Jonathan E. Mellor, PhD
Curriculum Vitae

University of Connecticut
Dept. of Civil & Environmental Engineering
261 Glenbrook Road, Unit 3037
Storrs, CT 06269-3037

+ 1 (434) 760-5498
jonathan.e.mellor@gmail.com

Education

PhD **University of Virginia** 2013
- Civil Engineering
- Dissertation: Modeling the Complexities of Water, Hygiene and Sanitation in Limpopo Province, South Africa.
- PI James Smith

MS **Michigan Technological University** 2009
- Environmental Engineering
- Master's International Program
- Thesis: Water and Sanitation Accessibility and the Health of Rural Ugandans
- PI David Watkins

MS **University of Virginia** 2006
- Physics

BS **The College of William and Mary** 2001
- Physics
- Minor: History

Academic Appointments

Co-Director Engineering for Humans Rights Initiative 2017 - Present
- University of Connecticut - School of Engineering

Assistant Professor 2015 - Present
- University of Connecticut - Department of Civil and Environmental Engineering

Postdoctoral Research Associate - Yale Climate and Energy Institute 2013 - 2014
- Yale University - Department of Chemical and Environmental Engineering
- Center for Green Chemistry and Green Engineering

Teaching Interests

- Hydrology and Water Resources
- Water and Wastewater Treatment
- Sustainability and Life-cycle Analysis
- Water, Sanitation and Hygiene
- Environmental Transport
- Environmental Modeling
- Numerical and Quantitative Methods
- Fluid Mechanics and Hydraulic Engineering
- Climate Resiliency
- Complex Systems

Certification

Engineer-in-Training 2009
The State of Maryland

Courses Taught at University of Massachusetts Dartmouth

- **Civil Engineering Design** 2020
- **Fluid Mechanics** 2020
- **Emerging Trends in Global Sustainability** 2020
- **Civil Engineering Project** 2020

Courses Taught at University of Connecticut

- **Foundations of Engineering** 2015 - 2016 (2 times)
  - Included both classroom and laboratory class sessions for ∼90 mostly freshman civil and environmental engineering students.
  - Topics: Introduction to Matlab, groundwater flow through porous media, groundwater pumping and contaminant transport.
- **Fundamentals of Environmental Engineering** 2017 - 2019 (3 times)
  - Used mix of problem-based learning, small group work, lecture and "think-pair-share" techniques for classes ∼90 mainly sophomore and junior civil and environmental engineering students.
  - Topics: Mass and energy balances, renewable and non-renewable energy, climate change, air quality and atmospheric mixing, hydrology, subsurface contamination and remediation, risk assessments, life-cycle analysis, sustainability principles, surface water quality, water and wastewater treatment.
- **Environmental Transport Phenomena** 2017 - 2019 (3 times)
  - Used mix of lecture, student presentations and in-class exercises for classes of ∼15 graduate students.
  - Topics: Mass balances, diffusion coefficients, solutions to Fick's Law, heat transport, momentum transport, turbulence and air-water exchange.
- **Quantitative Methods for Engineers** 2015 - 2019 (5 times)
  - Used mix of lecture, student presentations and in-class exercises for classes of ∼15 graduate students.
  - Topics: Basic probability, distribution functions, hypothesis testing, simple and multiple regression, ANOVA, Monte Carlo analysis, time series analysis, solutions to ordinary and partial differential equations, numerical solutions to differential equations including finite difference methods.

Senior Design Projects Mentored

Town of Franklin, CT Water Supply and Wastewater Treatment Design 2018
- Sponsor: Lenard Engineering Inc.

