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EDUCATION

University of Connecticut, Dept. of Civil & Environmental Engineering, School of Engineering, Storrs, CT

Field of Study: Environmental Engineering

Degree: Ph.D., August 2015

Advisor: Emmanouil N. Anagnostou

University of Connecticut, Dept. of Civil & Environmental Engineering, School of Engineering, Storrs, CT

Field of Study: Environmental Engineering

Degree: M.S., December 2012

Advisor: Emmanouil N. Anagnostou

University of Connecticut, Dept. of Natural Resources & the Environment, College of Agriculture and Natural Resources, Storrs, CT

Field of Study: Environmental Science

Degree: B.S. *cum laude*, August 2011

Advisor: John C. Clausen

PUBLICATIONS

- **Wanik, D. W.**, Anagnostou, E. N., Hartman, B. M., Frediani, M. E., Astitha, M., 2015: Storm Outage Modeling for an Electric Distribution Network in Northeastern US, *Natural Hazards, In Press.*
- He, J., **Wanik, D. W.**, Hartman, B.M., Anagnostou, E. N., 2014: Nonparametric Tree-Based Predictive Modeling of Storm Damage to Power Distribution Network, *Risk Analysis, Accepted with Minor Revision.*
- **Wanik, D. W.**, Anagnostou, E. N., Astitha, M., Yang, J., Hartman, B.M., Frediani, M.E.B., Lackmann, G.M., 2016: Evaluation of Power Outages in Connecticut during Future Hurricane Sandy Scenarios, *Journal of Applied Meteorology and Climatology, In Preparation.*
- **Wanik, D. W.**, Parent, J., Anagnostou, E. N., 2016: Investigating the Value of LiDAR-Derived Hazardous Tree Pixels and Vegetation Management Strategies for Hurricane Outage Modeling, *Electric Power Systems Research, In Preparation.*
- **Wanik, D. W.**, He, J., Anagnostou, E.N., Hartman, B. M., 2016: Storm Outages Restoration Duration Analysis for Electric Distribution Networks, *IEEE Power Delivery Systems, In Preparation.*
- Lally, N., Hartman, B. M., **Wanik, D. W.**, Anagnostou, E. N., 2016: On The Efficacy of Using Informed Priors in Binomial Regression Models for Predictive Problems with an Application in Hurricane Damage Prediction Bayesian Analysis, *In Preparation.*

GRANT SUPPORT & PROPOSALS

These are sources of support that I am funded by as a Co-PI:

- Eversource Energy Center, “Next Generation Predictive Storm & Damage Modeling Enhancements for Preparedness and Emergency Response Support”; E.N. Anagnostou (PI), Marina Astitha and Dave Wanik; \$2.37M. Co-PI. Funded.
- Eversource Energy Center, “Evaluation of Airborne and Mobile LiDAR Technologies for Monitoring Roadside Vegetation and Utility Infrastructure”; Jason R. Parent (PI), John C. Volin, Emmanouil N. Anagnostou, David W. Wanik, Tom Meyer, and Wei Zhang; \$338K. Co-PI. Funded.

These are sources of funding that have supported my master's and doctoral research as a graduate research assistant, for which I am very grateful. The PI on these grants is Emmanouil Anagnostou, my PhD advisor.

- Electric Power Research Institute (EPRI), "Importance of Tree-Trimming in Power Grid Resiliency." \$150K. Graduate Research Assistant. Funded.
- United Illuminating (UI), "Toward a Resilient Power Grid." \$513K. Graduate Research Assistant. Funded.
- Northeast Utilities (NU), "Predictive Modeling of Storm Damage to Overhead Power Distribution Systems." \$1.1M. Graduate Research Assistant. Funded.

TEACHING EXPERIENCE

University of Connecticut, Department of Civil & Environmental Engineering, Storrs, CT

- **Spring 2016 – ENVE 5090: Predictive Analytics for Scientists and Engineers (Special Topics)**
 - Graduate level class, 19 students enrolled from multiple departments; including Civil Engineering, Environmental Engineering, Business Administration, Chemical Engineering, Electrical Engineering, Natural Resources and the Environment.
 - Description: "The purpose of this class is to introduce topics related to predictive analytics, with an emphasis on engineering and scientific applications. We will learn how to explore, clean, and model big data using data mining techniques. An added emphasis will be on displaying and effectively communicating results.

