Jessica A. Grembi, PhD

Assistant Professor · Department of Veterinary and Biomedical Sciences

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Research Interests

I am a microbiologist with strong computational skills broadly interested in the links between environmental health and public health. My current research focuses on host-microbe interactions in the human small intestine and the role of microbial ecology in diarrheal disease and childhood stunting. I am passionate about understanding the mechanisms underlying environmental enteropathy — a subclinical condition characterized by increased inflammation and permeability of the small intestine — which plays a role in persistent undernutrition and is estimated to impact between 50-90% of children in low- and middle-income countries. I work collaboratively with clinicians, epidemiologists, statisticians, microbiologists, immunologists, and other scientists both locally and globally to answer research questions related to these topics.

Education

Stanford University *Stanford, CA*

PhD Environmental Engineering *September 2019*

- Thesis Title: Enteric Pathogens: Measurement, Metrics, and Mitigation
- I developed a nano-liter qPCR chip to simultaneously detect 17 enteric pathogens, developed new analytical metrics that incorporate the quantity of individual pathogens into a composite total pathogen quantity score, and evaluated the efficacy of water, sanitation, handwashing, and nutrition interventions at reducing enteric pathogens in 14-month old children in rural Bangladesh.
- Advisors: Dr. Stephen Luby, MD and Dr. Alfred Spormann

Pennsylvania State University *State College, PA*

MS Environmental Engineering *May 2011*

- Thesis Title: Remediation of high-strength mine impacted water with crab shell substrate mixtures: laboratory column and field pilot tests
- Advisor: Dr. Rachel Brennan

United States Military Academy *West Point, NY*

BS Environmental Engineering *June 2001*

Research and Work Experience

2025-present	**Assistant Professor**, Veterinary and Biomedical Sciences & Huck Institutes of the Life Sciences, Penn State University
2019-2024	**Postdoctoral Research Fellow**, Stanford University – **Mentors: Dr. David Relman & Prof. Susan P. Holmes**
2014-2019	**Graduate Research Assistant**, Civil and Environmental Engineering, Stanford University
2012-2013	**Global Health Researcher**, Innovations for Poverty Action, Dhaka, Bangladesh & Kakamega, Kenya
2011-2012	**Graduate Research Assistant**, Civil and Environmental Engineering, Stanford University
2009-2011	**Graduate Research Assistant**, Civil and Environmental Engineering, Penn State University
2008-2011	**Environmental Project Engineer**, Concurrent Technologies Corporation, Johnstown, Pennsylvania
2004-2007	**Medical Company Commander & Env. Engr.**, U.S. Army 10th Mountain Division, Ft. Drum, NY & Baghdad, Iraq
2001-2004	**Public Health Officer**, U.S. Army Center for Health Promotion and Preventive Medicine, Landstuhl, Germany

Publications

Peer-Reviewed & Published

**authors contributed equally to this work*

24. Ho GG, Achando BS, Ali S, Hemlock C, Pitchik HO, Stewart CP, Tofail F, Rahman Md. Z, Alauddin M, Rao G, Dentz HN, Buleti JP, Nekesa C, Arnold CD, Famida SL, Hossen Md. S, Mutsuddi P, Akther S, **Grembi JA**, Tan ST, Alauddin ST,

Meerkerk T, Wolfe MK, Cheruiyot P, Njenga SM, Shoab AK, Rahman M, Unicomb L, Arnold BF, Kariger P, Hubbard AE, Colford Jr. JM, Pickering AJ, Null C, Luby SP, Fernald LCH, Mertens AN, Lin A. (2025) Biomarkers of environmental enteric dysfunction and neurodevelopmental outcomes among children in rural Bangladesh and Kenya: a prospective cohort study. ***American Journal of Clinical Nutrition***. S0002-9165(25)00322-3. doi: 110.1016/j.ajcnut.2025.05.034 PMID: 40480608

23. Nguyen A, Heitmann GB, Mertens A, Ashraf S, Rahman, MZ, Ali S, Rahman M, Arnold BF, **Grembi JA**, Lin A, Ercumen A, Benjamin-Chung J. (2025) Pathways through which water, sanitation, hygiene, and nutrition interventions reduce antibiotic use in young children: a mediation analysis of a cohort nested within a cluster-randomized trial. ***eClinical Medicine***. 82:103147. doi: 10.1016/j.eclinm.2025.103147 PMID: 40123738; PMCID: PMC11928822