Town of Groton, CT Water Pollution Control Facility: Anaerobic Digestion 2017
- Sponsor: Town of Groton, CT

Small Scale Irrigation Project at Abba Samuel River Watershed, Ethiopia 2016
- Sponsor: Ethiopian Institute of Water Resources

Engineers Without Boders (EWB) Projects Mentored

El Jobo, Nicaragua - Sanitation Project 2020 - Present
- Design and construction of household latrines

Spring Valley Student Farm, Storrs, CT - Irrigation Project 2018 - Present
- Partner: Spring Valley Student Farm
- Design and implementation of a drip irrigation system

Abra Malaga, Peru - Sanitation Project 2017 - Present
- Partner: Asociación de Ecosistemas Andinos (ECOAN)
- Design and construction of biodigester latrines

Willimantic, CT - Rainwater Harvesting Project 2015 - Present
- Partner: Commercially Licensed Cooperative Kitchen, inc.
- Design and implementation of rainwater harvesting and irrigation system

Common Good Garden, Old Saybrook, CT - Accessibility Project 2019
- Partner: Common Good
- Design of garden upgrade to improve handicap accessibility

Hyderabad, India - E-learning Project 2015 - 2018
- Partner: Kasturba Gandhi National Memorial Trust
- Design and implementation of computer labs and E-learning centers

Woreta Zuria Administrative Kebele, Ethiopia - Irrigation Project 2015 - 2018
- Partner: Ethiopian Institute of Water Resources
- Designed small scale irrigation scheme

Pope Park, Hartford, CT - Erosion Control Project 2012 - 2015
- Partner: Friends of Pope Park and the City of Hartford
- Designed terrace plan to control erision

Undergraduate Research Projects Mentored

1. Caitlin Turney and Mateo Escobar (2018 - 2019)

   Research Area: How to best improve sanitation practices in the Peruvian Andes - Community-Led Total Sanitation and Citizen Science

2. Muhammad Mahmud and Daniel Backal (2017)

   Research Area: Improving the design of a portable rainwater harvesting device for nomadic communities of Botswana

3. Manjoor Vahora (2017)

   Research Area: Improved materials for a portable rainwater harvesting device for nomadic communities of Botswana

4. Alexa Friedman (2017)

   Research Area: A social and economic comparison of water supply options for Botswana.

5. Spencer Matonis (2015 - 2017)

   Research Area: Improving the efficacy of ceramic water filters

6. Elizabeth Burgess (2015 - 2016)

   Research Area: Climate change and rainwater harvesting

7. Kelsey Reeves (2015 - 2016)

   Research Area: Ceramic water filters

8. Shannon Swiderski (2015)

   Research Area: Climate change and rainwater harvesting

Departmental Service (UMassD CEN)

Accreditation Board for Engineering and Technology (ABET) Committee Member	2020 - Present

School of Engineering Service (UMassD)

Engineers Without Borders Faculty Advisor	2020 - Present
Freshman Engagement in Engineering Working Group	2020 - Present

Departmental Service (UConn CEE)

Undergraduate Courses and Curriculum Committee	2019 - Present
Accreditation Board for Engineering and Technology (ABET) Committee Member	2017 - 2018
Graduate Admissions Committee	2015 - 2016

School of Engineering Service (UConn)

Co-Director Engineering for Human Rights Initiative	2017 - Present
Engineers Without Borders Faculty Advisor	2015 - Present

University Service (UConn)

Universitas 21 RISE Review Committee Member	2019
Summer Undergraduate Research Fund Reviewer	2016 - 2018
Imagine, Develop, Engage, Apply (IDEA) Grant Reviewer	2016

Professional and Management Experience Highlights

Site Coordinator Charlottesville, VA and Limpopo, South Africa
Water and Health in Limpopo Project *2011*

- Oversaw 40 undergraduate and graduate students from the University of Virginia and the University of Venda (Univen) in Limpopo Province, South Africa.
- Responsibilities:
  - Managed five water and health research and humanitarian projects.
  - Served as a conduit and facilitator between UVA and Univen faculty, staff and students.
  - Stakeholder coordination, community outreach and multicultural team building.

