Varun N. Srinivasan

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EDUCATION

2012-2017	Ph.D. in Civil Engineering, University of Massachusetts-Amherst
2010-2012	M.S. in Environmental Engineering, University of Massachusetts-Amherst
2006-2010	B.Tech (Bachelor of Technology) in Industrial Biotechnology, Anna University, Chennai, India

APPOINTMENTS

2017 - Present	Postdoctoral Research Associate, Dept. of Civil and Environmental Engineering, Northeastern University

GRANTS/PROPOSALS

Combining Nitrite-Shunt/Anammox Processes with Side-stream EBPR Process for Simultaneous and Sustainable Nitrogen and Phosphorus Removal, *The Water Research Foundation*. 2018-2021. PI – April Gu, Co-PI's – Ameet Pinto, Annalisa Onnis-Hayden, **Varun Srinivasan**, et al.	Funded ($136,099)

RESEARCH EXPERTISE

- Wastewater Treatment
- Biological Nutrient Removal Processes
- Microbial Ecology
- Advanced Sequencing Methods and Analysis
- Flow Cytometry and Flow Activated Cell Sorting
- Microbial Process Modeling
- Statistical and Ecological Modeling

PUBLICATIONS

Peer-Reviewed Journal Articles

1. Mohan, A., **Srinivasan, V.N**., Reckhow, D.A. Occurrence and persistence of halobenzoquinones: A case study using 2,6-dichloro-1,4-benzoquinone. *Submitted to AWWA Water Science.*
2. Stauch-White, K., **Srinivasan, V.N**., Camilla Kuo-Dahab, W., Park, C., Butler, C.S., 2017. The role of inorganic nitrogen in successful formation of granular biofilms for wastewater treatment that support cyanobacteria and bacteria. *AMB Express* 7. doi:10.1186/s13568-017-0444-8

3. **Srinivasan, V.N.,** Butler, C.S., 2017. Ecological and Transcriptional Responses of Anode-Respiring Communities to Nitrate in a Microbial Fuel Cell. *Environmental Science & Technology*. acs.est.6b06572. doi:10.1021/acs.est.6b06572**.**
4. Castro, C.J., **Srinivasan, V**., Jack, J., Butler, C.S., 2016. Decentralized wastewater treatment using a bioelectrochemical system to produce methane and electricity. *Journal of Water Sanitation and Hygiene for Development*. 6, 613–621. doi:10.2166/washdev.2016.190.
5. **Srinivasan, V**., Weinrich, J., Butler, C., 2016. Nitrite accumulation in a denitrifying biocathode microbial fuel cell. *Environmental Science: Water Research & Technology*. 2, 344–352. doi:10.1039/C5EW00260E.
6. Hagemann, M., Park, M., **Srinivasan, V**., Reckhow, D.A., Lavine, M., Stanford, B.D., Park, M.-H., 2016. Co-occurrences of EDCs / PPCPs in surface water using Chemometrics. *Journal of American Water Works Association*. 205–220.

Preprints

7. Onnis-Hayden, A*****., **Srinivasan, V***., Tooker, N.B., Li, G., Wang, D., Gu, A.Z. Survey of Full Scale Side-Stream EBPR Facilities and Comparison with Conventional EBPR: Process Stability, Kinetics and Microbial Ecology. *Preprints 2018*, 2018080241. doi:10.20944/preprints201808.0241.v1. ***Co-first authors**
8. Wang, D., Tooker, N.B., **Srinivasan, V**., Li, G., Schauer, P., Menniti, A., Maher, C., Bott, C.B., Dombrowski, P., Barnard, J.L., Onnis-Hayden, A., Gu, A.Z. A Full-Scale Comparative Study of Conventional and Side-Stream Enhanced Biological Phosphorus Removal Processes. *Preprints 2018*, 2018080250. doi: 10.20944/preprints201808.0250.v1

