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Department of Biomedical Engineering

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Date Friday, April 10, 2026
Time 12:00 to 1:00 PM CBB
Location 108

Title: *AI × Molecular Insight: Bridging Every Scale*

Abstract: Dr. Sarder will discuss on parallel advancements of two emerging fields in biomedical sciences, computational pathology and spatial–omics. Our group leverages computational image analysis tools and best engineering practices to integrate spatial–omics datasets with their associated histology images, to draw meaningful conclusions. We work to fundamentally understand cell type and cell state compositions and underlying quantitative morphometric features at various scales from transcripts to tissue microanatomy. This work is part of our ongoing efforts within the Human Biomolecular Atlas Project (HuBMAP), a consortium spanning 42 sites, focused on creating an atlas of the human body at the cellular level using spatial technologies. I will next discuss the detection and segmentation of multiple cell types and cell states as well as tissue microanatomy exclusively from brightfield histology images. Furthermore, I'll explore several use-case studies of these tools including use in chronic kidney disease trajectory prediction, relevant to the NIH Kidney Precision Medicine Project (KPMP) consortium, as well as applications in kidney transplant allograft survival prediction. We will conclude by discussing the challenges and future of integrating imaging and omics data in the biomedical domain for disease modeling in healthcare.

Bio: Dr. Sarder is an Associate Professor of AI in the Section of Quantitative Health, Department of Medicine, and Associate Director for Imaging at the Intelligent Clinical Care Center, University of Florida (UF). Previously, he was an Associate Professor in the Departments of Pathology & Anatomical Sciences and Biomedical Engineering at the University at Buffalo, where he helped establish the Computational Cell Biology, Anatomy, and Pathology graduate program.

Dr. Sarder completed his postdoctoral training at the Mallinckrodt Institute of Radiology, Washington University School of Medicine in St. Louis. He holds a B.Tech. in Electrical Engineering from IIT Kanpur and M.Sc. and Ph.D. degrees in Electrical Engineering from Washington University in St. Louis.

He is a Fellow of the American Society of Nephrology, Associate Editor of the IEEE Journal of Biomedical and Health Informatics, Senior Member of IEEE and SPIE, and a member of the Research & Scientific Committee of the Renal Pathology Society. He received the University at Buffalo Exceptional Scholars–Young Investigator Award in 2018.