Peace Corps Volunteer - Water Resources Engineer Kalisizo, Uganda
United States Peace Corps *2007 - 2009*

- Worked as a water resources engineer in a Ugandan non-governmental organization in Kalisizo, Uganda.
- Responsibilities:
  - Directed water and sanitation projects.
  - Supervised construction and rehabilitation of wells and latrines.
  - Initiated organizational and professional development with staff.
  - Founded environmental clubs at local schools.

Project Manager - What Works Best in Diarrheal Disease Prevention? Kalisizo, Uganda
Open Palm COWESER *2007 - 2009*

- Managed a research and humanitarian project that brought water and sanitation education and infrastructure to over 10,000 people in six rural communities.
- Responsibilities:
  - Engineering design and implementation.
  - Managing a ten-person team.
  - Data collection and analysis.
  - Community mobilization.

Project Manager Houghton, MI and Fronterizo, Guatemala
Engineers Without Borders *2006*

- Led a 50-person team of students and faculty members who successfully brought two sustainable water supplies to adjacent communities in Fronterizo, Guatemala.

- Responsibilities
  - Engineering design.
  - Overall project planning and management.
  - Community education and outreach.

Selected Awards and Fellowships

Environmental Leadership Award First Runner-Up 2019
- University of Connecticut Office of Environmental Policy

Science To Achieve Results (STAR) Fellowship 2011-2013
- The Environmental Protection Agency

William R. Walker Graduate Research Fellowship 2011
- Virginia Water Resources Research Center

Short Course Modules Taught at UConn

- **Orientation to Engineering** - Out of Class Presentation - (2019)
  - Delivered short learning module to ∼20 freshman engineering students focusing on low-cost water treatment options.
- **Explore Engineering** - (2017)
  - Delivered six short learning modules to ∼20 high school students each time introducing them to the subject of environmental engineering.
- **Orientation to Engineering** - Out of Class Presentation - (2015)
  - Delivered short learning module to ∼20 freshman engineering students focusing on groundwater hydrology.

Courses Taught at UVA

- Global Health Research Methodologies (Co-Instructor) (2011)
  - Focused on environmental sampling as well as water scarcity and water quality in low-income regions.
- Global Health Policy and Practice (Co-Instructor) (2011)
  - Focused on environmental sampling as well as water scarcity and water quality in low-income regions.
- Science, Technology and Society and Engineering Practice (Teaching Assistant) (2010)
- Introductory Physics (Teaching Assistant) (2001-2003)

Doctoral Student Major Advisor

1. Suganya Pandian (2017 - Present)
2. Tara Walsh (2016 - Present)
3. Sardorbek Musayev (2016 - Present)
4. Yigrem Dingo (2015 - 2016)

Doctoral Student Associate Advisor

1. Jeffrey London (University of Bridgeport) (2018 - Present)
2. Grant Bouchillon (2015 - Present)
3. Abraham Geremew (Addis Ababa University) (2015 - 2019)

Master's Student Associate Advisor

1. Brandon Holland (2019 - Present)
2. Brian Cruz (2016 - 2017)

Funding History Highlights

$100,000 (PI) The Development of a Real-Time Decision Support Tool to Optimize Storm Recovery - Eversource Energy Center — 2019

$5,192 (Faculty Advisor) How to Best Improve Sanitation Methods in the Peruvian Andes: Community-Led Total Sanitation and Citizen Science - UConn IDEA Grant — 2018

$93,263 (PI) - Development and Demonstration of a Wireless mm-sized Soil Moisture Sensor (MSMS) Package to Support Food Security in Developing Countries - Department Civil and Environmental Engineering - Infrastructure Initiative — 2017-2018

$738,195 (Co-PI) - Environmental Engineering at the Forefront of Water Science, Policy and Education - Department of Education - Graduate Assistance in Areas of National Need Program — 2016-2019

$4.2 million (Senior Personnel) - Taming Water in Ethiopia - An Interdisciplinary Approach to Improve Human Security in a Water-Dependent Emerging Region - NSF Partnerships for International Research and Education Program — 2015-2021