Project Reports (Peer-Reviewed)

1. Gu, A.Z., Tooker, N., Onnis-Hayden, A., Wang, D., Li, G., Takács, I and **Srinivasan**, **V.N**. "Investigation of the Mechanisms for Optimization and Design of a Side-Stream EBPR Process as a Sustainable Approach for Achieving Stable and Efficient P Removal," *Water Environment and Reuse Foundation* (WE&RF) Report U1R13, scheduled to be published 2018.
2. Reckhow, D., Park, C., Wu, C., Bazilio, A., Yu, Y., **Srinivasan, V.N**., Mitch, W., Skadsen, J. "Fate of Non-Regulated Disinfection By-Products in Distribution Systems". *Water Research Foundation*; 2016.

Conference Proceedings

1. **Srinivasan, V**., Tooker, N., Li, G., Barnard, J., Bott, C., Dombrowski, P., Schauer, P., Menniti, Adrienne, Onnis-Hayden, A., Pinto, A., Gu, A. A Full-Scale Pilot Side-by-Side Comparison Reveals Microscale Differences in the Microbial Ecology of Conventional and Side-Stream EBPR systems. *Water Environment Federation Nutrient Removal and Recovery*, Raleigh, NC; 2018.
2. Tooker, N., Li, G., **Srinivasan, V**., Barnard, J., Bott, C., Dombrowski, P., Schauer, P., Menniti, A., et al. S2EBPR Practices and Fundamentals – Rethinking and Reforming Enhanced Biological Phosphorus Removal (EBPR). *Water Environment Federation Nutrient Removal and Recovery*, Raleigh, NC; 2018.
3. Onnis-Hayden, A., Tooker, N., Li, G., Wang, D., **Srinivasan, V**., Barnard, J., Bott, C., Dombrowski, P., Schauer, P., Menniti, A., Shaw, A., Stinson, B., Stevens, G., Dunlap, P., Takács, I., Phillips, H., Lambrecht, A., Analla, H., Russell, A., and Gu, A. Performance and Microbial Population in Side-Stream Enhanced Biological Phosphorus Removal Systems. *Water Environment Federation Nutrient Removal and Recovery*, Raleigh, NC; 2018.

RESEARCH EXPERIENCE

Postdoctoral Research Associate, Department of Civil and Environmental Engineering, Northeastern University (2017- Present)
Advisors- Dr. April Gu and Dr. Ameet Pinto

Projects

- Elucidating the Microbial Ecology of Side-Stream Enhanced Biological Phosphorus Removal (S2EBPR)
- Developing a Flow Cytometric Method to Characterize Polyphosphate Accumulating Organisms
- Combining Nitrite-Shunt/Anammox Processes with Side-stream EBPR Process for Simultaneous and Sustainable Nitrogen and Phosphorus Removal

Graduate Research Assistant, Department of Civil and Environmental Engineering, University of Massachusetts-Amherst (2012- 2017)
Advisor- Dr. Caitlyn Butler

Projects

- Microbial Competition and Ecology in Bioelectrochemical Systems.
- "ElectroSeptic" Wastewater Power Generation System (Collaborator: FTL Labs Corporation, Funding: AIR FORCE SBIR).

Graduate Research Assistant, Department of Civil and Environmental Engineering, University of Massachusetts-Amherst (2010- 2012)
Advisor- Dr. David Reckhow

Projects

- Detection and Analysis of Halobenzoquinones in Drinking Water Distribution Systems in the United States of America and HBQ Formation- Routes, Rates and Precursors (Funding: Water Research Foundation #4242).
- Developing a Watershed-Level Protocol for Choosing Indicators for EDCs/PPCPs using Analytical Tools and Chemometrics (Funding: Water Research Foundation #4260).

Undergraduate Research Assistant, Centre for Biotechnology, Anna University, Chennai, India (2009-2010)
Advisor- Dr. P. Gautam

Projects

- Microbial Fuel Cells and Amplification of Exoelectrogenesis using the Urey-Miller Setup.

