

## Maria Fernanda Campa

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### EDUCATION

**University of Tennessee, Knoxville, TN.** **August 2013-August 2018**  
**Bredesen Center for Interdisciplinary Research and Education, Fellow**  
 PhD, Energy Science and Engineering  
 Dissertation: Environmental impacts of biocides used in hydraulic fracturing

**University of Virginia, Charlottesville, VA.** **May 2012**  
 Bachelor of Science, Engineering Science- Nanomedicine  
 Minors: Biomedical Engineering and Chemistry  
 Technical thesis: Microbubble-Liposome Complexes as a Novel Ultrasound Triggered Drug Delivery System  
 Sociotechnical thesis: Nanotechnology Policy and Legislation

### PROFESSIONAL EXPERIENCE

**Postdoctoral Associate**, Institute for a Secure and Sustainable Environment, University of Tennessee and Oak Ridge National Laboratory **September 2018- Present**  
 Advisor: Terry Hazen, Ph.D.

- UT lead for National Science Foundation funded project “Impacts of biocides associated with hydraulic fracturing on aquatic microbial communities.”
  - Methods development and coordination for field sampling in Pennsylvania.
  - Geochemistry and chemical measurements of different biocides.
- Bioinformatics and data analyses. Including: 16S rRNA, draft genomes, RNA-Seq.
- Mentoring undergraduate and graduate students.
- Grant writing.

**Graduate Research Fellow**, University of Tennessee and Oak Ridge National Laboratory, **August 2013-Present**  
 Advisor: Terry Hazen, Ph.D.

- Field work and sample collection in rural and remote areas of Pennsylvania.
- Experimental design and implementation pertaining to biocides impact to aquatic microbial communities.
- Molecular techniques and next generation sequencing (Illumina MiSeq platform).
- Microbial collection and isolation in aerobic and anaerobic chambers.
- Phenotypic characterization of microbial isolates using the Omnilog phenotypic array.
- Bioinformatics and data analyses. Including: 16S rRNA, draft genomes, RNA-Seq
- Grant writing.

**Post-Baccalaureate Intern**, Society-Technology Interactions Group **July 2012-July 2013**  
 Mentor: Amy Wolfe, Ph.D.

Oak Ridge National Laboratory, Oak Ridge, TN

- Analyzed ethical, legal, and social implications of emerging technologies, such as nanotechnology, bioenergy, and synthetic biology.
- Conducted interviews with researchers, managers, and others involved in the research, development, and use of the emerging technologies.
- Assisted in writing and submitting grants.
- Helped develop and maintain the website [sti.ornl.gov](http://sti.ornl.gov).

**Undergraduate Researcher**, Mentor: Alexander Klibanov, Ph. D. **May 2010- July 2012**  
 Department of Cardiovascular Medicine and Biomedical Engineering, University of Virginia, Charlottesville, VA

- Pursued research on the optimization of a stable doxorubicin loaded liposome-microbubble complex that could be imaged and locally target within the body with the use of focused ultrasound.
- Maximized the stability and the load the complex can carry and deliver.
- Senior thesis: *Microbubble-Liposome Complexes as a Novel Ultrasound Triggered Drug Delivery System*

**Technician**, **June 2011- May 2012**  
 Center for Diabetes Technology and the School of Medicine, University of Virginia, Charlottesville, VA

- Ensured safety control in every insulin dosage patients receive in an on-going clinical trial for an artificial pancreas system for Type 1 Diabetes patients.
- Performed YSI readings of patients' glucose and levels.
- Monitored and inserted data entry into the Artificial Pancreas System.

**Summer Intern**, **June 2011- July 2011**  
 Focused Ultrasound Surgery Foundation, Charlottesville, VA

- Organized and added content to the collaborative research network: a portal where researchers from around the world can collaborate on their research involving focused ultrasound.
- Reviewed research proposals submitted to the Foundation for funding.
- Shadowed first in the world clinical trial for the treatment of essential tremor using MRI guided focused ultrasound.
- Assisted in a preclinical study that combined focused ultrasound and microbubbles to achieve gene transfection.