$153,600 - Postdoctoral Research Fellowship - Yale Climate and Energy Institute - Yale University — 2013-2015

$126,000 - Science To Achieve Results (STAR) Fellowship - The Environmental Protection Agency — 2011-2014

$2,750 - William R. Walker Graduate Research Fellowship - Virginia Water Resources Research Center — 2011

Peer-Reviewed Publications (*Student Mentee)

1. Chacon-Hurtado, D., Kazerounian, K., Hertel, S., **Mellor, J.**, Barry, J., Ravindran, T., (2020). "Engineering for Human Rights: The Theory and Practice of a Human Rights-Based Approach to Engineering ", Submitted to: Journal for Engineering Education.

2. Walsh, T.*, **Mellor, J.E.** (2020). "Comparative life cycle assessment of four commonly used point-of-use water treatment technologies", Journal of Water, Sanitation and Hygiene for Development.

3. Walsh, T.*, Wanik, D., Anagnostou, E.N., **Mellor, J.E.** (2020). "Estimated Time to Restoration of Hurricane Sandy in a Future Climate", Sustainability, 12 (16), ,pp. 6502.

4. Geremew, A.*, Mengistie, B., Alemayehu, E., Lantagne, D., **Mellor, J.**, Alemayehu, E., and Sahilu, G., (2019). "Consistent point-of-use water chlorination among households with unimproved water sources in Eastern Ethiopia: A longitudinal study using Waterguard and Bishan Gari in Kersa Health and Demographic Surveillance Site ", International Journal of Environmental Health Research, pp 1-16.

5. Geremew, A.*, Mengistie, B., **Mellor, J.**, Lantagne, D., Alemayehu, E., and Sahilu, G., (2018). "Appropriate household water treatment methods in Ethiopia: Household use and associated factors based on 2005, 2011 and 2016 EDHS data", Journal of Environmental Health and Preventive Medicine, 23(1), 46.

6. Walsh, T.*, Layton, T., Wanik, D., **Mellor, J.E.**, Geremew, S. (2018). "Agent Based Model to Estimate Time to Restoration of Storm-Induced Power Outages ", Infrastructures.

7. Geremew, A.*, Mengistie, B., Alemayehu, E., Lantagne, D.S., **Mellor, J.E.**, Geremew, S. (2018) "Point-of-use water chlorination among urban and rural households with under-five year children: A Comparative study in Kersa Health and Demographic Surveillance Site, Eastern Ethiopia", Journal of Water, Sanitation and Hygiene for Development. 8 (3). pp. 468-480.

8. Musayev, S.*, Burgess, E.*, **Mellor, J.E.** (2018). "A global performance assessment of rainwater harvesting under climate change." Resources Conservation and Recycling, 132(1), pp. 62-70.

9. **Mellor, J.E.**, Kumpel, E., Ercumen, A., Zimmerman, J.B. (2016). "A Systems Approach to Climate, Water and Diarrhea in Hubli-Dharwad, India". Environmental Science & Technology, Â 50 (23), pp. 13042-13051.

10. **Mellor, J.E.**, Levy, K., Zimmerman, J.B., Elliott, M., Bartram, J., Carlton, E., Clasen, T., Dillingham, R., Eisenberg, J., Guerrant, R., Lantagne, D., Mihelcic, J. and Nelson, K. (2016). "Planning for climate change: the need for mechanistic systems-based approaches to study climate change impacts on diarrheal diseases", Science of the Total Environment, 548, pp.82-90.

11. **Mellor, J.E.**, Kallman, E.N., Oyanedel-Craver, V.A., Smith, J.A. (2014)."Comparison of Three Household Water Treatment Technologies in San Mateo Ixtatán, Guatemala", Journal of Environmental Engineering, 141(5), 0401-4085.

12. **Mellor, J.E.**, Abebe, L., Ehdaie, B., Dillingham, R.A., Smith, J.A. (2014)."Modeling the Sustainability of a Ceramic Water Filter Intervention", Water Research, 49, pp. 286-299.

