

# Jonathan E. Mellor, PhD

## Curriculum Vitae

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### Education

- PhD, Civil Engineering** 2013  
*University of Virginia*  
– Dissertation: Modeling the Complexities of Water, Hygiene and Sanitation in Limpopo Province South Africa.
- MS, Environmental Engineering** 2009  
*Michigan Technological University*  
– Master’s International Program  
– Thesis: Water and Sanitation Accessibility and the Health of Rural Ugandans
- MS, Physics** 2006  
*University of Virginia*  
– Thesis: Studies and Measurements of Irradiated Solid Polarized Target Materials
- BS, Physics (High Honors)** 2001  
*The College of William and Mary*  
– Thesis: Investigation of a Sol-Gel Coating Technique for Polarized  $^3\text{He}$  Target Cells  
– 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

### Certification

- Engineer-in-Training** 2009  
*The State of Maryland*

### Peer-Reviewed Publications (\*Student Mentee)

1. 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.

2. 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.
3. 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*.
4. 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.
5. 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.
6. **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*, 50 (23), pp. 13042-13051.
7. **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.
8. **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.
9. **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.
10. **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.
11. 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.
12. **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.
13. **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.
14. The CLAS Collaboration (S. Niccolai **et al.**). (2006). “Search for the  $\Theta^+$  Pentaquark in the  $\gamma d \rightarrow \Lambda n K^+$  Reaction Measured with CLAS.” *Physical Review Letters*. 97:032001.
15. 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<sub>2</sub>” *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*. 526(1), pp. 56-59.

## Books

1. **Mellor, J.E.** (2011). "Access to Water and Sanitation and the Health of Ugandans: Results from Two Surveys in Rural East Africa". VDM Publishing House Ltd.

## Awards, Fellowships and Honors

Environmental Leadership Award First Runner-Up - University of Connecticut Office of Environmental Policy	2019
Science To Achieve Results (STAR) Fellowship - The Environmental Protection Agency	2011-2013
William R. Walker Graduate Research Fellowship - Virginia Water Resources Research Center	2011
Summer Student Fellowship - Istituto Nazionale di Fisica Nucleare / DOE / NSF Genoa, Italy	2005
Hampton University Graduate Studies Summer School Fellowship - Department of Energy - Hampton University	2003
Senior Honors Thesis - High Honors - Department of Physics - The College of William and Mary	2001

## Funding History

\$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 - National Science Foundation 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
\$1,500 - Travel Grant Award - The Department of Civil and Environmental Engineering - The University of Virginia	2012
\$2,750 - William R. Walker Graduate Research Fellowship - Virginia Water Resources Research Center	2011
€2,400 - What Works Best in Diarrhea Disease Prevention Project - Betterplace.org	2008
€4,000 - Summer Student Fellowship - Istituto Nazionale di Fisica Nucleare / DOE / NSF Genoa, Italy	2005

## 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. 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.
3. **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.
4. **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.
5. **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.
6. **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.
7. **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.
8. **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.
9. **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.
10. **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.
11. **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.
12. **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. (Invited)**, (2017) “Systems Approaches to Improve Health Under Climate Change”, Wesleyan University, Middletown, CT, 26 April.
2. **Mellor, J.E. (Invited)**, (2016) “Systems Approaches for Climate Adaptation in Low-Income Regions ”, University of Rhode Island, South Kingstown, RI, 2 December.
3. **Mellor, J.E. (Invited)**, (2016) “Systems Approaches to Improve Water Security and Health”, Instytut Podstaw Chemii Żywności, Politechnika Łódźka, Łódź, Poland, 22 November.
4. **Mellor, J.E. (Invited)**, (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. (Invited)** (2014), “The Secluded Scientist: Communicating Science to a Wider World”, presented at Boost BioTech Meeting, Łódź, Poland, 24 Apr.
7. **Mellor, J.E. (Invited)** (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. (Invited)**, (2018) “Systems Approaches to Improve Health Under Climate Change”, Rowe Scholars Dinner, Storrs, CT, 22 March.
2. **Mellor, J.E. (Invited)**, (2016) “A mechanistic systems approach to water and health under climate change”, Department of Animal Science, Storrs, CT, 12 February.

