting* 2004

3. Memberships:

- Member of *The American Statistical Association*, *Institute of Mathematical Sciences*, *The Institute of Operations Research and the Management Sciences*

B. Campus Contributions

B1. PhD Dissertation Committee Member

- Lisa M. Ehrman PhD student in ECE

Graduation date: December 2005

Advisor: Dr. Aaron Lanterman

Thesis: An algorithm for Automatic Target Recognition Using Passive Radar and EKF for Estimating Aircraft Orientation

- William Leven PhD student in ECE

Graduation date: Spring 2006

Advisor: Dr. Aaron Lanterman

Thesis: Approximate Cramer-Rao Bounds for Multiple Target Tracking

- Jong Phil Kim, Ph.D. candidate in ISyE

Graduation date: Spring 2007

Advisor: Dr. Antony Hayter

Thesis: Efficient Confidence Interval Methodologies for Non-central t and F Random Variables

- Chen-ju Lin, Ph.D. candidate in ISyE

Graduation date: Spring 2007

Advisor: Dr. Antony Hayter

Thesis: New Methods for Eliminating Inferior Treatments in Clinical Trials

- Jie Chen, PhD student in ISyE

Graduation date: Fall 2007

Advisors: Dr. Xiaoming Huo

Thesis: Theoretical Results and Applications Related to Dimension Reduction

- Shu-Chuan Lin, Ph.D. student in ISyE

Expected Graduation: Fall 2007

Advisors: Dr. JC Lu and Dr Paul Kwam

Thesis: Robust Estimation for Spatial Models and the Skill Test

- Andrew Smith, Ph.D. student in ISyE

Expected Graduation: Spring 2008

Advisors: Dr. Xiaoming Huo

- Soyoun Park, Ph.D. student in ISyE

Expected Graduation: Spring 2009

Advisors: Dr. JC Lu

B2. Other Contributions

- Associate Faculty in the Tennebaum Institute since Fall 2005

- Supervision of Tennebaum student fellows

- Participation in the Tennebaum funding and research projects

GRANTS AND CONTRACTS A. Ongoing

“Analysis of multiple descriptors to evaluate and predict retail store location”

Dollar General

\$100,000 membership to Tennenbaum Institute

PI: William B. Rouse and Nicoleta Serban

New Researcher Fellowship

Statistical and Applied Mathematical Sciences Institute

\$20,000

B. Pending

1. “High-dimensional Multiple-Component Regression Analysis with Applications to NMR Biomolecular Studies”

National Science Foundation

PI: Nicoleta Serban

2. “SCREMS: Computing Environment of the Statistics/Optimization Group at Georgia Institute of Technology”

National Science Foundation

Co-PI: Nicoleta Serban

AWARDS 2007-2008 New Researcher Fellowship, *Statistical and Applied Mathematical Sciences Institute*
2006 Young Researchers Nomination, *INFORMS conference on Practice*
2004 David Byar Young Investigator Award, *ASA Biometrics Section*
2004 Biopharm Honorable Mention Paper Award, *ASA Biopharmaceutical Section*
2003 Biopharm Student Paper Award, *ASA Biopharmaceutical Section*