22. Butzin-Dozier Z, Ji Y, Coyle J, Malencia I, Rogawski McQuade ET, **Grembi JA**, Platts-Mills JA, Houpt ER, Graham JP, Ali S, Rahman Md Z, Alauddin M, Famida SL, Akther S, Hossen Md S, Mitsuddi P, Shoab AK, Rahman M, Islam Md O, Miah R, Taniuchi M, Liu J, Alauddin S, Stewart CP, Luby SP, Colford JM, Hubbard AE, Mertens AN, Lin A. (2025) Treatment Heterogeneity of Water, Sanitation, Hygiene, and Nutrition Interventions on Child Growth by Environmental Enteric Dysfunction and Pathogen Status for Young Children in Bangladesh. ***PLoS Neglected Tropical Diseases***. 19(2): e0012881. doi: 10.1371/journal.pntd.0012881. PMID: 39965021; PMCID: PMC11882089

21. Niven AG, Islam M, Nguyen A, **Grembi JA**, Mertens A, Pickering AJ, Kwong LH, Alam M, Sen D, Islam S, Rahman M, Unicomb L, Hubbard AE, Luby SP, Colford JM, Arnold BF, Benjamin-Chung J, Ercumen A. (2025) Associations between weather extremes and faecal contamination along pathogen transmission pathways in rural Bangladeshi households: a prospective observational study. **The Lancet Planetary Health**. 9(1):E5-E13. doi: 10.1016/S2542-5196(24)00306-1. PMID: 39855233; PMCID: PMC11755722

20. Ercumen A, Mertens AN, Butzin-Dozier Z, Jung DK, Ali S, Achando BS, Rao G, Hemlock C, Pickering AJ, Stewart CP, Tan S, **Grembi JA**, Benjamin-Chung J, Wolfe M, Ho G, Rahman MZ, Arnold CD, Dentz HN, Njenga SM, Meerkerk D, Chen B, Nadimpalli M, Islam MA, Hubbard AE, Null C, Unicomb L, Rahman M, Colford JM, Luby SP, Arnold BF, Lin A. (2025) Water, sanitation, handwashing, and nutritional interventions can reduce child antibiotic use: evidence from Bangladesh and Kenya. **Nature Communications**. 16(556). doi: 10.1038/s41467-024-55801-x. PMID: 39788996; PMCID: PMC11718192

19. **Grembi JA**, Nguyen AT, Riviere M, Heitmann GB, Patil A, Athni TS, Djajadi S, Ercumen A, Lin A, Crider Y, Mertens A, Karim MA, Islam MO, Miah R, Famida SL, Hossen MS, Mutsuddi P, Ali S, Rahman MZ, Hussain Z, Shoab AK, Haque R, Rahman M, Unicomb L, Luby SP, Arnold BF, Bennett A, Benjamin-Chung J. (2024). Influence of hydrometeorological risk factors on child diarrhea and enteropathogens in rural Bangladesh. ***PLoS Neglected Tropical Diseases***. 18(5): e0012157. doi: 10.1371/journal.pntd.0012157. PMID: 38739632; PMCID: PMC11115220

18. Nguyen AT, **Grembi JA**, Riviere M, Heitmann GB, Hutson WD, Athni TS, Patil A, Ercumen A, Lin A, Crider Y, Mertens A, Unicomb L, Rahman M, Luby SP, Arnold BF, Benjamin-Chung J. (2024). Influence of temperature and precipitation on the effectiveness of water, sanitation, and handwashing interventions against childhood diarrheal disease in rural Bangladesh: a reanalysis of the WASH Benefits Bangladesh trial. ***Environmental Health Perspectives***. 132(4):047006.doi: 10.1289/EHP1380. PMID: 38602833; PMCID: PMC11008709

17. Mertens A, Arnold BF, Benjamin-Chung J, Boehm A, Brown J, Capone D, Clasen T, Fuhrmeister E, **Grembi JA**, Holcomb D, Knee J, Kwong LH, Lin A, Luby SP, Nala R, Nelson K, Njenga S, Null C, Pickering AJ, Rahman M, Reese H, Steinbaum L, Stewart J, Thilakaratne R, Cumming O, Colford JM, Ercumen A. (2024). Is detection of enteropathogens and human or animal faecal markers in the environment associated with subsequent child enteric infections and growth: an individual participant data meta-analysis. ***The Lancet Global Health***. 12(3):e433-e444. doi:10.1016/S2214-109X(23)00563-6. PMID: 38365415; PMCID: PMC10882208.