## **PUBLICATIONS**

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1. Beattie, RE; Henke, W; Campa, MF; Hazen, TC; McAliley, LR; Campbell, JH. Variation in Microbial Community Structure Correlates with Heavy-Metal Contamination in Soils Decades After Mining Ceased. *Soil Biology and Biochemistry*. 2018, 126, 57-63.
2. Absar, SM; Boulay, AM; Campa, MF; Preston, BL; Taylor, A. The Tradeoff Between Water and Carbon Footprints of Barnett Shale Gas. *Journal of Cleaner Production*. 2018, 197 (1), 47-56
3. Chen See, JR; Ulrich, N; Nwanosike, H; McLimas, CJ; Tokarev, V; Wright, JR; **Campa, MF**; Grant, CJ; Hazen, TC; Niles, J; Lamendella, R. Bacterial Biomarkers of Marcellus Shale Activity in Pennsylvania. *Frontiers in Microbiology*. 2018, 9, 1697.
4. **Campa, MF**; Techtmann, S; Gibson, C; Xiaojuan, Zhu; Patterson, M; Garcia de Matos Amaral, A; Ulrich, N; Campagna, S; Grant, C; Lamendella, R; Hazen, T. Impacts of Glutaraldehyde on Microbial Community Structure and Degradation Potential in Streams Impacted by Hydraulic Fracturing. *Environmental Science and Technology*. 2018, 52 (10), 5989-5999.
5. Ulrich, K; Kirchner, V; Drucker, R; Wright, J; McLimas, C; Hazen, T; **Campa, MF**; Grant, C; Lamendella, R. Response of Aquatic Bacterial Communities to Hydraulic Fracturing in Northwestern Pennsylvania: A Five-Year Study. *Scientific Report*. 2018, 8 (1) 5683.
6. Lewis, AJ; **Campa, MF**; Hazen, TC; Borole, AP. Unravelling Biocomplexity of Electroactive Biofilms for Producing Hydrogen from Biomass. *Microbial Biotechnology*. 2018, 11(1), 84-97.
7. Techtmann, SM; Mahmoudi, N; Whitt, KT; **Campa, MF**; Fortney, JL, Joyner, DC; Hazen, TC. Comparison of Thaumarchaeotal Populations from Four Deep Sea Basins. *FEMS Microbiology Ecology*. 2017, 93(11), fix128

8. Wright, J; Kirchner, V; Bernard, W; Ulrich, N; McLimans, C; **Campa, MF**; Hazen, TC; Macbeth, T; Marbello, D; McDermott, J; Mackelprang, R; Roth, K; Lamendella, R. Bacterial Community Dynamics in Dichloromethane-Contaminated Groundwater Undergoing Natural Attenuation. *Frontiers in Microbiology*. 2017, 8.
9. Wolfe, AK; **Campa, MF**; Bergmann, RA; Stelling, SC; Bjornstad, DJ; Shumpert, BL. Synthetic Biology R&D Risks: Social-Institutional Contexts Matter! *Trends in Biotechnology*. 2016, 34(5), 353-356.
10. Shumpert, BL; Wolfe, AK; Bjornstad; Wang, S; **Campa, MF**. Specificity and engagement: Increasing ELSI's relevance to nano-scientists. *Nanoethics*. 2014, 8(2), 193-200.
11. **Campa, MF**; Wolfe, AK; Bjornstad, DJ; Shumpert, BL. "From Lab Bench to Fuel Pump: Researchers' Choices in the Development of Lignocellulosic Biofuels." In *Innovation and Responsibility: Engaging with New and Emerging Technologies*. Eds. Coenen, C; Dijkstra, A; Dijkstra, A; Fautz, C; Guivant, J; Konrad, K; Milburn, C; van Lente, H. IOS Press/AKA. 2014, 39-51.
12. Wolfe, AK; Bjornstad, DJ; Shumpert, BL; Wang, SA; Lenhardt, WC; **Campa MF**. Insiders' Views of the Valley of Death: Behavioral and Institutional Perspective. *Bioscience*. 2013, 64(2), 138-144.
13. **Campa, M.F.**, Cano-Mejia, J., Madenjian, R. A Review of the Pathogenesis of Necrotizing Fasciitis by Group A Streptococci. *The Spectra Journal: the Virginia Undergraduate Engineering and Science Research Journal*. 2011. Available at: <http://www.seas.virginia.edu/pubs/spectra/pdfs/archives/spring11.pdf>