WORK EXPERIENCE

University of Connecticut, Department of Civil & Environmental Engineering, Storrs, CT, August 2011-present

- Development and implementation of real-time weather forecasting systems and outage modeling systems for electrical utilities; including Connecticut Light & Power Company, United Illuminating Company, Western Massachusetts Electric Company, and NSTAR Electric Company.
- Graduate research promoted an academic/industry partnership between UConn and Eversource Energy (formerly Northeast Utilities).
- Responsible for geospatial data processing, exploratory data analysis, and predictive modeling for >140 storms that impacted Connecticut and Massachusetts
- Experience with tree-based models (decision trees, random forest, boosted gradient tree regression), neural networks, and statistical models.

United Technologies Corporation, Corporate EH&S Department, Hartford, CT, 06101, November 2012 – June 2013

- Rotational leadership program through UTC commercial, aerospace and corporate divisions
- Aggregated, analyzed and trended environmental performance data for 2015 sustainability goals on industrial process waste, GHG and non-GHG air emissions, water and energy consumption for commercial business units
- Created EHS program evaluation methodology (for all environmental media and safety topics) for factories and field service locations around the globe
- Leveraged on-line reporting systems to standardize data collection and assess risk of global facilities
- Developed RCRA training materials for hazardous waste management in the United States

Northeast Utilities System Co., Environmental and Property Management, Berlin, CT 06037, May 2009 – October 2012.

- Extensive experience in environmental compliance, performance, audit and remediation in Connecticut, Massachusetts and New Hampshire.
- Served as the water compliance and GIS subject matter expert for the department. Provided guidance on spill management, meter washing operations, oil/water separator management and hazardous waste disposal. Submitted annual regulatory documents to the Environmental Protection Agency, CT Department of Energy and Environmental Protection and municipal POTWs.
- Aggregated and analyzed trends in environmental performance, including calculation of company-wide energy, carbon and water footprints.
- Led environmental management system and compliance audits, and crafted management review presentations.
- Assisted Phase I and Phase II site investigations of former manufactured gas plants. Reviewed and analyzed soils analytical data for substation construction projects.

- Served as a working team researcher on distribution transformer lifecycle analysis. Presented at conferences in Oklahoma City, Las Vegas, New Orleans and Phoenix to the Electric Utility Industry Sustainable Supply Chain Alliance (EUISSCA).

CERTIFICATIONS

- Engineer in Training, Environmental Engineering, State of Connecticut License # EIT.11352, Expiration: 2014 – 2024

HONORS AND AWARDS

- Student Poster Competition Winner (2014): Analytics 2014 Conference; Las Vegas, NV
- EPRI Graduate Fellowship (2014): fellowship given to investigate the value of vegetation management strategies for electric distribution networks
- Pre-Doctoral Fellowship (2013): fellowship given to advanced graduate students in environmental engineering
- Pre-Doctoral Fellowship (2014): fellowship given to advanced graduate students in environmental engineering
- B.S. Cum Laude (2011)
- Eagle Scout, Boy Scouts of America (2007)