TEACHING/MENTORING EXPERIENCE

Instructor, College of Engineering, University of Massachusetts-Amherst (Fall 2015)

Courses:

- ENGIN 191 Freshman Seminar.

Developed and delivered course content covering technical introductory engineering as well as student success material.

Guest Lecturer, Department of Civil and Environmental Engineering, University of Massachusetts-Amherst (2014-2015)

Courses:

- Organic Contaminants in Water, Fall 2014 (Instructor: Dr. David Reckhow)
- CEE 370 Introduction to Environmental Engineering, Fall 2014 (Instructor: Dr. Caitlyn Butler)
- CEE 370 Introduction to Environmental Engineering, Spring 2015 (Instructor: Dr. Boris Lau).

Developed and delivered guest lectures on a variety of topics including energy-efficient wastewater treatment approaches, use of high-throughput sequencing approaches to characterise microbial ecology and life-cycle assessment.

Teaching Assistant, Department of Civil and Environmental Engineering, University of Massachusetts-Amherst (2013-2014)

Courses:

- CEE 671 Biological Processes in Environmental Engineering, Fall 2013 (Instructor: Dr. Caitlyn Butler)
- CEE 370 Introduction to Environmental Engineering, Spring 2014 (Instructor: Dr. Caitlyn Butler)

Lead the laboratory and corresponding lecture sections for all courses.

Research Mentor, Department. of Civil and Environmental Engineering, Northeastern University, Boston MA

Students

- Nicholas B. Tooker (Graduate) – Co-advised with Dr. April Gu
  Project: Sidestream Enhanced Biological Phosphorus Removal (S2EBPR) Practices and Fundamentals
- Guangyu Li (Graduate) – Co-advised with Dr. April Gu
  Project: Bioinformatic and Metagenomics Approaches to Characterize Microbial Communities in Wastewater Treatment
- Marissa Dreyer (Graduate) – Co-advised with Dr. April Gu
  Project: Building a Database for Environmental Occurrence for Phosphorus Forms in the Natural Environment
- Md Mahbub Alam (Graduate) – Co-advised with Dr. April Gu
  Project: Enrichment of Polyphosphate Accumulating Organisms (PAOs) using Sequencing Batch Reactors (SBRs).

Research Mentor, Department of Civil and Environmental Engineering, University of Massachusetts-Amherst

Students

- Daniel C. Clasby (Undergraduate) - Co-advised with Dr. Caitlyn Butler
  Project: Direct Electricity Generation from Biosolids using a Hybrid Fermentation-Bioelectrical System
- Aarthi Mohan (Graduate) – Co-advised with Dr. David Reckhow
  Project: Occurrence and Fate of Halobenzoquinones in Drinking Water Distribution Systems

CONFERENCE PRESENTATIONS/TALKS (Presenter is in bold)

Invited Talks

1. **Srinivasan, V.** "Elucidating the Microbial Ecology of Side-Stream Enhanced Biological Phosphorus Removal (S2EBPR)". WEFTEC 2018, New Orleans LA.
2. **Srinivasan, V.** "Biological Phosphorus Removal – Current Paradigms and Microbial Ecology". September 14th, 2018. University of Rhode Island, RI.