## PRESENTATIONS

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1. **Campa, M. F.**; S.M. Techtmann; C.M. Gibson; X. Zhu; M.P. Ladd, M.L Patterson; A. Garcia de Matos Amaral; N. Ulrich; K.E Carter; S.R. Campagna; C.J Grant; R.L. Hettich; R. Lamendella; T.C. Hazen. Aquatic microbial community responses to glutaraldehyde and 2-2-dibromo-3-nitrilopropionamide after hydraulic fracturing impacts. International Society of Microbial Ecology 17. August 12-17, 2018. Leipzig, Germany. **Poster presentation. Winner of travel grant.**
  2. **Campa, M. F.**; S.M. Techtmann; C.M. Gibson; X. Zhu; M.L Patterson; A. Garcia de Matos Amaral; N. Ulrich; S.R. Campagna; C.J Grant; R. Lamendella; T.C. Hazen. A comparison of the impacts of biocides glutaraldehyde and 2-2-dibromo-3-nitrilopropionamide on aquatic microbial community structure and degradation potential. American Society of Microbiology Annual Meeting, Microbe 2018. June 7-11, 2018. Atlanta, GA. **Poster presentation. Winner of travel award.**
  3. Absar, S. M.; A. M. Boulay; **M. F. Campa**; B. Preston; A. Taylor. Life cycle water and carbon footprints of shale gas production in Barnett, Texas. LCA XVII. October 3-5, 2017. Portsmouth, NH.
  4. **Campa, M. F.**; S.M. Techtmann; C.M. Gibson; M.L Patterson; A. Garcia de Matos Amaral; R. Lamendella; T.C. Hazen. The impacts of the biocide glutaraldehyde on community structure and degradation potential in streams impacted by hydraulic fracturing. American Society for Microbiology Annual Meeting, Microbe 2017. June 1-5, 2017. New Orleans, LA. **Poster presentation and invited poster talk. Winner of outstanding abstract award and travel award.**
  5. **Campa, M. F.**; S. Brewer; A. Garcia de Matos Amaral; M.L Patterson; S.M. Techtmann; T.C. Hazen. Aerobic and anaerobic phenotypic characterization of isolates from hydraulic fracturing Fluids. American Society for Microbiology Annual Meeting, Microbe 2017. June 1-5, 2017. New Orleans, LA. **Invited talk by Biolog Inc.**