13. **Mellor, J.E.**, Smith, J.A., Samie, A., and Dillingham, R.A. (2013). "Coliform Sources and Mechanisms for Regrowth in Household Drinking Water in Limpopo, South Africa", Journal of Environmental Engineering, 139(9), pp. 1152 - 1161.

14. Demarest, J.B., Pagsuyoin, S.A., Learmonth G.P., **Mellor, J.E.**, Dillingham, R.A. (2013). "Development of a Spatial and Temporal Agent-based Model for Studying Water and Health Relationships: the Case Study of Two Villages in Limpopo, South Africa" Journal of Artificial Societies and Social Simulation. 16 (4) 3.

15. **Mellor, J.E.**, Smith, J.A., Learmonth, G.P., Netshandama, V.O., Dillingham, R.A., (2012)."Modeling the Complexities of Water, Hygiene, and Health in Limpopo Province, South Africa", Environmental Science & Technology, 46 (24), pp. 13512 - 13520.

16. **Mellor, J.E.**, Mihelcic J.M., and Watkins D.W. (2012). "Rural water usage in East Africa: Does collection effort really impact basic access?". Waterlines, 31:3, pp. 215-225.

17. The CLAS Collaboration (S. Niccolai **et al.**). (2006). "Search for the Θ+ Pentaquark in the $\gamma d \rightarrow \Lambda nK+$ Reaction Measured with CLAS." Physical Review Letters. 97:032001.

18. Crabb, D. G. on behalf of the UVA Polarized Target Group (Day, D. B., Fomin, N., Hill, C., McKee, P., **Mellor, J.**, Pierce, J. and Wright, J.) (2004). "Polarization in radiation-doped butanol and CD_2" Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment. 526(1), pp. 56-59.

Conference Presentations (*Student Mentee)

1. Walsh T.*, Layton T., Wanik D. and **Mellor, J.**, (2019). "Development of an Agent Based Model to Estimate and Reduce Time to Restoration of Storm-Induced Power Outages", Women in Data Science Central Mass Conference, Worcester, MA, March 4.

2. Dokou, Z., Khadim, F.K., Zhou, W., Flamig, Z., Moges, M., Tilahn, S., Azage, M., Moges, S., Li, B., **Mellor, J.**, Wang, G., Bagtzoglou, A., Hong, Y., Anagnostou, E. (2018). "Citizen Science at the Source of the Blue Nile: Promoting Public Participation in Science for Ensuring Food and Water Security in Ethiopia", American Geophysical Union Fall Meeting 2018, Washington D.C., December 10-14.

3. Walsh T.*, Layton T., Wanik D. and **Mellor, J.**, (2017). Development of an Agent Based Model to Estimate and Reduce Time to Restoration of Storm-Induced Power Outages, American Geophysical Union Fall Meeting 2017, New Orleans, LA, December 11-17.

4. **Mellor, J.E. (Invited)**, "Systems Approaches to Study Water, Climate and Health", Presented at 2016 World Environmental & Water Resources Congress, West Palm Beach, FL, 22-26 May.

5. **Mellor, J.E.**, Zimmerman, J, (2015), "A mechanistic systems approach to water and diarrhea under climate change", Presented at 2015 AEESP Conference, New Haven, CT, 13-16 June.

6. **Mellor, J.E.**, Zimmerman, J, (2014), "A Systems Approach to Climate, Water and Diarrhea in Hubli-Dharward, India", Abstract 13401 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec.

7. **Mellor, J.E.**, Burt, Z., Ercumen, A., Kumpel, E., Zimmerman, J.B., Nelson, K.L. (2014), "A Systems Approach to Climate, Water and Diarrhea in Hubli-Dharward, India ", presented at Water and Health Conference: Where Science Meets Policy, University of North Carolina at Chapel Hill, Chapel Hill, NC, 13-17 Oct.