16. Jung DK*, Tan S*, Hemlock C, Mertens AN, Stewart CP, Rahman MZ, Ali S, Raqib R, **Grembi JA**, Karim MR, Shahriar S, Roy AK, Bakir S, Shoab AK, Famida SL, Hossen MS, Mutsuddi P, Akther S, Rahman M, Unicomb L, Hester L, Granger DA, Erhardt J, Naved RT, Al Mamun MM, Parvin K, Colford Jr., JM, Fernald, LCH, Luby SP, Dhabhar FS, Lin A. (2023). Micronutrient status during pregnancy is associated with child immune status in rural Bangladesh. ***Current Developments in Nutrition***. 7(8):101969 doi: 10.1016/j.cdnut.2023.101969. PMID: 37560460; PMCID: PMC10407622.

15. Shalon D*, Culver RN*, **Grembi JA***, Folz J*, Treit P, Shi H, Rosenberger FA, Dethlefsen L, Meng X, Yaffe E, Aranda-Diaz A, Geyer PE, Mueller-Reif JB, Spencer S, Patterson AD, Triadafilopoulos G, Holmes SP, Mann M, Fiehn O, Relman DA, Huang KC. (2023). Profiling of the human intestinal microbiome and bile acids under physiologic conditions using an ingestible sampling device. ***Nature***. 617:581–591. doi: 10.1038/s41586-023-05989-7. PMID: 37165188; PMCID: PMC10191855.

14. Folz J, Culver R, Morales J, **Grembi JA**, Tridafilopoulos G, Relman D, Huang KC, Shalon D, Fiehn O. (2023). Human metabolome variation along the upper intestinal tract. ***Nature Metabolism***. 5:777–788. doi: 10.1038/s42255-023-00777-z. PMID: 37165176; PMCID: PMC10229427.

13. Mertens A, Arnold BF, Benjamin-Chung J, Boehm A, Brown J, Capone D, Clasen T, Fuhrmeister E, **Grembi JA**, Holcomb D, Knee J, Kwong LH, Lin A, Luby SP, Nala R, Nelson K, Njenga S, Null C, Pickering AJ, Rahman M, Reese H, Steinbaum L, Stewart J, Thilakaratne R, Cumming O, Colford JM, Ercumen A. (2023). Effects of water, sanitation, and hygiene interventions on detection of enteropathogens and host-specific faecal markers in the environment: a systematic review and individual participant data meta-analysis. ***The Lancet Planetary Health***. 7(3):e197-208. doi: 10.1016/S2542-5196(23)00028-1. PMID: 36889861; PMCID: PMC10009758.

12. **Grembi JA**, Rogawski McQuade ET. (2022). Introducing riskCommunicator: An R package to obtain interpretable effect estimates for public health. ***PLoS ONE***. 17(7):e0257708. doi: 10.1371/journal.pone.0265368. PMID: 35849588; PMCID: PMC9292119.

11. Flaherty KE, **Grembi JA**, Ramachandran VV, Haque F, Khatun S, Rahman M, Maples S, Becker TK, Spormann AM, Schoolnik GK, Hryckowian AJ, Nelson EJ. (2021). High-throughput low-cost nl-qPCR for enteropathogen detection: A proof-of-concept among hospitalizaed patients in Bangladesh. ***PLoS ONE***. 16(10):e0257708. doi: 10.1371/journal.pone.0257708. PMID: 34597302; PMCID: PMC8486112.

10. Lin Y, **Grembi JA**, Goots SS, Sebastian A, Albert I, Brennan RA. (2021). Advantageous microbial community development and improved performance of pilot-scale field systems treating high-risk acid mine drainage with crab shell. ***Journal of Hazardous Materials***. 420:126665. doi: 10.1016/j.jhazmat.2021.12666. PMID: 34351284.