6. Lewis\*, A. J.; **M. F. Campa**; T. C. Hazen; and A. P. Borole. Unlocking Renewable Hydrogen from Biomass via Emergent Electroactive Biofilms. American Society for Microbiology Annual Meeting, Microbe 2017. June 1-5, 2017. New Orleans, LA.
7. **Campa, M. F.**; S.M. Techtmann; C.M. Gibson; X. Zhu; M.L. Patterson; A. Garcia de Matos Amaral; N. Ulrich; S.R. Campagna; C.J. Grant; R. Lamendella; T.C. Hazen. Stream water microbial population resistance to biocides used in hydraulic fracturing fluids. International Society of Microbial Ecology. August 21-26, 2016, Montreal, Canada. **Oral presentation.**
8. Ulrich\*, N.; C. McLimans; W. Bernard; J. R. Wright; **M. F. Campa**; T. C. Hazen; and R. Lamendella. Metagenomics, metatranscriptomics, and single cell sequencing of microbial communities associated with hydraulic fracturing. International Symposium for Microbial Ecology. August 21-26, 2016. Montreal, Canada.
9. **Campa, M. F.**; S.M. Techtmann; M.L. Patterson; A. Garcia de Matos Amaral; R. Lamendella; C.J. Grant; T.C. Hazen. Environmental microbial community tolerance and adaptation to biocides use in hydraulic fracturing operations. American Society for Microbiology Annual Meeting, Microbe 2016. June 16-20, 2016. Boston, MA. Poster presentation.
10. Brewer, S. S.; **M. F. Campa\***; A. Garcia de Matos Amaral; S. M. Techtmann; K. Fitzgerald; J. L. Fortney; and T. C. Hazen. Isolation and characterization of anaerobic microbial communities from hydraulic fracturing fluids. American Society for Microbiology Annual Meeting, Microbe 2016. June 16, 2016. Boston, MA. Poster presentation.
11. Bailey\*, R. E.; W. A. Henke; C. T. Davis; **M. F. Campa**; T. C. Hazen; A. W. Johnson; N. O. Hoilett; L. R. McAliley; and J. H. Campbell. The extreme science and engineering discovery environment (XSEDE16).
12. Heavy-metal contamination and its effects on microbial community structure in soils near Picher, OK, within the Tar Creek Superfund Site. July 17-21, 2016. Miami, FL.
13. Absar\*, S. M.; **M. F. Campa**; A. Taylor; B. Preston. Water sector adaptations for hydraulic fracturing in Texas. 4<sup>th</sup> International Climate Change Adaptation Conference (Adaptation Futures 2016). May 10-13, 2016. Rotterdam, Netherlands.
14. Brewer\*, S. S.; **M. F. Campa**; A. Garcia de Matos Amaral; S. M. Techtmann; K. Fitzgerald; J. L. Fortney; and T. C. Hazen. Isolation and characterization of anaerobic microbial communities from hydraulic fracturing fluids. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EURECA). April 13-14, 2016. Knoxville, TN. Honorable mention poster.
15. Brewer\*, S. S.; **M. F. Campa**; A. Garcia de Matos Amaral, S. M. Techtmann, K. Fitzgerald, J. L. Fortney, and T. C. Hazen. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. National Council Undergraduate Research Annual Meeting. April 7, 2016. Asheville, NC.
16. **Campa, M. F.**; S.M. Techtmann; M.L. Patterson; A. Garcia de Matos Amaral; R. Lamendella; C.J. Grant; T.C. Hazen. Environmental microbial community tolerance and adaptation to biocides used in hydraulic fracturing operations. American Chemical Society Annual Meeting. March 13-17, 2016. San Diego, CA. **Oral presentation.**
17. Brewer\*, S. S.\*; **M. F. Campa**; A. Garcia de Matos Amaral; S. M. Techtmann; K. Fitzgerald; J. L. Fortney; and T. C. Hazen. Isolation and characterization of anaerobic microbial communities from hydraulic fracturing fluids. 3<sup>rd</sup> Annual Southeastern Biogeochemical Symposium. March 12, 2016. Knoxville, TN.
18. **Campa, M. F.**; S.M. Techtmann; M.L. Patterson; A. Garcia de Matos Amaral; R. Lamendella; C.J. Grant; T.C. Hazen. Environmental microbial community tolerance and adaptation to biocides used in hydraulic

fracturing operations. Critical Zones Conference, Poster presentation. October 22-24, 2015, West Lafayette, IN. Poster presentation.

