



Dr. Fangqiong Ling (凌方穹)

Assistant Professor

Department of Energy, Environmental and Chemical Engineering
and Department of Computer Science and Engineering (by
courtesy)

Washington University in St. Louis

Email: fangqiong@wustl.edu

Environmental Genomics and Microbiology Lab

linglab.wustl.edu @h2omics

1. Career Path

I took an Environmental Microbiology class when I was an undergraduate student. I was fascinated by the level of clarity that modern biological tools can bring to environmental systems that were previously considered as "black boxes", which then led me to choose environmental genomics as my Ph.D. direction. During my Ph.D. study with Prof. Wen-Tso Liu, I found that I enjoyed working with large datasets. Importantly, my advisor, Prof. Liu, encouraged us to take classes on computer science and statistics because genomics data from environmental systems are complex in nature, and thus working with such data requires using computational tools and a solid understanding of the principles behind those tools. After my Ph.D. study, I received a fellowship from the Alfred P. Sloan Foundation, which supported my postdoctoral work in Prof. Eric Alm's lab. While my Ph.D. work focused on analyzing genomics data, my postdoctoral work explores developing tools based on machine learning, which I found exciting. I am now an Assistant Professor at the Department of Energy, Environmental and Chemical Engineering in Washington University in St. Louis and I hold a courtesy appointment at the Department of Computer Science and Engineering.

2. Research

My lab is an Environmental Genomics and Microbiology Lab. We are interested in understanding the rules behind the diversity and variation of microorganisms that co-inhabit with us in natural and manmade environments. Our long-term goal is to develop genomics tools that can aid quantitative risk assessment and the design of water treatment and distribution processes. Our ongoing projects involve ecological community assembly, premise plumbing microbiology, host-associated microbiome, and hospital microbiome.

3. Teaching

I teach an Environmental Biotechnology class and an Environmental Data Science class. The former aims to prepare undergraduate students for environmental biotechnology applications that they may encounter in water and wastewater industry, and the latter aims to help our Ph.D. students become more comfortable with using computational and statistical tools in their research.

4. Professional Activities

I am a member of AEESP, the American Society for Microbiology (ASM), the American Water Works Association, and the International Water Association.

5. University, Area and Community

St. Louis is place where three rivers meet, the Illinois River, the Missouri River, and the Mississippi River. For people like myself who are interested in the ecology of aquatic systems, this is just a wonderful place. The local community has a long history of engaging in biodiversity research. Once, my collaborator at the Missouri Botanical Garden showed me a plant specimen taken from Captain Cook's journey -- isn't that just amazing?

6. More About Me

One of the most amazing aspects of a faculty position to me is that you can knock on the door of a colleague's office, introduce yourself, and start a conversation that will lead to an idea that had never come to the minds of either of you before. Interdisciplinary research brings me a lot of joy.



Ling Lab at WUSTL