

Environmental Engineering Seminar

The Astani Department of Civil & Environmental Engineering presents



Dr. Ameet J. Pinto
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Date: February 13, 2020

Time: 4 - 5 pm

Place: MCB 102

How do we manage the drinking water microbiome?

Drinking water can contain tens of millions of diverse microbial cells in every liter. While most microbes in drinking water do not pose a human health risk, the presence of pathogenic microbes can have severe health implications and the underlying causes for microbial contamination can vary significantly. Developing strategies to avoid microbial contamination of drinking water is essential, but there is also a need for a radical change in terms of how we detect and respond to these failures. The existing paradigm of targeted microbial detection can result in sample-to-data time gap of more than two-three days. Though the application of molecular methods promises to change this, key limitations (i.e., cost, expertise requirements, etc) make their application for real-time microbial monitoring challenging. The ideal approach for monitoring drinking water would be to develop a sensitive and robust platform that can be deployed across the drinking water network and one that can stream data in real-time to consumers and to drinking water treatment plant operators. This talk will focus on ongoing work on the development of low cost optical- and DNA sequencing-based methods for real-time microbial detection, quantitation, and characterization. This talk will also highlight important challenges that need to be overcome to realize the future of microbial monitoring in drinking water which will be real-time, autonomous, decentralized, and scalable.

About the Speaker

Dr Ameet Pinto is an Environmental Engineer and Assistant Professor in Civil and Environmental Engineering at Northeastern University in Boston, USA. Ameet is a Chemical Engineer with post-graduate degrees in Environmental Engineering from the University of Alaska (2005) and Virginia Tech, USA (2009). Prior to joining Northeastern University in 2016, he was a Lecturer/Senior Lecturer at the University of Glasgow. His research has received support through prestigious grants like EPSRC's Bright IDEAS Award in 2015, the NSF CAREER Award in 2018, and 2019 Paul L Busch Award for Innovation in Applied Water Quality Research. Ameet's research focuses on the development and application of state-of-the-art molecular and modelling tools to monitor and manage the microbiology of drinking water systems to improve the sustainability of treatment processes and enhance the safety and security of drinking water.