

LAURA G. TATEOSIAN

Research Assistant Professor
Center for Earth Observation
North Carolina State University

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EDUCATION

Ph.D. in Computer Science, North Carolina State University, 2006, GPA: 4.0
Thesis: Investigating aesthetic visualizations: Propose new visualization techniques to engage viewer attention. Employ nonphotorealistic rendering techniques to visualize large multi-variariate datasets. Approaches are based on psychophysical models of perception and aesthetics.

M.S. in Computer Science, North Carolina State University, 2002, GPA: 4.0
M.S. in Mathematics, University of Oklahoma, 1997, GPA: 4.0
B.A. in Mathematics, Towson University, 1992, GPA: 3.5

RESEARCH INTERESTS

Visualization, human visual perception, nonphotorealistic rendering, computer graphics, geospatial sciences, human-computer interaction, computational geometry

SPONSORED RESEARCH GRANTS

Tateosian, L. G., Mitsova, H., and Overton, M., 2011. Renaissance Computing Institute (RENCI) at NC State. "Visualization of Terrain Evolution: from Animations to Space-Time Cube" (\$12,000)

Devine, H., Tateosian, L. G., and Mitsova, H., 2010-2011. NC Department of Environment and Natural Resources, Division of Forestry Resources. "Virtual Forest Management Plan - Landowner Boundary Collection Application" (\$38,700).

Devine, H., Tateosian, L. G. and Mitsova, H., 2010-2011. NC Department of Environment and Natural Resources, Division of Environmental Health. "FDA Innovative Food Defense Project - Environmental Health Web-Based GIS Mapping System" (\$56,566).

PUBLICATIONS

Peer Reviewed Journal Articles

Tateosian, L. G., Mitsova, H., Harmon, B. A., Fogleman, B., Weaver, K. and Harmon, R.S. (2010). "TanGeoMS: A Tangible geospatial modeling system." *IEEE Transactions on Visualization and Computer Graphics* (Proceedings IEEE Visualization 2010, Salt Lake City, Utah, Oct. 24-29, 2010) Vol. 16, No. 6, pp. 1605-1612, Nov.-Dec. 2010.

Healey, C. G., Enns, J. T., Tateosian, L. G., and Remple, M. (2004). "Perceptually-Based Brush Strokes for Nonphotorealistic Visualization." *ACM Transactions on Graphics* 23, 1, 6496, 2004.

Peer Reviewed Conference Articles

Tateosian, L. G., Healey, C. G., and Enns, J. T. (2007). “Engaging Viewers Through Nonphotorealistic Visualizations.” In *Proceedings of the 5th international Symposium on Non-Photorealistic Animation and Rendering* (San Diego, California, Aug. 04-05, 2007). NPAR '07. ACM, New York, NY, 93-102.

Tateosian, L. G., Dennis, B. M., and Healey, C.G. (2006). “Stevens Dot Patterns for 2D Flow Visualization.” In *Third International Symposium on Applied Perception in Graphics and Visualization*, (Boston, Massachusetts, Jul. 28-29, 2006). APGV '06, vol. 153. ACM Press, New York, NY, 93-100.

Dennis, B. M., Kocherlakota, S. M., Sawant, A. P., Tateosian, L. G., and Healey, C. G. (2005). “Designing a Visualization Framework for Multidimensional Data.” *IEEE Computer Graphics & Applications (Visualization Viewpoints)*, 25, 6, 10-15, 2005.

Peer Reviewed Posters

Tateosian, L. G., Thakur, S., Hardin, E., Mitsova, H., and Overton, M. (2011). “Visualizing Coastal Spatial-Temporal Dynamics.” Poster, accepted for *IEEE Information Visualization Conference*, Oct 23-28, 2011.

Hagh-Shenas, H., Kim, S., Tateosian, L. G., and Healey, C. G. (2009). “Multivariate Visualization of Continuous Datasets, a User Study.” Poster, presented at *IEEE Information Visualization Conference*, Oct 11-15, 2009.

Other Publications

Weaver, K., di Leo, M., Mitsova, H., and Tateosian, L. G. “Exploring Topographic Change Impacts with a Tangible Geospatial Modeling System.” Poster, presented at *41st Annual Binghamton Geomorphology Symposium*, Columbia, SC, Oct. 15-17 2010.

Tateosian, L. G. “Investigating Aesthetic Visualizations.” Doctoral Dissertation, Department of Computer Science, North Carolina State University, 2006.

Tateosian, L. G. and Healey, C. G. “NPR: Art Enhancing Computer Graphics.” Technical Report TR-2004-17, Department of Computer Science, North Carolina State University, 2004.

Tateosian, L. G. “Non-photorealistic visualization of multidimensional datasets.” Master’s Thesis, Department of Computer Science, North Carolina State University, 2002.

Professional Meeting Presentations

Tateosian, L. G., Mitsova, H., Harmon, B. A., Fogleman, B., Weaver, K. and Harmon, R.S. “Tan-GeoMS: A Tangible geospatial modeling system.” Paper presented at the IEEE 2010 Visualization Conference, Salt Lake City, Utah, October 2010.

Tateosian, L. G., Healey, C. G., and Enns, J. T. “Engaging Viewers Through Nonphotorealistic Visualizations.” Paper presented at the 5th International Symposium on Non-Photorealistic Animation and Rendering co-located with SIGGRAPH, San Diego, California, August 2007.

