Department of Electrical and Computer Engineering



TEXAS TECH UNIVERSITY Edward E. Whitacre Jr. College of Engineering



Seminar: Problems and Opportunities in Computational Renal Pathology Speaker: Dr. Pinaki Sarder, University at Buffalo

Thursday, January 20, 2022, ECE 221, 3:00 PM - 4:00 PM

Join Zoom:

https://texastech.zoom.us/j/95799948035?pwd=b09RZ0prSjNHMStqK1RrSk12VTdlQT09

Meeting ID: 957 9994 8035 Passcode: 670182 **Brief abstract**: The modern practice of digitizing histopathological slides and parallel advancements in computer hardware have created new opportunities for computationally focused image analysis. Thus far cancer pathology has been the main area of computational application, however the study of renal pathology using computational tools is on the rise. In this talk, I will introduce computational pathology using examples from renal pathology, and discuss the applications and challenges of applying machine learning tools for detection, segmentation, quantification, and classification of microanatomical structures from renal histology giga-pixel size whole slide images. I will also discuss our ongoing efforts on computational data fusion integrating imaging morphometric and molecular omics data, and potential impact of the resulting fused data in biomedical research. I will conclude by discussing the barriers that still need to be addressed before adopting these developed tools in clinical practice.

Brief biosketch Dr. Pinaki Sarder is currently an associate professor (with tenure) of pathology and anatomical sciences at University at Buffalo, with an adjunct appointment in biomedical engineering. Prior to this he was a post-doctoral research associate at Mallinckrodt Institute of Radiology at Washington University School of Medicine in St. Louis. He received his B.Tech. degree in electrical engineering from the Indian Institute of Technology, Kanpur, in 2003, and M.Sc. and Ph.D. degrees in electrical engineering from Washington University in St. Louis, in 2010. Dr. Sarder serves in the editorial board of the *Journal of the American Society of Nephrology (JASN)*, and is a senior member of IEEE. He was a recipient of University at Buffalo's Exceptional Scholars – Young Investigator Award in 2018. His current research interests include computational pathology and computational fusion of imaging morphometric and molecular omics data with applications to renal pathology informatics. Dr. Sarder's research is funded by National Institutes of Health, Kidney Precision Medicine Project (KPMP) Consortium, Human Biomolecular Atlas Project (HubMAP) Consortium, and the Diabetic Complications (DiaComp) Consortium.