19. Absar\*, S. M.; **M. F. Campa**; A. Taylor; B. Preston. Life cycle water and carbon footprint of Barnett shale gas. LCA XV. October 6-8, 2015. Vancouver, Canada.
20. **Campa, M. F.**; S.M. Techtmann; S.S. Brewer; A. Garica de Matos Amaral; K.E. Manz; K.E. Carter; J. Wright; N. Ulrich; R. Lamendella; T.C. Hazen. Flowback water: A look into the subsurface microbial community and intrinsic bioremediation. American Society for Microbiology Annual Meeting, Microbe 2015. May 30-June 2, 2015, New Orleans, LA. Poster presentation
21. Ulrich\*, N.; J. Wright; A. Rosenberger; T. C. Hazen; **M. F. Campa**; D. C. Joyner; C. J. Grant; R. Lamendella. A temporal analysis of impacts of unconventional natural gas extraction on microbial communities in headwater stream ecosystems in northwestern Pennsylvania. American Society for Microbiology Annual Meeting, Microbe 2015. May 30-June 2, 2015, New Orleans, LA.
22. Wright\*, J. R.; D. Marabello; J. McDermott; W. Wang; T. Macbeth; **M. F. Campa**; D. C. Joyner; T. C. Hazen; and R. Lamendella. Microbial community structure and function associated with dichloromethane contaminated groundwater. American Society for Microbiology Annual Meeting, Microbe 2015. May 30-June 2, 2015, New Orleans, LA.
23. **Campa, M.F.**; S.M. Techtmann; S.S. Brewer; A. Garica de Matos Amaral; K.E. Manz; K.E. Carter; J. Wright; N. Ulrich; R. Lamendella; T.C. Hazen. Flowback water: A look into the subsurface microbial community and intrinsic bioremediation. 1<sup>st</sup> Annual Women in STEM Research Symposium. April 18, 2015, Knoxville, TN. Poster presentation. **3<sup>rd</sup> Place in poster competition.**
24. Lamendella\*, R.; J. Wright; N. Weit; S. Rummel; T. C. Hazen; **M. F. Campa**, D. C. Joyner, and C. Grant. Microbial community structure of a passive abandoned coal mine remediation system in Pennsylvania. American Society for Microbiology Annual Meeting, Microbe 2015. May 30-June 2, 2015, New Orleans, LA.
25. Brewer\*, S. S.; **M. F. Campa**; S. M. Techtmann; J. L. Fortney; and T. C. Hazen. Isolation and characterization of anaerobic microbial communities from hydraulic fracturing fluids. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EURECA). April 13-15, 2015. Knoxville, TN.
26. Garcia de Matos Amaral\*, A.; **M. F. Campa**; and T. C. Hazen. Community Structure of Fracking Flowback water from Marcellus shale of Pennsylvania. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EURECA). April 13-15, 2015. Knoxville, TN.
27. Brewer\*, S. S.; **M. F. Campa**, A. G. Amaral, S. M. Techtmann, J. L. Fortney, K. Fitzgerald and T. C. Hazen. Isolation and characterization of anaerobic microbial communities from hydraulic fracturing liquids. Tennessee Experimental Learning Symposium (TELS). February 2015. Nashville, TN. Invited.
28. **Campa, M.F.**; S.M. Techtmann; S.S. Brewer; A. Garica de Matos Amaral; K.E. Manz; K.E. Carter; J. Wright; N. Ulrich; R. Lamendella; T.C. Hazen. Flowback water: A look into the subsurface microbial community and intrinsic bioremediation. 3<sup>rd</sup> Annual Southeastern Biogeochemistry Symposium. March 28-29, 2015, Atlanta, GA. Poster presentation
29. **Campa, M.F.**; A.K. Wolfe; D.J. Bjornstad; B. Shumpert. From lab bench to fuel pump: Policy implications in the development of lignocellulosic biofuels. Society for the Study of Nanoscience and Emerging Technologies. October 27-29, 2013, Boston, MA. **Oral presentation.**
30. Shumpert\*, B.; A.K. Wolfe; D.J. Bjornstad; **M.F. Campa**. Boundaries, linkages, and gaps: A conceptual approach for analyzing societal implications of emerging technologies along the pathway from laboratory

toward use. Society for the Study of Nanoscience and Emerging Technologies. October 27-29, 2013, Boston, MA.

