

# RACHEL MOGLEN

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

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## EDUCATION

<b>University of Texas</b> , Austin, TX	
Ph.D. Operations Research and Industrial Engineering	Fall 2019 – Present
<b>University of Maryland</b> , 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
<b>EIT Environmental Engineering</b> , MD	June 2017

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## AWARDS

<b>PEO Scholar Award</b> , Philanthropic Educational Organization (PEO) Sisterhood	Fall 2023 – Spring 2024
<ul style="list-style-type: none"><li>\$20,000 merit-based award for women pursuing doctorates in the U.S. and Canada</li></ul>	
<b>Cockrell School of Engineering Fellow</b> , University of Texas at Austin	Fall 2019 – Spring 2023
<ul style="list-style-type: none"><li>Included full funding for one year of graduate school, and an additional \$9,000 annually for 4 years</li></ul>	
<b>NSF INFEWS Fellow</b> , University of Texas at Austin	Fall 2019 – Summer 2022
<ul style="list-style-type: none"><li>Selected to participate in A National Science Foundation (NSF) Research Traineeship (NRT) focused on Innovations at the Nexus of Food-Energy-Water Systems (INFEWS)</li></ul>	
<b>Macro-Energy Systems Fellow</b> , Stanford University	Fall 2020 – Fall 2021
<ul style="list-style-type: none"><li>One of 4 selected fellows with a \$1,500 honorarium</li></ul>	
<b>Professional Development Award</b> , University of Texas at Austin	Fall 2020, Fall 2021, Fall 2022
<ul style="list-style-type: none"><li>Included financial support to present at a conference</li></ul>	
<b>Dean's M.S. Research Award Competition Department Finalist</b> , University of Maryland	Spring 2019
<b>College of Engineering Most Outstanding Research Award</b> , University of Maryland	Spring 2017
<b>Engineering Honors Student</b> , University of Maryland	Spring 2016 – Spring 2017
<b>University Honors Student</b> , University of Maryland	Fall 2013 – Spring 2017

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## RESEARCH AND PROFESSIONAL EXPERIENCE

<b>University of Texas at Austin</b> , Austin, TX	Fall 2019 – Present
<b>Research Assistant for Prof. Benjamin Leibowicz</b>	<b>Python, Pyomo</b>
<ul style="list-style-type: none"><li>Applying optimization techniques to improve the resilience of interdependent infrastructure systems</li><li>Developing tools to support national security funded by the Defense Threat Reduction Agency (DTRA)</li></ul>	
<b>Argonne National Laboratory</b> , Lemont, IL	Summer 2023
<b>Graduate Intern for the Electricity Markets Team</b>	<b>Python</b>
<ul style="list-style-type: none"><li>Developed renewable generation inputs to a disaster resilience simulation of extreme weather events</li></ul>	
<b>Sandia National Laboratory</b> , Albuquerque, NM	Summer 2020, Summer 2021
<b>Graduate Intern for the Energy and Water Systems Integration Department</b>	<b>Python, QGIS</b>
<ul style="list-style-type: none"><li>Modeled water distribution system dynamics for disaster resilience studies</li></ul>	
<b>Washington Gas</b> , Springfield Virginia	Summer 2019
<b>Pipeline Risk Intern for the Distribution Integrity Management Team</b>	<b>R, ArcGIS</b>
<ul style="list-style-type: none"><li>Developed ArcGIS-based risk model for natural threats to natural gas distribution pipelines</li><li>Created scripts in for extracting relevant natural features</li></ul>	
<b>University of Maryland</b> , College Park, MD	Fall 2017 – Spring 2019
<b>Research Assistant for Dr. Steven Gabriel</b>	<b>R, Python</b>
<ul style="list-style-type: none"><li>Applied Stochastic and Deterministic Optimization to the energy sector for improved flexibility</li><li>Placed as the <b>University of Maryland Dean's M.S. Research Award Competition Department Finalist</b></li></ul>	