8. **Mellor, J.E.** (2013), "Modeling the Sustainability of a Ceramic Filter Intervention in Limpopo Province, South Africa", presented at Water and Health Conference: Science, Policy and Innovation, University of North Carolina at Chapel Hill, Chapel Hill, NC, 14-18 Oct.

9. **Mellor, J.E.** (2013), "What Works Best in Diarrheal Disease Prevention: Evidence from Rural Uganda", presented at Water and Health Conference: Science, Policy and Innovation, University of North Carolina at Chapel Hill, Chapel Hill, NC, 14-18 Oct.

10. **Mellor, J.E.**, Smith, J.A., Learmonth, G.P., Netshandama, V.O., Dillingham, R.A., (2012), "Modeling the Complexities of Water and Hygiene in Limpopo Province South Africa", Abstract H21E-1220 presented at 2012 Fall Meeting, AGU, San Francisco, CA, 3-7 Dec.

11. **Mellor, J.E.**, Smith, J.A., Dillingham, R.A.,(2012), "Pathogen Sources and Mechanisms for Regrowth in Household Drinking Water in Limpopo, South Africa", Presentation Number LB-185 presented at the American Society of Tropical Medicine and Hygiene Annual Meeting, Atlanta, GA, 11-15 Nov.

12. **Mellor, J.E.** (2012), "Modeling the Complexities of Water, Hygiene and Sanitation in Limpopo Province South Africa", presented at Water and Health Conference: Science, Policy and Innovation, University of North Carolina at Chapel Hill, Chapel Hill, NC, 29 Oct - 2 Nov.

13. **Mellor, J.E.** (2011), "Water, Hygiene and Sanitation in Limpopo Province South Africa", presented at Symposium on Opportunistic Infections Parasitology and Medicinal Plants, University of Venda, Thohoyandou, South Africa, 29 July.

Session Organizer

1. **Moderator:** "Planning for Climate Resilience: Water and Land", 2015 AEESP Research and Education Conference, Yale University, New Haven, CT, 13-16 June 2015.

2. **Convener:** "Climate Change and Diarrheal Disease", Side Event at the Water and Health Conference: Where Science Meets Policy, University of North Carolina at Chapel Hill, Chapel Hill, NC, 13-17 Oct 2014.

3. **Convener:** "Climate Change and Waterborne Diseases", Side Event at the Water Microbiology Conference, University of North Carolina at Chapel Hill, Chapel Hill, NC, 18 - 21 May 2015.

Invited Talks

1. **Mellor, J.E.**, (2017) "Systems Approaches to Improve Health Under Climate Change", Wesleyan University, Middletown, CT, 26 April.

2. **Mellor, J.E.**, (2016) "Systems Approaches for Climate Adaptation in Low-Income Regions ", University of Rhode Island, South Kingstown, RI, 2 December.

3. **Mellor, J.E.**, (2016) "Systems Approaches to Improve Water Security and Health", Instytut Podstaw Chemii Żywności, Politechnika Łódźka, Łódź, Poland, 22 November.

4. **Mellor, J.E.**, (2015) "A mechanistic systems approach to water and health under climate change", University of Massachusetts - Amherst, Amherst, MA, 6 November.

5. **Mellor, J.E. (Keynote)** (2014), "The Complexities of Water, Health and Climate ", presented at D80 Conference, Michigan Technological University, Houghton, MI, 11 Oct.

6. **Mellor, J.E.** (2014), "The Secluded Scientist: Communicating Science to a Wider World", presented at Boost BioTech Meeting, Łódź, Poland, 24 Apr.

7. **Mellor, J.E.** (2014), "Water and Climate Change in Africa", panelist at Sankofa54: African Empowerment Conference, Yale University, New Haven, CT, 5 Apr.

On-Campus Talks

1. **Mellor, J.E.**, (2018) "Systems Approaches to Improve Health Under Climate Change", Rowe Scholars Dinner, Storrs, CT, 22 March.
2. **Mellor, J.E.**, (2016) "A mechanistic systems approach to water and health under climate change", Department of Animal Science, Storrs, CT, 12 February.