9. Fuhrmeister ER, Ercumen A, **Grembi JA**, Islam M, Pickering AJ, Nelson KL. (2020). Shared bacterial communities between soil, stored drinking water, and hands in rural Bangladeshi households. ***Water Research X***. 9:100056. doi: 10.1016/j.wroa.2020.100056. PMID: 32529181; PMCID: PMC7276488.

8. **Grembi JA**, Lin A, Karim Md. A, Islam Md. O, Miah R, Arnold BF, Rogawski McQuade ET, Ali S, Rahman Md. Z, Hussain Z, Shoab AK, Famida SL, Hossen Md. S, Mutsuddi P, Rahman M, Unicomb L, Haque R, Taniuchi M, Liu J, Platts-Mills J, Holmes SP, Stewart CP, Benjamin-Chung J, Colford JM, Houpt E, and Luby SP. (2020). Effect of Water, Sanitation, Handwashing and Nutrition Interventions on Enteropathogens in Children 14 Months Old: A Cluster-Randomized Controlled Trial in Rural Bangladesh. ***Journal of Infectious Diseases***. 227(3):434-447. doi: 10.1093/infdis/jiaa549. PMID: 32861214; PMCID: PMC9891429

7. Nelson EJ, **Grembi JA**, Chao DL, Andrews JR, Alexandrova L, Rodriguez PH, Ramachandran VV, Sayeed MA, Wamala JF, Debes AK, Sack DA, Hryckowian AJ, Haque F, Khatun S, Rahman M, Chien A, Spormann AM, Schoolnik GK. (2020). Gold Standard Cholera Diagnostics Are Tarnished by Lytic Bacteriophage and Antibiotics. ***Journal of Clinical Microbiology***. 58(9):e00412-20. doi: 10.1128/JCM.00412-20. PMID: 32611794; PMCID: PMC7448619.

6. **Grembi JA**, Mayer-Blackwell K, Luby SP, Spormann AM. (2020). High-Throughput Multiparallel Enteropathogen Detection via Nano-Liter qPCR. ***Frontiers in Cellular and Infection Microbiology***. 10:351. doi: 10.3389/fcimb.2020.00351. PMID: 32766166; PMCID: PMC7381150.

5. **Grembi JA***, Nguyen LH*, Haggerty TD, Gardner CD, Holmes SP, Parsonnet J. (2020). Gut microbiota plasticity is correlated with sustained weight loss on a low-carb or low-fat dietary intervention. ***Scientific Reports***. 10:1405. doi: 10.1038/s41598-020-58000-y. PMID: 31996717; PMCID: PMC6989501.

4. Lin A, Ali S, Arnold BF, Rahman MZ, Alauddin M, **Grembi JA**, Mertens AN, Famida SL, Akther S, Hossen MS, Mutsuddi P, Shoab AK, Hussain Z, Rahman M, Unicomb L, Ashraf S, Naser AM, Parvez SM, Ercumen A, Benjamin-Chung J, Haque R, Ahmed T, Hossain MI, Choudhury N, Jannat K, Alauddin ST, Minchala SG, Cekovic R, Hubbard AE, Stewart CP, Dewey KG, Colford JM, Luby SP. (2020). Effects of Water, Sanitation, Handwashing, and Nutritional Interventions on Environmental Enteric Dysfunction in Young Children: A Cluster-randomized, Controlled Trial in Rural Bangladesh. ***Clinical Infectious Diseases***. 70(5):738-747. doi: 10.1093/cid/ciz291. PMID: 30963177.

3. Alexandrova L, Haque F, Rodriguez P, Marrazzo AC, **Grembi JA**, Ramachandran V, Hryckowian AJ, Adams CM, Siddique MSA, Khan AI, Qadri F, Andrews JR, Rahman M, Spormann AM, Schoolnik GK, Chien A, Nelson EJ. (2019). Identification of Widespread Antibiotic Exposure in Patients With Cholera Correlates With Clinically Relevant Microbiota Changes. ***Journal of Infectious Diseases***. 220(10):1655-1666. doi: 10.1093/infdis/jiz299. PMID: 31192364; PMCID: PMC6782107.

