LAURA G. TATEOSIAN

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RESEARCH INTERESTS

Geospatial data analysis, aesthetic geovisualization, eye-tracking for map and visualization design, open-source web mapping

EDUCATION

Ph.D. in Computer Science, North Carolina State University, 2006
Doctoral Thesis: Investigating aesthetic visualizations. M.S. in Computer Science, North Carolina State University, 2002
Master's Thesis: Non-photorealistic visualization of multidimensional datasets.
M.S. in Mathematics, University of Oklahoma, 1997
B.A. in Mathematics, Towson University, 1992

PROFESSIONAL APPOINTMENTS

2010 - present, Research Assistant Professor of Geospatial Information Science, NC State University
2008 - 2010, Research Associate of Geospatial Information Science, NC State University
2007 - 2008, Postdoctoral Research Associate of Geospatial Information Science, NC State University
2001 - 2006, Research Assistant, NC State University
1999 - 2000, Instructor, Shippensburg University

RESEARCH GRANTS AND TECHNOLOGICAL INNOVATIONS

Tateosian, L., 2017. Laboratory for Analytic Sciences. "Visualizing conflict economies" ($76,000).

Ristaino, J., **Tateosian, L.**, 2017. Triangle Center for Evolutionary Medicine. "Population genomics and geospatial analytics to track the evolution and emergence of Phytophthora infestans" ($20,000).

Tateosian, L., 2016. Laboratory for Analytic Sciences. "Sense-making" ($74,163).

Tateosian, L., 2015-2016. DELTA Exploratory Grant. "Py4All" ($8,000).

Tateosian, L., 2015. Laboratory for Analytic Sciences. "Sense-making" ($66,351).

Tateosian, L., 2014-2015. Laboratory for Analytic Sciences. "Narrative Processing" ($91,616).

Tateosian, L., Mitasova, 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.**, and Mitasova, 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.**, and Mitasova, 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). **Tateosian, L.**, and Chopra,

P.,"GazeGIS", North Carolina State University Invention Disclosure (May 2015).

PUBLICATIONS

Peer Reviewed Journal and Conference Articles

Kosik, P., **Tateosian, L.**, Healey, C. G., and Enns, J. T. "Impressionism-Inspired Data Visualizations are both functional and beautiful." *Psychology of Aesthetics, Creativity, and the Arts* (accepted).

Walden-Shreiner, C., Leung, Y., **Tateosian, L.**. "Digital Footprints: Incorporating Crowdsourced Geographic Information for Protected Area Management" *Journal of Applied Geography* (accepted).

Tateosian, L., Glatz, M., Shukunobe, M., and Chopra, P. (2017) "GazeGIS: A Gaze-based Reading and Dynamic Geographic Information System." *Burch M., Chuang L., Fisher B., Schmidt A., Weiskopf D. (eds) Eye Tracking and Visualization. ETVIS 2015. Mathematics and Visualization.*, Springer Berlin Heidelberg (2016). Springer, Cham. pp. 129-147.

Tateosian, L., Mitasova, H., Thakur, S., Hardin, E., Russ, E., and Blundell, B. (2013). "Visualizations of Coastal Terrain Time-series." *Information Visualization*, May 22, 2013.

Thakur, S., **Tateosian, L.**, Mitasova, H., Hardin, E., and Overton, M. (2013). "Summary Visualizations for Coastal Spatial-Temporal Dynamics." *International Journal for Uncertainty Quantification*, Vol. 3, No. 3, pp.241-253, 2013.

Tateosian, L., Supak, S., Luo, H., Fang, K., Harrell, J., Harrelson, C., Bailey, A., and Devine, H. (2012). "Who's Watching Your Food? A Flexible Framework for Public Health Monitoring." *Transactions in GIS*, Vol. 16, No. 2, pp. 89-104, 2012.

Tateosian, L., Mitasova, 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.

Tateosian, L., 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., 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.

Healey, C. G., Enns, J. T., **Tateosian, L.**, and Remple, M. (2004). "Perceptually-Based Brush Strokes for Nonphotorealistic Visualization." *ACM Transactions on Graphics* Vol. 23, No. 1, 64–96, 2004.

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

Books

Tateosian, L. "Python for ArcGIS." *Springer, New York, NY* (2016).

Hardin, E., Mitasova, H., **Tateosian, L.**, and Overton, M. "GIS-based Analysis of Coastal Lidar Time-Series." *Springer, New York, NY* (2014).

