Environmental and Water Resources Engineering Seminar Series Presents:

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TEXAS

A multiscale approach to tackle water, energy, and infrastructure

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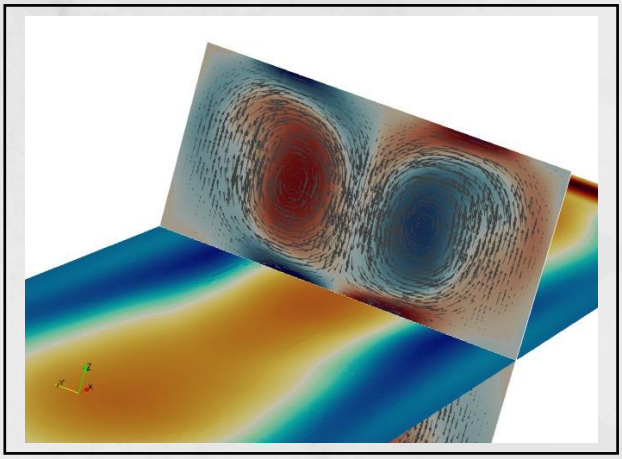
Abstract

Shifting toward a circular economy for a sustainable future requires developing, optimizing, and diffusing water and resource recovery technologies. Transitioning these technologies from laboratory to commercial scale is a process that often spans years, if not decades. The conventional approach for biological resource recovery processes involves performing lab-scale experiments in parallel for different designs and conditions. However, such an approach is costly and limited by the number of reactors that can be operated concurrently. In this talk, I will demonstrate an alternative hybrid framework that addresses two fundamental challenges in upscaling water and resource recovery technologies:
1) Understanding the processes at each relevant scale and
2) transferring information and understanding across scales.
The proposed hybrid framework has the potential to accelerate the transition to a circular economy for a sustainable future.



Background

Yinuo "Noah" Yao is currently an Assistant Professor in the Zachry Department of Civil and Environmental Engineering at Texas A&M University. Prior to this, he was a postdoctoral Researcher in Energy Science and Engineering at Stanford University. He earned his Ph.D. from the Department of Civil and Environmental Engineering at Stanford University, where he also received two M.S. degrees in the Department of Civil and Environmental Engineering and the Institute for Computational and Mathematical Engineering, respectively. He obtained his B.Eng with First Class Honors in Environmental Engineering from the National University of Singapore. He specializes in using a multiscale framework that integrates experiments, modeling, and simulations to develop and optimize novel technologies from the laboratory to commercial scales. His primary focus areas include water and resource recovery, as well as energy storage.

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