PRESENTATIONS

- American Meteorological Society 96th Annual Meeting; New Orleans, LA (January 2016, Speaker): “Forecasting Storm-Related Outages in Connecticut and Massachusetts”
- American Geophysical Union, Fall Meeting; San Francisco, CA (December 2015, Poster): “Using Predictive Analytics to Forecast Power Outages from Severe Weather”
- American Geophysical Union, Fall Meeting; San Francisco, CA (December 2015, Poster): “Evaluation of Power Outages in Connecticut during Hypothetical Future Hurricane Sandy Scenarios”
- The Robert Alvine Engineering Professional Effectiveness and Enrichment Program; University of New Haven (September 2015): Predictive Analytics for Storm Outage Modeling
- SAS Analytics 2014; Las Vegas, NV (October 2014, Poster): Storm Damage Modeling for Electric Distribution Networks, Student Poster Competition Winner
- Third Conference on Climate Impact, Mitigation and Adaptation (CIMA 3, Poster); Storrs, CT (April 2014): “Investigating The Value of Land Use Information in Storm Damage Modeling”
- EPRI Conference on Distribution Grid Resiliency; Woodbridge, MA (June 2014, Speaker): “Using the CL&P Damage Prediction Model for Evaluating Vegetation Management Strategies”
- UConn Environmental Engineering Colloquium; Storrs, CT (September 2013, Speaker): “Weather-Based Damage Prediction Models for Electric Distribution Networks”
- Environmental Sustainability Undergraduate Class; Storrs, CT (September 2013, Speaker): “Applications of Climate Change Adaptation (Storm Hardening for Electric Utilities)”
- Northeast Utilities Sustainability Day; Berlin, CT (May 2012): “Climate Change as a Basis for Storm Hardening”

THESES

- Ph.D. (2015): “Assessment of Natural Hazards Impacts on Critical Infrastructure Systems”, University of Connecticut.
- M.S. (2012): “Weather-Based Damage Prediction Models for Electric Distribution Networks”, University of Connecticut.

SOFTWARE COMPETENCIES

- Python, R, ArcGIS, MATLAB, MODFLOW, Mathematica, SAS, JMP, Minitab, Surfer, Access, Excel, Word, PowerPoint

VOLUNTEER EXPERIENCE

- Beta Theta Pi, Chapter Advisor, University of Connecticut, 2013 – present
- Environmental Policy Advisory Committee, Graduate Student Representative, 2014 – 2015

RECENT MEDIA & PRESS

- Eaton-Robb, P. (2015). New Storm Preparation Center Pairs UConn, Power Company. *Hartford Courant*, Retrieved from <http://www.courant.com/business/hc-uconn-storm-preparation-center-1108-story.html>
- Levy, H. (2014). UConn engineers help CL&P predict storm damage. *Journal Inquirer*, Retrieved from http://www.journalinquirer.com/business/uconn-engineers-help-cl-p-predict-storm-damage/article_40a3bf16-d211-11e3-ac19-0019bb2963f4.html
- Ratliff, J. (2014). CL&P and UConn Team Up. *NBC Connecticut*, Retrieved from <http://www.nbcconnecticut.com/news/local/CLP-and-UConn-Team-Up-257269981.html>
- Staff Writers (2014). CL&P and UConn Unveil Predictive Modeling to Estimate Storm Damage. *T&D World*, Retrieved from <http://tdworld.com/projects-progress/clp-and-uconn-unveil-predictive-modeling-estimate-storm-damage>
- Staff Writers (2014). CL&P, UConn Partner to Help Anticipate Storm Damage. *UConn Today*, Retrieved from <http://today.uconn.edu/blog/2014/04/clp-uconn-partner-to-help-anticipate-storm-damage/>
- Staff Writers (2014). UConn modeling helps CL&P predict storm damage. *Hartford Business Journal*, Retrieved from <http://www.hartfordbusiness.com/article/20140429/NEWS01/140429921/uconn-modeling-helps-clp-predict-storm-damage>
- Sturdevant, M. (2014) Forecasting Where Wind, Precipitation Will Disrupt The Electric Grid. *Hartford Courant*, Retrieved from http://articles.courant.com/2014-05-03/business/hc-modeling-uconn-clp-20140502_1_clp-power-lines-tropical-storm-irene
- Turmelle, L. (2014). CL&P, UConn work together for better storm preparedness. *New Haven Register*. Retrieved from <http://www.nhregister.com/business/20140429/clp-uconn-work-together-for-better-storm-preparedness>
- Turmelle, L. (2014). United Illuminating to implement storm damage prediction tool. Retrieved from <http://www.nhregister.com/business/20140818/united-illuminating-to-implement-storm-damage-prediction-tool>
- West, M. (2014). UI adopts new system to predict storm damage. *Easton Courier*, Retrieved from <http://www.eastoncourier.com/13620/ui-adopts-new-system-to-predict-storm-damage/>