## Courses Taught at University of Connecticut

1. ENGR 1166 Foundations of Engineering (2015 and 2016)
2. ENVE 2310 Fundamentals of Environmental Engineering (fall 2017, spring 2019, fall 2019)

3. ENVE 5310 Environmental Transport Phenomena (2017, 2018, 2019)
4. ENVE 5320 Quantitative Methods for Engineers (2015, 2016, 2017, 2018, 2019)

## **Courses Taught at University of Virginia**

1. Global Health Research Methodologies (Co-Instructor) (2011)
2. Global Health Policy and Practice (Co-Instructor) (2011)
3. Science, Technology and Society and Engineering Practice (Teaching Assistant) (2010)
4. 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. Grant Bouchillon (2015 - Present)
2. Abraham Geremew (2015 - 2019)

## **Master's Student Associate Advisor**

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

## **Undergraduate Research Projects Mentored**

1. Caitlin Turney (2018 - 2019)  
Research Area: How to Best Improve Sanitation Practices in the Peruvian Andes - Community-Led Total Sanitation and Citizen Science
2. Mateo Escobar (2018 - 2019)  
Research Area: How to Best Improve Sanitation Practices in the Peruvian Andes - Community-Led Total Sanitation and Citizen Science

3. Muhammad Mahmud (2017)  
Research Area: Improving the Design for a Portable Rainwater Harvesting Device for Nomadic Communities of Botswana
4. Daniel Backal (2017)  
Research Area: Improving the Design for a Portable Rainwater Harvesting Device for Nomadic Communities of Botswana
5. Manjoor Vahora (2017)  
Research Area: Improved Materials for a Portable Rainwater Harvesting Device for Nomadic Communities of Botswana
6. Alexa Friedman (2017)  
Research Area: A Social and Economic Comparison of Water Supply Options for Botswana.
7. Spencer Matonis (2015 - 2017)  
Research Area: Improving the efficacy of ceramic water filters
8. Elizabeth Burgess (2015 - 2016)  
Research Area: Climate change and rainwater harvesting
9. Kelsey Reeves (2015 - 2016)  
Research Area: Ceramic water filters
10. Shannon Swiderski (2015)  
Research Area: Climate change and rainwater harvesting

## Senior Design Projects Mentored

Town of Franklin Connecticut Water Supply and Wastewater Treatment Design - Sponsor: Lenard Engineering Inc.	2018
Town of Groton Water Pollution Control Facility: Anaerobic Digestion - Sponsor: Town of Groton, CT	2017
Small Scale Irrigation Project at Abba Samuel River Watershed, Ethiopia - Sponsor: Ethiopian Institute of Water Resources	2016

## University Service

Universitas 21 RISE Review Committee Member	2019
Co-Director Human Rights Initiative	2017 - Present
Engineers Without Borders Faculty Advisor	2015 - Present
Accreditation Board for Engineering and Technology (ABET) Committee Member	2017 - 2018
Summer Undergraduate Research Fund Reviewer	2016 - 2018
IDEA Grant Reviewer	2016
Graduate Admissions Committee	2015 - 2016

## 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

1. Aldrich, A. (2019) "Engineering for Human Rights". UConn Today. <https://today.uconn.edu/school-stories/engineering-human-rights/>. Last accessed Aug 9, 2019.
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/>. Last accessed Aug 9, 2019.
3. **Mellor, J.E.** (2014). "Lifestyles of the High and Low GHG Emitters". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed Aug 11, 2016.
4. **Mellor, J.E.** (2014). "Rain Water Harvesting: An Adaptive Strategy for Tamil Nadu, India". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed Aug 11, 2016.
5. **Mellor, J.E.** (2014). "Study Shows Health Co-Benefits Justify Costs of Greenhouse Gas Reductions". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed Aug 11, 2016.
6. **Mellor, J.E.** (2014). "GHG Reduction Consequences of Going Vegan Measured". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed Aug 11, 2016.
7. **Mellor, J.E.** (2014). "Electricity Access for India's Poor is Minor Contributor to Emissions Growth". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed Aug 11, 2016.
8. **Mellor, J.E.** (2014). "Climate Change To Delay Water, Health and Sanitation Improvements". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed Aug 11, 2016.



