

RACHEL MOGLEN

 <https://rmoglen.github.io/>

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EDUCATION

University of Texas , Austin, TX	
Ph.D. Operations Research and Industrial Engineering	Fall 2019 – Present
University of Maryland , College Park, MD	
M.S. Mechanical Engineering	Fall 2017 – Spring 2019
B.S. Civil and Environmental Engineering <i>with Honors in Engineering</i>	Fall 2013 – Spring 2017
EIT Environmental Engineering , MD	June 2017

AWARDS

Cockrell School of Engineering Fellow , University of Texas at Austin	Fall 2019 – Present
<ul style="list-style-type: none">Included full funding for one year of graduate school, and an additional \$9,000 annually for 4 years	
NSF INFEWS Fellow , University of Texas at Austin	Fall 2019 – Summer 2022
<ul style="list-style-type: none">Selected to participate in A National Science Foundation (NSF) Research Traineeship (NRT) focused on Innovations at the Nexus of Food-Energy-Water Systems (INFEWS)	
Macro-Energy Systems Fellow , Stanford University	Fall 2020 – Fall 2021
<ul style="list-style-type: none">One of 4 selected fellows with a \$1,500 honorarium	
Professional Development Award , University of Texas at Austin	Fall 2020, Fall 2021, Fall 2022
<ul style="list-style-type: none">Included financial support to present at a conference	
Dean's M.S. Research Award Competition Department Finalist , University of Maryland	Spring 2019
College of Engineering Most Outstanding Research Award , University of Maryland	Spring 2017
Engineering Honors Student , University of Maryland	Spring 2016 – Spring 2017
University Honors Student , University of Maryland	Fall 2013 – Spring 2017

RESEARCH AND PROFESSIONAL EXPERIENCE

University of Texas at Austin , Austin, TX	Fall 2019 – Present
Research Assistant for Dr. Benjamin Leibowicz	<i>Python, Pyomo</i>
<ul style="list-style-type: none">Applying optimization techniques to improve the resilience of interdependent infrastructure systemsDeveloping tools to support national security funded by the Defense Threat Reduction Agency (DTRA)	
Sandia National Laboratory , Albuquerque, NM	Summer 2020, Summer 2021
Graduate Intern for the Energy and Water Systems Integration Department	<i>Python, QGIS</i>
<ul style="list-style-type: none">Modeled water distribution system dynamics for disaster resilience studies	
Washington Gas , Springfield Virginia	Summer 2019
Pipeline Risk Intern for the Distribution Integrity Management Team	<i>R, ArcGIS</i>
<ul style="list-style-type: none">Developed ArcGIS-based risk model for natural threats to natural gas distribution pipelinesCreated scripts in for extracting relevant natural features	
University of Maryland , College Park, MD	Fall 2017 – Spring 2019
Research Assistant for Dr. Steven Gabriel	<i>R, Python</i>
<ul style="list-style-type: none">Applied Stochastic and Deterministic Optimization to the energy sector for improved flexibilityPlaced as the <i>University of Maryland Dean's M.S. Research Award Competition Department Finalist</i>	
University of Maryland , College Park, MD	Spring 2018, Spring 2019
Teaching Assistant for Simulation and Design of Experiments	<i>R, MATLAB</i>
<ul style="list-style-type: none">Designed homeworks, held office hours, gave guest lectures, and helped design aspects of the course	
Whisker Labs , Germantown, MD	Summer 2017
Research and Development Intern for Demand Response Team	<i>Python, R, AWS</i>
<ul style="list-style-type: none">Coded and deployed tool on AWS Lambda to notify users of extreme energy prices in ERCOT	

University of Maryland, College Park, MD
Research Assistant for Dr. Kaye Brubaker

Fall 2016 – Spring 2017
MATLAB

- Developed life cycle predictive model of algae bloom probabilities on the Chesapeake Bay
- Thesis project completed in fulfillment of the **University of Maryland Engineering Honors Program**
- Earned the **University of Maryland College of Engineering Most Outstanding Research Award**

LimnoTech, Washington, D.C.

