

Amy C. Burnicki

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Department of Geography
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Education

- Ph.D. Natural Resources and Environment Exp: December 2006
University of Michigan
Dissertation: *Spatial and Temporal Patterns of Error in Land Cover Change Analyses: Identifying and Propagating Uncertainty for Ecological Monitoring and Modeling*
Advisor: Dr. Daniel G. Brown
- M.S. Statistics August 2001
The Pennsylvania State University
Thesis: *Comparison of Absolute and Conditional Entropy Profiles*
Advisor: Dr. Ganapati P. Patil
- B.S. Biology – Ecology Option December 1998
The Pennsylvania State University

Research Experience

- Graduate Student Research Assistant* Sept 2005 – present
School of Natural Resources and Environment University of Michigan
Producing and synthesizing inputs for stochastic simulation model of future land-cover scenarios for NASA-funded research project conducted in Southeast Michigan; Conducting generalized additive modeling to generate maps describing land-cover-class transition probabilities; Evaluating assumption of temporal stationarity; Investigating impact of classification errors on model predictions of future land-cover
- Graduate Student Research Assistant* Jan 2002 – April 2004
School of Natural Resources and Environment University of Michigan
Managed the assembly and processing of a remotely-sensed database consisting of aerial photography and Landsat TM and ETM+ imagery; Developed and conducted an unsupervised/supervised classification procedure and accuracy assessment for Southeastern Michigan; Used generalized additive models based on socioeconomic/biophysical predictor variables in order to predict land-cover-change probabilities over study area; Duties also included working with computer programmer to develop model that synthesizes all aspects of LCLUC project and supervised undergraduate & graduate students working on project

Undergraduate Research Assistant & Graduate Research Assistant Jan 1998 – Aug 2001
The Center for Statistical Ecology and Environmental Statistics Penn State University
Examined the implications of conditional and absolute entropy profiles for characterizing watershed fragmentation in Pennsylvania; Performed cluster and regression analyses to group and predict watershed environmental health; Examined effect of scale on entropy profiles

Teaching Experience

Graduate Student Instructor Sept 2001 – Dec 2001
School of Natural Resources and Environment University of Michigan
Taught small lab sections for a large introductory course on statistical inference; Duties included explaining lecture concepts, conducting a review section, guiding students in the use & application of SPSS, and grading weekly laboratory and homework assignments

Instructor for STAT 100 June 2000 – Aug 2000
Statistics Department June 2001 – Aug 2001
Penn State University
Taught students the concepts and tools necessary to understand and excel in an elementary statistics course; Duties included developing daily lesson plan, exams and homework assignments to assess performance and holding office hours to address student concerns and questions

Teaching Assistant Aug 1999 – May 2001
Statistics Department Penn State University
Taught small recitation sections for a large introductory statistics course; Duties included clarifying lecture concepts, teaching students the statistical package Minitab, explaining homework problems and grading exams, homework assignments and projects

Tutor for Mathematical and Statistical Courses Aug 1999 – May 2001
Morgan Support Center for Student-Athletes Penn State University
Explained course concepts and assisted with homework problems

Publications

In Press (2007). **Burnicki, A.C.**, Brown, D.G., Goovaerts, P. Simulating error propagation in land-cover change analysis: The implications of temporal dependence. *Computers, Environment and Urban Systems*.

2004. **Burnicki, A. C.**, Patil, G.P., Taillie, C. Assessing the similarity between neighboring watersheds and evaluating the effect of watershed size on conditional entropy profiles. *Journal of the Indian Society of Agricultural Statistics*, 57: 197-207.

2002. Brown, D.G., Goovaerts, P., **Burnicki, A.**, Li, M.Y. Stochastic simulation of land-cover change using geostatistics and generalized additive models. *Photogrammetric Engineering and Remote Sensing*, 68(10):1051-1061.

Papers in Conference Proceedings

2005. Zhao, T., Brown, D.G., Bergen, K.M., **Powers, A.C.** Landscape and productivity changes in Southeastern Michigan, USA. *Proceedings, 9th International Symposium on Physical Measurements and Signature in Remote Sensing (ISPMRS)*, Beijing, China, October 2005.

2005. **Powers, A.C.** Simulating patterns of uncertainty in post-classification change-detection. *Proceedings, GeoComputation 2005*, Ann Arbor, MI, August 2005.

Technical Reports

2001. **Burnicki, A.**, Patil, G.P., Taillie, C. "Assessing the similarity between neighboring watersheds and evaluating the effect of watershed size on conditional entropy profiles in the State of Pennsylvania", Technical Report 01-0601, Center for Statistical Ecology and Environmental Statistics, Department of Statistics, Penn State University.

1999. **Burnicki, A.** "A comparison of two approaches used to classify watershed degradation", Technical Report 99-0801, Center for Statistical Ecology and Environmental Statistics, Department of Statistics, Penn State University.

Presentations and Posters

Presentation: 2006. Developing a Model to Propagate Error in Post-Classification Change-Detection: A Simulation Approach. *GIScience 2006: Fourth International Conference on Geographic Information Science*, September 20-23, Münster, Germany.

Presentation: 2006. Developing and Testing a Model to Propagate Error in Post-Classification Change-Detection. Session GIS-SG Honors Student Paper Competition. *2006 Annual Meeting of the Association of American Geographers*, March 7-11, Chicago, IL.

Poster: 2005. Developing a Model to Propagate Error in Post-Classification Change-Detection: Examining the Impact of Temporal Dependencies on Change Accuracy. *NASA Biodiversity and Ecological Forecasting Team Meeting*, August 29-31, Washington, D.C.

Presentation: 2005. Simulating patterns of uncertainty in post-classification change detection. *Geocomputation 2005*, August 1-3, Ann Arbor, MI.

Presentation: 2005. Simulating patterns of uncertainty in post-classification change detection. Session Errors are Everywhere; session chair. *2005 Annual Meeting of the Association of American Geographers*, April 5-9, Denver, CO.

Presentation: 2004. Patterns of uncertainty in land-cover change analyses. Session Remote Sensing of Land Cover: Mapping, Change Detection and Evaluation Techniques. *2004 Annual Meeting of the Association of American Geographers*, March 14-19, Philadelphia, PA.

Poster: 2002. Developing land-cover scenarios in metropolitan and non-metropolitan Michigan, USA: A stochastic simulation approach, with Dr. Daniel G. Brown. *Annual NASA LCLUC Science Team Meeting*, November 20-22, University of Maryland.

Manuscript Reviewer

Photogrammetric Engineering & Remote Sensing; Landscape Ecology; Computers, Environment and Urban Systems

Fellowships

NASA Graduate Student Fellowship in Earth System Science, September 2003,
Renewed – September 2004, September 2005

Awards and Honors

2nd place, 2006 Association of American Geographers GIS-SG Honors Student Paper
Competition
Wheeler Family Memorial Scholarship, University of Michigan, September 2001
National Science Foundation Research Experience for Undergraduates Grant, The Pennsylvania
State University, Summer 1998

Professional Affiliations

Association of American Geographers
- Geographic Information Science & Systems, Remote Sensing, and Spatial Analysis &
Modeling Specialty Groups
American Society for Photogrammetry and Remote Sensing
American Association for the Advancement of Science

Academic Service

2005-present *Member*, Ph.D. Committee, School of Natural Resources & Environment,
University of Michigan

Computer Skills

GIS/Remote Sensing: ArcView, ArcGIS/Info, ERDAS Imagine, Idrisi
Statistical/Geostatistical Packages: S-plus, SPSS, Minitab, SAS, GSLib