9. **Mellor, J.E.** (2014). "Climate Impacts on Sanitation in Botswana". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed July 16, 2016.
10. **Mellor, J.E.** (2014). "Cascading Effects of Green Transportation Reforms". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed July 16, 2016.
11. **Mellor, J.E.** (2014). "Excessive Winter Deaths. Don't Expect Reductions From Global Warming". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed May 15, 2014.
12. **Mellor, J.E.** (2014). "Water-related Disease and Climate". YCEI Perspective Article. <http://climate.yale.edu/>. Last accessed March 1, 2014.
13. **Mellor, J.E.** (2014). "Climate Change Changing Dengue Fever Distribution". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed March 1, 2014.
14. **Mellor, J.E.** (2014). "Collective Action on Climate Change: What Game Theory Can Teach Us". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed March 1, 2014.
15. **Mellor, J.E.** (2014). "South America Weather Forecast: Gastrointestinal Disease Likely". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed March 1, 2014.
16. **Mellor, J.E.** (2013). "Global Food Security". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed March 1, 2014.
17. **Mellor, J.E.** (2013). "Increased Risk of Global Floods Due to Climate Change". YCEI In the News Article. <http://climate.yale.edu/>. Last accessed March 1, 2014.
18. SSali, M.J. "Water project stops diarrhea in Rakai" Daily Monitor Newspaper. March, 17, 2009.
19. **Mellor, J.E.** (2001). "Investigation of a sol-gel Coating Technique for Polarized  $^3\text{He}$  Target Cells", The Sol-Gel Gateway. <http://www.solgel.com/Resources/biblio/onlinepapers.htm>. Last accessed October 2, 2012.

## Management Experience Highlights

### Site Coordinator

Charlottesville, VA and Limpopo, South Africa

*Water and Health in Limpopo Project*

2011

- Served as the site coordinator overseeing 40 undergraduate and graduate students from the University of Virginia and the University of Venda (Univen) in Limpopo Province, South Africa. Responsibilities included managing five water and health research and humanitarian projects in local communities, serving as a conduit and facilitator between UVA and Univen faculty, staff and students as well as financial management, stakeholder coordination, community outreach, quality assurance and team building.

### Peace Corps Volunteer - Water Resources Engineer

Kalisizo, Uganda

*United States Peace Corps*

2007 - 2009

- Worked as a capacity builder and water resources engineer in a Ugandan non-governmental organization in Kalisizo, Uganda. Directed water and sanitation projects, founded a youth business organization, founded environmental clubs at local schools, managed project finances, supervised construction and rehabilitation of spring wells, authored grant proposals, wrote project reports, and initiated organizational and professional development with staff.

**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 facilities to over 10,000 people in six rural communities. Responsibilities included project design and implementation, managing a ten-person team, accounting, fundraising, data collection and analysis, community mobilization and engineering design.

**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 included overall project planning and management, fundraising, community education and outreach and engineering design.

## Research Experience Highlights

**Lifecycle 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.

**Monte Carlo analysis to study climate impacts on diarrheal diseases**  
*University of Connecticut* 2017 - Present

- Advising PhD student in the development of a Monte Carlo simulation tool to account for the uncertainty in the etiological, climatological and regional variability associated with the climate change impacts on diarrheal diseases.

**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 a novel ABM to simulate electric power restoration following storm events in Connecticut. Followed up with a study of how climate change is likely to influence restoration times.

**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 (e.g. *E. coli*) 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.

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

- Applied previously developed ABM to study the sustainability of a point-of-use water treatment campaign incorporating technological, social and economic factors.

**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.

**What Works Best in Diarrheal Disease Prevention?** Kalisizo, Uganda  
*Michigan Technological University* 2007-2009

- Compared the efficacy of five different water, sanitation or hygiene interventions at reducing diarrheal diseases in rural Uganda.

**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

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.