Peer Reviewer

1. Environmental Science & Technology
2. Water Research
3. Journal of Environmental Engineering
4. Journal of Water and Health
5. Journal of Water, Sanitation and Hygiene for Development
6. Journal of Infectious Diseases
7. Global Policy
8. African Journal of Environmental Science and Technology
9. Science of the Total Environment
10. WHO South-East Asia Journal of Public Health
11. International Journal of Environmental Research and Public Health
12. Water
13. Environmental Engineering Science

Media and Other Publications Highlights

1. Aldrich, A. (2019) "Engineering for Human Rights". UConn Today. https://today.uconn.edu/school-stories/engineering-human-rights/.
2. Garvey, J. (2016) "Improving the Water Supply in a Drought-Stricken Village". UConn Today. https://today.uconn.edu/2016/02/improving-the-water-supply-in-a-drought-stricken-village/.

Research Experience Highlights

Life-cycle Analysis of point-of-use water treatment options
University of Connecticut *2019*

– Advising PhD student to develop a lifecycle analysis of point-of-use water treatment options for developing countries.

Improving food security in rural Ethiopia Bahir Dar, Ethiopia
University of Connecticut *2016 - Present*

– Advising PhD student in the development of a novel Agent-Based Model (ABM) to study how the use of seasonal hydroclimatological forecasts might improve food security in rural Ethiopia.

Storm restoration in Connecticut Connecticut
University of Connecticut *2016 - Present*

– Advising PhD student in the development of an Agent-Based Model (ABM) to simulate electric power restoration following storm events in Connecticut. Following up with a study of how climate change enhanced storms are likely to influence restoration times to study system resiliency.

Impacts of climate variability on water quality in Ethiopia Bahir Dar, Ethiopia
University of Connecticut *2015 - Present*

– Led team of student researchers to study the impacts of seasonal variability of water quality and accessibility in rural Ethiopia.

Ceramic Water Filters Connecticut
University of Connecticut *2015 - Present*

– Advising PhD student to develop a novel means of silver nanoparticle application for point-of-use water treatment filters. Analytical techniques include IDEXX *E. coli* concentration measurements and atomic absorption spectrometry.

Climate change impacts on intermittent water supplies Hubli-Dharwad, India
Yale University *2013-2014*

– Developed novel ABM to study the impacts that climate change is likely to have on coliform concentrations in an intermittent municipal water supply.

Development of an ABM for drinking water contamination Limpopo, South Africa
University of Virginia *2009-2013*

– Developed a novel agent-based model (ABM) to study the complexities of water source contamination and resulting illness. This risk assessment can be used to prioritize interventions in the face of uncertainty.

Coliform Sources and Regrowth Mechanisms Limpopo, South Africa
University of Virginia *2009-2013*

– Conducted study to understand the sources and regrowth mechanisms of coliform bacteria in stored drinking water containers. Analytical methods included membrane filtration, turbidity and flow cytometry for assimilable organic carbon measurements. Total organic carbon, free chlorine and dissolved oxygen were also measured.

Point-of-Use Water Treatment San Mateo Ixtatán, Guatemala
University of Virginia *2009-2013*

– Compared the efficacy of three point-of-use water treatment devices. Analyzed the technologies for *E. coli* removal efficacy, chlorine residuals and silver concentrations.

Water Accessibility and Usage in Rural Uganda Kalisizo, Uganda
Michigan Technological University *2007-2009*

– Conducted analysis of over 1,500 households throughout rural Uganda to study water usage as a function of collection effort.

Computer Languages

Matlab, Netlogo, R Statistical Programming Language, SPSS, Perl, C++, Fortran (basic).

Water quality parameter testing experience

Total coliform and *E. coli* via membrane filtration and IDEXX, free and total chlorine, dissolved oxygen, turbidity, biological oxygen demand, total organic carbon, assimilable organic carbon and silver.