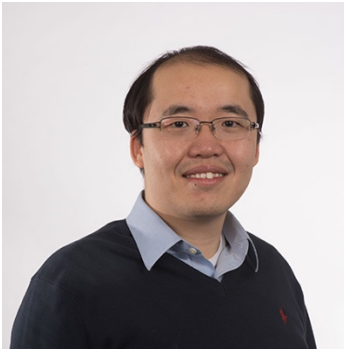


THE DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING SPEAKER SERIES

PRESENTS

Computational Microscopy: Augmenting Optics with Algorithms for Biomedical Imaging



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and Biomedical Engineering,
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Monday, March 25, 2024, 9:55 – 11 am

Zoom: <https://uh-edu-cougarnet.zoom.us/j/9762699678?pwd=RUp5ZmN3cHUyQ1FvUExVQjVsc1hVUT09>

Meeting ID: 976 269 9678

Passcode: K91Bwy

LECTURE ABSTRACT

Computational imaging seeks to achieve novel capabilities and overcome conventional limitations by combining optics and algorithms. In this talk, I will discuss our efforts of pushing the limit of computational phase microscopy. These techniques can be easily implemented in a standard microscope equipped with a programmable light source, making them easily accessible to the biological research community. I will present recent advances in scattering models and deep learning algorithms for improving the imaging capabilities for handling complex dynamic biological samples. I will also present a novel computational chemical microscopy technique that combines computational phase microscopy and mid-infrared photothermal imaging to enable bond-selective phase tomography. Broadly, I will discuss how synergies between novel optical instrumentation, physical modeling, and model- and learning-based computational algorithms can push the limits in biomedical microscopy.

SPEAKER BIOSKETCH

Lei Tian is an Assistant Professor in Department of Electrical and Computer Engineering and Biomedical Engineering, and directs Computational Imaging Systems lab (<http://sites.bu.edu/tianlab/>) at Boston University (BU). He received his Ph.D. from MIT. He was a postdoctoral associate at UC Berkeley. His research focuses on computational imaging and microscopy. Dr. Tian's awards include Scialog Fellow in Advancing BioImaging, NSF CAREER award, and BU College of Engineering Early Career Excellence in Research Award.

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