2. Stewart CP, Dewey KG, Lin A, Pickering AJ, Byrd KA, Jannat K, Ali S, Rao G, Dentz HN, Kiprotich M, Arnold CD, Arnold BF, Allen LH, Shahab-Ferdows S, Ercumen A, **Grembi JA**, Naser AM, Rahman M, Unicomb L, Colford JM, Luby SP, Null C. (2019). Effects of lipid-based nutrient supplements and infant and young child feeding counseling with or without improved water, sanitation, and hygiene (WASH) on anemia and micronutrient status: Results from 2 cluster-randomized trials in Kenya and Bangladesh. ***American Journal of Clinical Nutrition***. 109:148-164. doi: 10.1093/ajcn/nqy239. PMID: 30624600; PMCID: PMC6358037.

1. **Grembi JA**, Sick BA, Brennan RA. (2016). Remediation of High-Strength Mine-Impacted Water with Mixed Organic Substrates Containing Crab Shell and Spent Mushroom Compost. ***Journal of Environmental Engineering***. 142:04015075. doi: 10.1061/(ASCE)EE.1943-7870.0001023

Pre-prints In Review

1. Niven AG, Islam M, Nguyen A, MMertens A, Pickering AJ, Kwong LH, Alam M, Sen D, Islam S, Rahman M, Unicomb L, Hubbard AE, Luby SP, **Grembi JA**, Colford JM, Arnold BF, Benjamin-Chung J, Ercumen A. Rainfall and Temperature Modify Effects of On-Site Sanitation Intervention on E. coli Contamination in Bangladeshi Households. https://doi.org/10.1101/2024.08.22.24312444

Software

1. `riskCommunicator` is an R/CRAN package to estimate interpretable epidemiological effects using parametric g-computation with bootstrap resampling to obtain confidence intervals. [Available on CRAN, >12,900 downloads]

Awards, Fellowships, & Grants

2022-2024	**NRSA Postdoctoral Fellowship (1F32DK130574)**, NIH, NIDDK	*3 years of salary*
2022-2024	**Grant INV-037857 (Lead Author)**, Bill and Melinda Gates Foundation	*$ 2,134,000*
2021-2023	**Dr. George Rosenkranz Prize**, Stanford Health Policy	*$ 100,000*
2021-2022	**Dean's Postdoctoral Fellowship**, Stanford University School of Medicine	*½ year salary*
2018	**Seed Grant Award**, Stanford Center for Innovations in Global Health	*$ 50,000*
2016-2018	**Jim and Gaye Pigott Interdisciplinary Graduate Fellowship**, Stanford University	*3 years of salary*
2016-2017	**Grant OPP1161946 (Lead Author)**, Bill and Melinda Gates Foundation	*$ 650,000*
2015	**Microbome Seed Grant**, Stanford Microbiome Consortium	*$ 20,000*
2014	**Seed Grant**, Stanford Center for Innovations in Global Health	*$ 25,000*
2011-2016	**Graduate Research Fellowship**, National Science Foundation	*3 years of salary*
2011	**David A. Long Scholarship**, Pennsylvania American Waterworks Association	*½ year salary*
2010	**Scholarship**, American Society of Mining and Reclamation	
2010	**Poster Presentation Award**, Pennsylvania Water Environment Association	
2010	**George W. Johnstone Graduate Fellowship**, Pennsylvania State University	*½ year salary*
2009	**College of Engineering Recruitment Fellowship**, Pennsylvania State University	*1 year of salary*

2004, 2006	**Meritorious Service Medal**, U.S. Army
2003, 2007	**Commendation Medal**, U.S. Army
2003	**Parachutist Badge - Distinguished Honor Graduate**, U.S. Army
2002	**Expert Field Medical Badge**, U.S. Army
2000	**Air Assault Badge**, U.S. Army
1998-2001	**Superintendent's Award**, United States Military Academy

Invited Talks

11. **Grembi, JA**. High levels of infant gut *Bifidobacterium* later in childhood associated with intestinal inflammation and fecal metabolites in rural Bangladeshi children. American Society of Tropical Medicine and Hygiene, Annual Meeting. New Orleans, LA. 2024 Nov 17.

10. **Grembi, JA**. Measuring immune markers in small intestine samples collected with the CapScan device. Bill and Melinda Gates Foundation, Microbiome Quarterly Research Symposium. Online. 2024 Sept 03.

9. **Grembi, JA**. Bifidobacterium: friend or foe? Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Division of Population Health Research Seminar. Online. 2023 December 14.