31. Wolfe\*, A.K.; D.J. Bjornstad; B. Shumpert; **M.F. Campa**. Risk and escape policies, perspectives, and practices: issues and implications for synthetic biology R&D on microbes, algae, and plant. Society for the Study of Nanoscience and Emerging Technologies. October 27-29, 2013, Boston, MA.
32. **Campa, M.F.**; A.K. Wolfe; D.J. Bjornstad; B. Shumpert. From Lab Bench to Fuel Pump: Policy Implications in the Development of Lignocellulosic Biofuels. 1<sup>st</sup> Annual Conference Governance of Emerging Technologies: Law, Policy, and Ethics. May 20-21, 2013, Chandler, AZ. **Oral presentation.**
33. Bjornstad\*, D.J.; A.K. Wolfe; B. Shumpert; **M.F. Campa**. Examining the influence of key choices on context, structure, and scientific processes in a large DOE user facility: A study of the oak ridge center for nanophase materials sciences. 1<sup>st</sup> Annual Conference Governance of Emerging Technologies: Law, Policy, and Ethics. May 20-21, 2013, Chandler, AZ.
34. **Campa, M.F.**; J. Cano-Mejia; T. Pegoraro; B. Johnson. Microbubble-liposome complexes as a novel ultrasound drug delivery system. UVA Institute for Nanoscale and Quantum Scientific and Technological Advanced Research (NanoStar). June 6, 2012. University of Virginia, Charlottesville, VA.
35. **Campa, M.F.**; J. Cano-Mejia; T. Pegoraro; B. Johnson. Microbubble-Liposome Complexes as a Novel Drug Delivery System. Annual Engineering Science Symposium. April 2012. University of Virginia, Charlottesville, VA. Poster presentation. **First Place in Poster Competition**
36. Klibanov\*, A.L.; T. Shevchenko, Z. Du; **M.F. Campa**. Activation of intravascular doxorubicin-liposome-microbubble complexes by image-guided focused ultrasound inhibits tumor growth in mice. World Molecular Imaging Congress. September 7-10, 2011, San Diego, CA
37. **Campa, M.F.**; T. Shevchenko; A.L. Klibanov. Microbubble-liposome complexes as a drug delivery vehicle. UVA Institute for Nanoscale and Quantum Scientific and Technological Advanced Research (NanoStar) Graduate/Undergraduate Student Research Mixer. March 23, 2011. University of Virginia, Charlottesville, VA.

## **GRANTS and AWARDS**

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1. **Travel Grant.** Aquatic microbial community responses to glutaraldehyde and 2-2-dibromo-3-nitrilopropionamide after hydraulic fracturing impacts. International Society of Microbial Ecology 17. August 12-17, 2018. Leipzig, Germany.
2. **Travel Award.** A comparison of the impacts of biocides glutaraldehyde and 2-2-dibromo-3-nitrilopropionamide on aquatic microbial community structure and degradation potential. American Society of Microbiology Annual Meeting, Microbe 2018. June 7-11, 2018. Atlanta, GA.
3. **Outstanding Abstract Award.** The impacts of the biocide glutaraldehyde on community structures and degradation potential in streams impacted by hydraulic fracturing. American Society for Microbiology Microbe 2017. June 4, 2017
4. **Third place poster competition.** Flowback water: A look into the subsurface microbial community and intrinsic bioremediation. 1<sup>st</sup> Annual Women in STEM Research Symposium. April 18, 2015, Knoxville, TN.
5. **Travel award.** University of Tennessee Graduate Student Senate Travel Award. Fall 2013 and Spring 2016 (received it twice), Knoxville TN

6. **National Science Foundation Workshop Support Grant.** Society for the Study of Nanoscience and Emerging Technologies (S.NET), October 27-29, 2013, Boston, MA. Grant to cover my travel and attendance to the S.NET meeting.
7. **Bredesen Center Fellowship.** August 2013- Present. Covers tuition and stipend for part of my dissertation research and exempt me from teaching responsibilities
8. **First place in poster competition.** Microbubble-Liposome Complexes as a Novel Drug Delivery System. Annual Engineering Science Symposium. April 2012, University of Virginia, Charlottesville, VA.
9. **NanoStar Undergraduate Research Grant.** Summer 2010