Summer 2016

Engineering Intern for a Water Resources Consulting Firm

ArcGIS, Excel

- Researched and documented data sources as part of a Harmful Algal Bloom (HAB) modeling project

STUDENT ORGANIZATIONS

Secretary, INFORMS Student Chapter , University of Texas at Austin	Fall 2021 – Present
Member, INFORMS Student Chapter , University of Texas at Austin	Fall 2019 – Present
Secretary, Mechanical Engineering Graduate Student Board , University of Texas at Austin	Fall 2021 – Present
Member, Mechanical Engineering Graduate Student Board , University of Texas at Austin	Fall 2019 – Present
President, INFORMS Student Chapter , University of Texas at Austin	Fall 2020 – Spring 2021
Department Representative, Graduate Student Assembly , University of Texas at Austin	Fall 2020 – Spring 2021

SERVICE

Diversity, Equity, and Inclusion Committee Graduate Student Representative , Department of Mechanical Engineering , University of Texas at Austin	Fall 2022 – Present
Mentor, Department of Mechanical Engineering , University of Texas at Austin	Fall 2021
Society of Women in Engineering Mentor , University of Texas at Austin	Fall 2019 – Spring 2020
Scientific Committee Member , Trans-Atlantic Infraday Conference	Fall 2018, Fall 2019
• Helped organize an international conference with 30 presentations and approximately 80 attendees	

RELEVANT COURSES

Energy Technology and Policy	Applied Machine Learning
Probability and Statistics	Optimization Under Uncertainty
Simulation and Design of Experiments	Applied Multivariate Analysis
Probabilistic Optimization	Microeconomics
Multivariate Statistical Analysis	Decision Analysis

CONFERENCE PRESENTATIONS

Workshop on Creating an Academic Website Texas Women in Mathematics Symposium, Austin, TX	Mar 2023
Restoration of Power Infrastructure Following a Nuclear Detonation INFORMS Annual Meeting, Indianapolis, IN	Oct 2022
Disaster Resilience Planning Under Uncertainty: A Nexus Approach Trans-Atlantic Infraday Conference, Espoo, Finland and Virtual	Nov 2021
Disaster Resilience Planning Under Uncertainty: A Nexus Approach INFORMS Annual Meeting, Anaheim, CA and Virtual	Oct 2021
Disaster Resilience Planning Under Uncertainty: A Nexus Approach IISE Annual Meeting and Expo, Virtual Conference	May 2021
Water Infrastructure Resilience: A Case Study in the US Virgin Islands INFORMS Annual Meeting, Virtual Conference	Nov 2020
A Deterministic and Stochastic Dynamic Programming Approach to Demand Response Planning Trans-Atlantic Infraday Conference, Washington, DC	Nov 2018

PEER-REVIEWED PUBLICATIONS

- Moglen, R. L.**, Chawla, K. P., Levi, P., Sun, Y., Phillips, O., Leibowicz, B. D., Jenkins, J., Grubert, E. (2022). The State of Macro-Energy Systems Research: Common Critiques, Current Progress, and Research Priorities. *iScience*.
<https://doi.org/10.1016/j.isci.2023.106325>
- Moglen, R. L.**, Barth, J., Gupta, S., Kawai, E., Klise, K., and Leibowicz, B. D. (2023). A Nexus Approach to Infrastructure Resilience Planning under Uncertainty. *Reliability Engineering & System Safety*, 230: 108931.
<https://doi.org/10.1016/j.ress.2022.108931>
- Klise, K., **Moglen, R. L.**, Hogge, J., Eisenberg, D., Haxton, T. (2022). Resilience Analysis of Potable Water Service after Power Outages in the U.S. Virgin Islands. *Journal of Water Resources Planning and Management*, 148(12): 05022010. [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001607](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001607)
- Moglen, R. L.**, Chanpiwat, P., Gabriel, S. A., & Blohm, A. (2020). Optimal Thermostatically-Controlled Residential Demand Response for Retail Electric Providers. *Energy Systems*, 21(1). <https://doi.org/10.1007/s12667-020-00400-0>
- Chanpiwat, P., Gabriel, S. A., **Moglen, R. L.**, and Siemann, M. J. (2020). Using Cluster Analysis and Dynamic Programming for Demand Response Applied to Electricity Load in Residential Homes. *ASME Journal of Engineering for Sustainable Buildings and Cities*, 1(1): 011006. <https://doi.org/10.1115/1.4045704>
- Moglen G. E., McCuen R. H., & **Moglen R. L.** (2018). Consequences of Changes to the NRCS Rainfall-Runoff Relations on Hydrologic Design. *Journal of Hydrologic Engineering*, 23(8): 04018032. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001681](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001681)