8. **Grembi, JA**. Profiling of the human intestinal microbiome and bile acids under physiologic conditions using an ingestible sampling device. Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Division of Intramural Research Tenure-Track Investigator Virtual Symposia: Disentangling host-microbe interactions through the analysis of high dimensional multi-omics data. Online. 2023 April 13.

7. **Grembi, JA**. Effects of water, sanitation, handwashing (WSH) and nutritional interventions on enteropathogen burden in young children: a cluster-randomized controlled trial in rural Bangladesh. Infectious Diseases Grand Rounds, Stanford, CA. 2019 Feb 21.

6. **Grembi, JA**, Mayer-Blackwell, K, Luby, SP, Spormann, AM. High-throughput multi-parallel nL-qPCR SmartChip for the detection of 17 enteric pathogens. American Society of Tropical Medicine and Hygiene Annual Meeting, New Orleans, LA. 2018 Oct 29-31.
5. **Grembi, JA**, Mayer-Blackwell, K, Hoy-Schulz, YE, Parsonnet, J, Luby, SP, Spormann, AM. nL-qPCR pathogen chip: A tool for stool. Bay Area WASH Symposium, Berkeley, CA. 2017 Apr 5.
4. **Grembi, JA**. Gut microbiota of obese adults: predicting diet success. Division of Infectious Diseases and Geographic Medicine & Division of Pediatric Infectious Diseases Annual Retreat, Stanford, CA. 2016 May 3.
3. **Grembi, JA**, Sick, BA, Goots, SS, Lin, S, Brennan, RA. Remediation of high-strength mine impacted water with crab shell substrate mixtures: laboratory column and field pilot tests. National Meeting of the American Society of Mining and Reclamation, Bismarck, ND. 2011 June 1.
2. **Grembi, JA**, Sick, BA, Brennan, RA. Utilization of a sustainable resource to remediate high- strength mine-impacted water from a local abandoned mine: Crab-shell column study. American Chemical Society National Meeting, Boston, MA. 2010 Aug 22-26.
1. **Grembi, JA**. Evaluation of Alternative Particle Filtration Designs to Reduce RDX Losses in Dewatering Operations. Environment, Energy, and Sustainability Symposium (E2S2), Denver, CO. 2009 May 4-7.

Teaching Experience

June 2019	**Microbial Ecology using R and Bioconductor**, Course Moderator & Teaching Assistant	*San Francisco, CA*
Fall 2014	**Environmental Microbiology**, Graduate Teaching Assistant	*Stanford, CA*
Spring 2014	**Design for a Sustainable World**, Teaching Associate	*Stanford, CA*
Winter 2014	**Current Topics in Sustainable Engineering**, Teaching Associate	*Stanford, CA*
Fall 2009	**Field Methods for Remediation Design**, Graduate Teaching Assistant	*State College, PA*

Mentoring

Summer 2024	**Eliza Daigle**, Undergraduate, Whitman College	*Remote*
Summer 2021	**Mira Ramachandran**, Undergraduate, University of California, Davis	*Stanford, CA*
2019-2022	**Rebecca Christensen**, Undergraduate, Stanford University	*Stanford, CA*
Summer 2018	**Areta Buness**, Undergraduate, Stanford University	*Stanford, CA*
Summer 2013	**Maneet Kaur**, Undergraduate, University of California, Berkeley	*Bangladesh*
2010-2011	**Sara Goots**, Undergraduate, Penn State University	*State College, PA*
2010-2011	**Shanxing Lin**, Undergraduate, Penn State University	*State College, PA*
2009-2010	**Bradley Sick**, Undergraduate, Penn State University	*State College, PA*
Fall 2009	**Amanda Brown**, Undergraduate, Penn State University	*State College, PA*

Service & Professional Development

Membership in Professional Organizations

2022-2024	**Stanford Center for Innovations in Global Health**, Postdoctoral Affiliate
2021-2024	**Stanford Maternal and Child Health Research Institute**, Member
2016-present	**American Society for Tropical Medicine and Hygiene**, Member
2009-present	**American Society for Microbiology**, Member

Peer Review of Manuscripts

Clinical Infectious Diseases
American Journal of Tropical Medicine and Hygiene
Environmental Microbiology

mSystems

Service and Outreach

2018-2023 **Stanford Military-Affiliated Advisory Committee**, Member *Stanford, CA*
2016-2023 **Synopsys Science Fair**, Volunteer Judge *San Jose, CA*