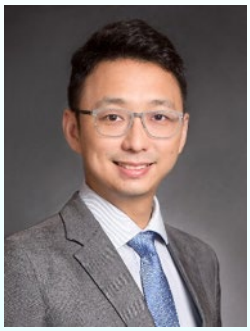
Department of Biomedical Engineering
The Chinese University of Hong Kong

Posterior eye imaging with OCT and beyond



Professor TAN Bingyao
Singapore Eye Research Institute

Date : 6 November 2026 (Friday)
Time : 2:30 pm
Venue : Room 1122, William M W Mong Engineering Building, CUHK

Abstract

Optical coherence tomography (OCT) has transformed the assessment of retinal and choroidal disease, yet important challenges remain in capturing peripheral ocular anatomy, measuring retinal function, and modeling disease progression. This talk presents our recent advances in posterior eye imaging across three complementary areas. First, ultrawide-field, ultrafast OCT enables characterization of posterior ocular morphology and vision-threatening structural changes in highly myopic eyes. Second, prolonged, multilayer optoretinography extends functional assessment by resolving stimulus-evoked responses across outer retinal layers and tracking their temporal dynamics. Third, physiology-informed generative models produce synthetic OCT and OCT angiography images, providing a framework for investigating relationships between tissue structure, vascular organization, and disease-associated changes. Together, these approaches expand OCT from structural imaging toward integrated anatomical and functional assessment, while establishing tools to investigate imaging biomarkers for disease detection and progression monitoring.

Biography

Assistant Professor Bingyao Tan is a physicist and optical engineer dedicated to advancing ophthalmic imaging technologies. He is currently the deputy head of bioengineering & Devices, serving as a Junior Principal Investigator at the Singapore Eye Research Institute (SERI) and holding an appointment as an Assistant Professor at Duke-NUS Medical School. Dr. Tan has a track record as a researcher and inventor, contributing to the development of advanced ophthalmic devices towards clinical use.

***** ALL ARE WELCOME *****

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