Professional Meeting Presentations

Tateosian, L., Glatz, M., Shukunobe, M., and Chopra, P. (2015) "GazeGIS: A Gaze-based Reading and Dynamic Geographic Information System." Peer-reviewed paper, presented at the *First Workshop on Eye Tracking and Visualization in conjunction with IEEE Visualization Conference*, Chicago, IL, Oct 25, 2015.

Tateosian, L., Glatz, M., and Shukunobe, M. (2015) "Expressive Maps for Story Telling." Poster presented at the *Showcase of 2015 LAS Activities*, Raleigh, NC, Dec 4, 2015.

Kanters, M., Bocarro, J., Edwards, M., **Tateosian, L.**, Hodge, C., McKenzie, T., and Floyd, M. (2013) "Neighborhood Income and Shared Use of School Physical Activity Facilities: Place Disparities Limit Participation in Afterschool Programs." Peer-reviewed poster, presented at the *Active Living Research Conference*, San Diego, CA, Feb. 26-28 2013.

Rouse, S., Bhosle, R., and **Tateosian, L.**, "Eye Tracking & ArcGIS: We can read your mind." Poster and digital application presented at the *NC GIS Conference*, Raleigh, NC, Feb. 7-8, 2013.

Thakur, S., **Tateosian, L.**, Mitasova, H. and Hardin, E., "Visualizing Coastal Tourism and Landscape Change." Peer-reviewed poster presented during the workshop on *Visualization Technologies to Support Research on Human-Environment Interactions*, organized by National Socio-Environmental Synthesis Center (SESYNC) Annapolis, MD, Jul. 23-24, 2012.

Thakur, S., **Tateosian, L.**, Hardin, E., Mitasova, H., and Overton, M. "Summary Visualizations for Coastal Spatial-Temporal Dynamics." Short paper presented at IEEE Working with Uncertainty Workshop at the *IEEE 2011 Visualization Conference*, Providence, Rhode Island, October 24, 2011.

Tateosian, L., Thakur, S., Hardin, E., Mitasova, H., and Overton, M. (2011). "Visualizing Coastal Spatial-Temporal Dynamics." Peer-reviewed poster presented at *IEEE Information Visualization Conference*, Providence, RI, Oct. 23-28, 2011.

Tateosian, L., Mitasova, H., Harmon, B. A., Fogleman, B., Weaver, K. and Harmon, R.S. "TanGeoMS: A Tangible geospatial modeling system." Full paper presented at the IEEE 2010 Visualization Conference, Salt Lake City, UT, Oct. 24-29, 2010.

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

Tateosian, L., Healey, C. G., and Enns, J. T. "Engaging Viewers Through Nonphotorealistic Visualizations." Full paper presented at the 5th International Symposium on Non-Photorealistic Animation and Rendering co-located with SIGGRAPH, San Diego, CA, Aug. 4-5, 2007.

TEACHING AND MENTORING EXPERIENCE

Courses developed at NC State University

GIS Programming Fundamentals
Topic: Streamlining GIS workflow with computer programming in the ArcGIS Python API.

Principles of Geographic Information Science

Topic: GIS algorithms, including geographic projections, raster and vector processing, networking and topology and computational geometry.

Courses taught

Graduate courses: GIS Programming Fundamentals, Principles of Geographic Information Science, Geovisualization, Visual Basic for GIS, GIS Databases

Undergraduate courses: Math for Critical Thinking, Algebra, Calculus

Students supervised

Informally advising four Masters students at NC State on eye-tracking analysis for cognitive map design and interactive maps. The advising has resulted in a North Carolina Geospatial Information & Technology Association Student Scholarship Award for $1000 and the 2013 NC GIS Best Electronic Submission Award.

Supervised two Ph.D. student and a Postdoc at NC State in developing open-source web mapping applications for the North Carolina Department of Natural Resources.

Graduate committee service

Paul Paris, Ph.D. in Earth Sciences, May 2012-June 2014
Chelsey Walden-Schreiner, Ph.D. in Forestry, May 2014-present
Allie McCreary, Ph.D. in Parks, Recreation, and Tourism Management, Jan 2016-present
Anna Petrasova, Ph.D. in Geospatial Analytics, Mar 2016-present
Vaclav Petras, Ph.D. in Geospatial Analytics, Mar 2016-present
Tyler Hayes, M.S. in Forest Biomaterials, Jan 2016-present