



Department of Data Science

香港城市大學
City University of Hong Kong

DS DISTINGUISHED SEMINAR

Extremum Seeking Control: Theory to Applications

Date: 13 January 2026 (Tuesday)

Time: 11:00am - 12:00nn

Venue: Rm G7603, Yeung Kin Min Academic Building,
City University of Hong Kong

ABSTRACT

Extremum Seeking Control (ESC) is a control method designed to determine and maintain the extremum (maximum or minimum) value of a function in real time. Since its invention in 1922, ESC has undergone significant theoretical developments and has been applied in various domains, such as maximizing power generation from wind turbines. This talk will begin by revisiting the history of extremum seeking control and explaining the fundamentals of how ESC functions. It will then delve into recent advancements, including several design frameworks. The final section will specifically focus on model-guided ESC in human-prosthetic interfaces. This innovative application utilizes model-based approaches to enhance the interaction between humans and prosthetic devices, aiming to improve both performance and user experience.



Prof. Ying TAN

GUEST SPEAKER'S PROFILE

Prof. Ying TAN is a Professor in Mechanical Engineering at The University of Melbourne, Australia. She earned her bachelor's degree from Tianjin University, China, in 1995, and her PhD from the National University of Singapore in 2002. After a postdoctoral fellowship at McMaster University, she joined The University of Melbourne in 2004. Prof. TAN has received prestigious recognitions, including an Australian Postdoctoral Fellowship (2006-2008) and an ARC Future Fellowship (2009-2013). Currently, she serves on the ARC College of Experts (2024-2026) and holds several distinguished titles, including Fellow of IEEE (FIEEE), Engineers Australia (FIEAust), and the Asia-Pacific Artificial Intelligence Association. She is also a member of the IEEE Fellow Committee (2024-2025). Her research spans intelligent systems, nonlinear systems, data-driven optimization, rehabilitation robotics, human motor learning, wearable sensors, and model-guided machine learning.

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All are welcome