WORK EXPERIENCE

Research Assistant Professor

December 2010 - present

Center for Earth Observation
North Carolina State University, NC

The Center for Earth Observation is a research and teaching group that explores geospatial data management and visualization issues. My role includes

- Visualizing terrain evolution with a space-time cube technique.
- Teaching GIS Programming Fundamentals and Principles of Geospatial Information Science.
- Investigating the use of interactive open-source web mapping for applications natural resources management.

Research Associate

June 2008 - December 2010

Center for Earth Observation
North Carolina State University, NC

Investigating GIS visualization and data management problems in collaboration with subject experts in applications such as geomorphology, forestry, fire management, national heritage site inventory, and natural resources monitoring:

- Modeling and visualizing terrain data with a tangible user interface. Testing the system by modeling storm surge in the OuterBanks, NC and erosion control at Ft. Bragg for the US Army Research Office.
- Developing and teaching a new core course, Principles of Geographic Information Science, covering mathematical and algorithmic underpinnings of GIS.
- Implementing a system for enhancing consistency across metadata files for remote sensing data collected by U.S. National Park Service departments.
- Designing a system to process and visualize fuels data (e.g., woody debris) for the Shenandoah National Park Fire Management Office to analyze wildfire risks.
- Building an application to convert kmz files to a GIS compatible format to enable geospatial analysis of the National Register of Historic Places for the U.S. National Park Service.

Postdoctoral Research Associate

January 2007 - June 2008

Center for Earth Observation
North Carolina State University, NC

Teaching and development projects for GIS related topics:

- Designing and implementing custom interactive mapping applications for conducting geospatial processing on United States North East Regional Parks map data.
- Developing and teaching a new course for NCSU's Master's in GIST degree - GIS Programming Fundamentals, using Python and VBA.

Mathematics Instructor

Spring 1999 - Summer 2000

MAT 108 College Algebra

MAT 100 Introductory Algebra

MAT 60 Algebra

Full-time faculty member for three semesters. Taught four sections (~120 students) each semester and summer mathematics courses for at risk students. Attended conferences and faculty meetings.

Department of Math and Computer Science
Shippensburg University, PA

Fall 1999

Elementary skills to Calculus

Sylvan Learning Center
York, PA

1997 - 1998

MATH 1414 College Algebra

Central Texas College at Pope AFB
Fayetteville, NC

1997 - 1998

MAT 60 Essential Mathematics

MAT 90 Intermediate Algebra

Fayetteville Technical Community College
Fayetteville, NC

1992 - 1995

Applied Mathematics

Basic Skills Education Program
Schweinfurt, Germany

Teaching Assistant

Fall 2000, Spring 2002, Fall 2004, Fall 2006

CSC 565 Graph Theory,

CSC 462/562 Computer Graphics,

CSC 431 File Organization and Processing,

CSC 554 Human Computer Interaction

Department of Computer Science
North Carolina State University

1995 - 1997

MATH 1823 Calculus and Analytic Geometry I,

MATH 1473 Math for Critical Thinking

Department of Mathematics
University of Oklahoma

Courses Taught

MAT 108 College Algebra

MAT 100 Introductory Algebra

MAT 60 Algebra

MAT 60 Essential Mathematics

MAT 90 Intermediate Algebra

MATH 1473 Math for Critical Thinking

MATH 1823 Calculus and Analytic Geometry I (teaching assistant)

CSC/MA 565 Graph Theory (teaching assistant)

CSC 462/562 Computer Graphics (teaching assistant)

CSC 431 File Processing and Organization (teaching assistant)

CSC 554 Human Computer Interaction (teaching assistant)

NR 533 Application Issues In Geographic Information Systems

NR 536 Introduction to Visual Basic for GIS

GIS 540 GIS Programming Fundamentals

GIS 530 Principles of Geographic Information Science

GRADUATE COURSE WORK

Computer Science

Operating Systems, Design and Analysis of Algorithms, Advanced Data Structures, Computer Graphics, Computer Networks, Human Computer Interaction, Database Management Systems, Special Topics in Computer Graphics, E-commerce, Automata, Languages, and Computability Theory

Mathematics

Foundations of Analysis, Topics in Probability, Mathematical Models, Statistical Decision Making, Applied Statistical Methods, Mathematical Models in Biology, Introduction to Analysis I, Graph Theory I & II, Psychological Statistics I, Computational Complexity, Higher Algebra I

HONORS

Dean's Fellowship, Department of Computer Science, North Carolina State University, Fall 2000 - Spring 2001.

Awarded out of state fee waivers for outstanding academic conduct, University of Oklahoma, Fall 1996 - Spring 1997.

Joyce C. Neubert Award for Excellence in Mathematics, Mathematics Department, Towson University, Spring 1992.

PROFESSIONAL DEVELOPMENT

NC State Preparing Future Leaders Seminars, Spring 2008

NC State New Faculty Orientation Workshop on Teaching and Research, August 2007

PROFESSIONAL SERVICE AND AFFILIATION

NCSU Associate Member, Graduate Faculty from May, 2011

Reviewer, IEEE Visualization Conference, 2010

Reviewer, Eurographics/IEEE Symposium on Visualization, 2008, 2009, 2010

Reviewer, Computer/Human Interaction, 2007

Computer Science Graduate Student Library Representative, 2004 - 2007

ACM Siggraph Member, 2007

IEEE Member, 2005, 2010

COMMUNITY ACTIVITIES

Kramden Institute Geek-A-Thon volunteer, 2007 and 2008

Service Raleigh, 2006

Founding Member of NCSU's Women in Computer Science, 2003

REFERENCES

Available upon request.