

DEPARTMENT OF COMPUTER SCIENCE

SEMINAR

2023 SERIES

# Controlling the Human Microbiome

## DATE & TIME

2 AUG 2023 (WED) 3:00 – 4:00 PM

## VENUE

WLB 206, The Wing Lung Bank Building for Business Studies,  
Shaw Campus



## DR. YANG-YU LIU

Associate Professor, Harvard Medical School

### ABSTRACT

We coexist with a vast number of microbes that live in and on our bodies. Those microbes and their genes are collectively known as the human microbiome, which plays important roles in human physiology and diseases. Many scientific advances have been made through the work of large-scale, consortium-driven metagenomic projects, which help us acquire more knowledge on the organismal compositions and metabolic functions of the human microbiome. Yet, the ultimate proof of our understanding of the human microbiome is reflected in our ability to manipulate it for health benefits. To facilitate the rational design of microbiome-based therapies to control our microbiome, there are still many fundamental questions to be addressed at the systems level. Indeed, we need a deep understanding of the microbial interactions and ecological dynamics associated with such a complex ecosystem before we rationally design control strategies. In light of this, I will present theoretical progress made from various perspectives, e.g., community ecology, network science, control theory, and deep learning, that are helping us achieve the ultimate goal of controlling the human microbiome.



SPEAKER'S  
BIOGRAPHY



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