Talks

1. **Srinivasan, V**., Tooker, N., Li, G., Barnard, J., Bott, C., Dombrowski, P., Schauer, P., Menniti, Adrienne, Onnis-Hayden, A., Pinto, A., Gu, A. A Full-Scale Pilot Side-by-Side Comparison Reveals Microscale Differences in the Microbial Ecology of Conventional and Side-Stream EBPR systems. *Water Environment Federation Nutrient Removal and Recovery*, Raleigh, NC; 2018.
2. Tooker, N., Li, G., **Srinivasan, V**., Barnard, J., Bott, C., Dombrowski, P., Schauer, P., Menniti, A., et al. S2EBPR Practices and Fundamentals – Rethinking and Reforming Enhanced Biological Phosphorus Removal (EBPR). *Water Environment Federation Nutrient Removal and Recovery*, Raleigh, NC; 2018.
3. Clasby, D., Srinivasan, V., Castro, C., Sathyamoorthy, S., Butler, C. The FEnGen Process – Direct Electricity Generation from Biosolids using a Hybrid Fermentation-Bioelectrical System. *NEWEA Annual Conference*, Boston, MA. 2017.
4. **Srinivasan, V**., Butler, C. Exploring dynamics between denitrifiers and anode-respiring bacteria in bioelectrochemical biofilms. *250th American Chemical Society National Meeting & Exposition*, Boston, MA; 2015.
5. Srinivasan, V., **Butler, C**. Evaluating the Robustness of Anode-Respiring Biofilms: A Battle for Acetate Between Exoelectrogens and Denitrifiers. *AEESP Research and Education Conference*, New Haven, CT; 2015.
6. **Srinivasan, V**., Butler, C. Evaluating the Robustness of Anode-Respiring Biofilms: Understanding the Dynamics of Interactions between Anode-Respiring and Denitrifying Bacteria. *New England Graduate Student Water Symposium*, University of Massachusetts-Amherst, MA; 2015.
7. **Srinivasan, V**., Butler, C. Competition for Electron Donors in Anode-Respiring Biofilms. *New England Graduate Student Water Symposium*, University of Massachusetts-Amherst, MA; 2014.
8. **Srinivasan,V**., Park, M-H., Reckhow, D. Developing a Watershed-Level Protocol for Choosing Indicators for EDCs/PPCPs using Analytical Methods and Chemometrics. *246th ACS National Meeting*, Indianapolis, IN; 2013.
9. **Srinivasan, V**., Park, M-H., Reckhow, D. Statistical Analysis for EDCs/PPCPs in the Assabet River, MA. *New England Water and Environment Association Annual Conference*, Boston MA; 2013.

Posters

1. **Srinivasan, V**., Butler, C. Ecological and Transcriptional Responses of Anode-Respiring Communities to Nitrate in a Microbial Fuel Cell. *AEESP Research and Education Conference*, Ann-Arbor, MI; 2017.
2. **Srinivasan, V**., Butler, C. Competition for Electron Donors in Anode-Respiring Biofilms. *North American- International Society for Microbial Electrochemistry and Technology Conference*, University Park, State College, PA; 2014. *Poster Presentation*

3. **Srinivasan, V**., Castro, C., Weinrich, J., Butler, C. Wastewater Treatment and Bioelectrochemical Systems. *Indo-US Conference on Water Quality and Sustainability*, Chennai, India; 2013.

FELLOWSHIPS, HONORS AND AWARDS

1. **Bernard B. Berger Award** for Academic Excellence and Commitment to Research in Environmental Engineering, UMass-Amherst, 2015.
2. **Biofilm Summer School Fellowship** 2014
3. **Edward Sisson Doctoral Fellowship** 2013-2014.

SERVICES & MEMBERSHIPS

Memberships

Water Environment Federation (WEF), New England Water Environment Association (NEWEA), Association of Environmental Engineers, Scientists and Professionals (AEESP).

Journal Reviewer

Environmental Science & Technology, Environmental Science: Water Research & Technology, PLOS ONE, RSC Advances, Frontiers in Microbiology.

Outreach Activities

1. Graduate Women in Science Outreach**.** Topic: "Water-Past, Present and Future." Amherst, MA; 2015.
2. Women in Science and Engineering Seminar Series. Topic: "The Green Latrine." Great Barrington, MA; 2014.
3. High School Seminar Series. Topic: "Microorganisms- Macro impacts." Doherty High School, Worcester, MA; 2013**.**