## **TEACHING, MENTORING, AND LEADERSHIP EXPERIENCE**

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1. **Teaching assistant,** SEU-UTK American language and culture immersion summer camp, Southeast University, Nanjing, China, June 2016
2. **Research mentor,** assisted with laboratory training and mentorship for undergraduate students working at the Hazen lab at UTK and the Lamendella lab at Juniata College in PA. June 2014- August 2018.
3. **Undergraduate thesis advisor,** thesis advisor on record for Nikea Ulrich's undergraduate honor thesis (Juniata College).
  - This work resulted in a publication and two poster presentations at a national and international conference.
4. **Teaching assistant,** ENGR 2500- Introduction to Nanoscience and Technology, University of Virginia, Charlottesville, VA. August 2011- May 2012.
  - Assisted Professor Dr. John Bean, weekly laboratory sessions where students learn about crucial technical skills needed for the study of nanoscience.
  - Topics and equipment included, Scanning Electron Microscope (SEM), Scanning Tunneling Microscope (STM), Atomic Force Microscope (AFM), Hydrophobicity, and DNA electrophoresis.
5. **President,** NExT: Nano and Emerging Technologies Club, University of Virginia. August 2011- May 2012
  - Increased awareness of nanotechnology through the organization of monthly speaker series, poster sessions, student and faculty mixers, community outreach (nanotech demos for K-12), and industry and laboratory tours.
  - Served as Vice-President August 2010- May 2011 and as Treasurer October 2009- May 2010.
6. **Engineering Student Council,** University of Virginia.
  - Fourth Year Board, August 2011- May 2012
    - i. Helped plan, organize, and execute social activities for the senior engineering students.
  - Fundraising Committee, August 2009-May 2010
7. **Engineering Spanish Tutor,** Center for Diversity in Engineering, University of Virginia. January 2011- May 2012
8. **Resident Advisor,** Office of the Dean of Students, University of Virginia, August 2010- May 2012
  - Identified and tailored programs to meet the needs of first year students in the areas of academic, multicultural, health/wellness, and personal development.
  - Served as a leader, mentor, and advisor for 24 first year girls per year.
9. **Engineering Advisor,** University of Virginia. August 2010- May 2012

10. **Office Assistant**, The Center for Diversity in Engineering, University of Virginia January 2010- May 2010
11. **Counselor**, Summer BRIDGE Program, The Center for Diversity in Engineering, University of Virginia. June 2009- July 2009

### **WORKSHOPS, TRAININGS, AND SKILLS**

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**Joint Genome Institute Integrated Microbial Genomes & Microbiomes (IMG/G), UTK, 2018**

**CLC Bio, UTK, 2017**

**Advanced Microbiome and Metabolome Data Analysis using QIIME and GNPS, ASM 2016, Boston. MA.**

**Life Cycle Assessment Student Workshop, LCA XV, 2015, Vancouver, Canada**

**Do-It-Yourself Microbial Genome Sequence Analysis, ASM 2015, New Orleans, LA.**

**Lab:** Microbial isolation, Anaerobic chamber, Next Generation Sequencing (Illumina MiSeq platform), Biolog's Omnilog Phenotypic Microarray, Cell Culture, Ultrasound Imaging, Experimentation with Small Animals, Microscopy (Optical, Fluorescent, Scanning Electron Microscope, Atomic Force Microscope and Scanning Tunneling Microscope), Coulter Counter, DNA Electrophoresis, Liposome Preparation and Loading, PCR, qPCR, DNA Assay, High Performance Liquid Chromatography.

**Computational:** Proficient in R, QIIME, Microsoft Word, Power Point, Excel, online research community networks, and Prezi. Working understanding of Python, MathCad, JAVA, Drupal and Image Pro.

**Languages:** Bilingual in English and Spanish. Basic French.

### **REVIEWER**

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Journal: Environmental Science and Technology

### **PROFESSIONAL SOCIETIES**

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American Chemical Society

American Microbiology Society

International Society of Microbial Ecology.