<b>University of Maryland, College Park, MD</b>	Spring 2018, Spring 2019
<b>Teaching Assistant for Simulation and Design of Experiments</b>	<b>R, MATLAB</b>
<ul style="list-style-type: none"> <li>Designed homeworks, held office hours, gave guest lectures, and helped design aspects of the course</li> </ul>	
<b>Whisker Labs, Germantown, MD</b>	Summer 2017
<b>Research and Development Intern for Demand Response Team</b>	<b>Python, R, AWS</b>
<ul style="list-style-type: none"> <li>Coded and deployed tool on AWS Lambda to notify users of extreme energy prices in ERCOT</li> </ul>	
<b>University of Maryland, College Park, MD</b>	Fall 2016 – Spring 2017
<b>Research Assistant for Dr. Kaye Brubaker</b>	<b>MATLAB</b>
<ul style="list-style-type: none"> <li>Developed life cycle predictive model of algae bloom probabilities on the Chesapeake Bay</li> <li>Earned the <b>University of Maryland College of Engineering Most Outstanding Research Award</b></li> </ul>	
<b>LimnoTech, Washington, D.C.</b>	Summer 2016
<b>Engineering Intern for a Water Resources Consulting Firm</b>	<b>ArcGIS</b>
<ul style="list-style-type: none"> <li>Researched and documented data sources as part of a Harmful Algal Bloom (HAB) modeling project</li> </ul>	

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## STUDENT ORGANIZATIONS

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

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## SERVICE

<b>Diversity, Equity, and Inclusion Committee Graduate Student Representative, Department of Mechanical Engineering, University of Texas at Austin</b>	Fall 2022 – Present
<b>Mentor, Department of Mechanical Engineering, University of Texas at Austin</b>	Fall 2021, Fall 2023
<b>Society of Women in Engineering Mentor, University of Texas at Austin</b>	Fall 2019 – Spring 2020
<b>Scientific Committee Member, Trans-Atlantic Infraday Conference</b>	Fall 2018, Fall 2019
<ul style="list-style-type: none"> <li>Helped organize an international conference with 30 presentations and approximately 80 attendees</li> </ul>	

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## 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

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## CONFERENCE PRESENTATIONS

<b>Workshop on Creating an Academic Website</b> Texas Women in Mathematics Symposium, Austin, TX	Mar 2023
<b>Restoration of Power Infrastructure Following a Nuclear Detonation</b> INFORMS Annual Meeting, Indianapolis, IN	Oct 2022
<b>Disaster Resilience Planning Under Uncertainty: A Nexus Approach</b> Trans-Atlantic Infraday Conference, Espoo, Finland and Virtual	Nov 2021
<b>Disaster Resilience Planning Under Uncertainty: A Nexus Approach</b> INFORMS Annual Meeting, Anaheim, CA and Virtual	Oct 2021
<b>Disaster Resilience Planning Under Uncertainty: A Nexus Approach</b> IISE Annual Meeting and Expo, Virtual Conference	May 2021

<b>Water Infrastructure Resilience: A Case Study in the US Virgin Islands</b> INFORMS Annual Meeting, Virtual Conference	Nov 2020
<b>A Deterministic and Stochastic Dynamic Programming Approach to Demand Response Planning</b> Trans-Atlantic Infraday Conference, Washington, DC	Nov 2018
<b>Using Dynamic Programming for Real-Time Residential Demand Response Scheduling</b> Computational Management Science Conference, Trondheim, Norway	May 2018

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#### PEER-REVIEWED PUBLICATIONS

- Lu, L., Lyu, J., Leibowicz, B. D., **Moglen, R. L.**, and Zhang, N. (2023). Designing electric vehicle charging infrastructure to enable disaster evacuation. *In Review*.
- Moglen, R. L.**, Leibowicz, B.D., Kwasinski, A., and Cruse, G. R. (2023). Optimal Restoration of Power Infrastructure Following a Disaster with Environmental Hazards. *In Review*.
- Moglen, R. L.**, Chawla, K. P., Levi, P., Sun, Y., Phillips, O., Leibowicz, B. D., Jenkins, J., Grubert, E. (2023). 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.res.2022.108931>
- Klise, K., **Moglen, R. L.**, Hogge, J., Eisenberg, D., and 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., and 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., and **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)