

Jia Wu, PhD Assistant Professor Imaging Physics

Artificial Intelligence 101 in Medical Imaging: Open The Door to Discover Clinically Meaningful Imaging Markers in Precision Oncology

Dr. Jia Wu received his Ph.D. from the University of Pittsburgh in 2013. He did his postdoctoral training at the University of Pennsylvania and Stanford University. Since 2018, he was promoted to Instructor at Stanford University. At MD Anderson, Dr. Wu will focus on addressing unmet clinical challenges of precision oncology through leveraging multidisciplinary knowledge, including artificial intelligence, medical image analysis, bioinformatics and more. His research will be centered on developing useful imaging markers with three general aims, with Aim 1 to discover clinically relevant imaging patterns to assist cancer diagnosis, prognosis, and optimize treatment; Aim 2 to identify biological underpinnings of putative imaging patterns through integrating with 'omic' and pathologic data; Aim 3 to validate and translate the newly discovered imaging markers into clinical practice to improve cancer patient management.

Abstract: Biomarkers that stratify patients with clinical relevance are critically needed for precision medicine in the cancer field. Medical imaging captures a comprehensive macroscopic picture of tumor phenotype and its environment. Though imaging is used daily in oncology, e.g., clinical TNM stage, studies of intrinsic phenotypes are needed to explore rich imaging descriptors. In this talk, Dr. Wu will cover using artificial intelligence tools to extract meaningful and clinically actionable features. More importantly, he will introduce the challenges and opportunities to evaluate and potentially translate these imaging biomarkers in the clinical environment. In the future, we expect the synergy among imaging, clinicopathological, and molecular biomarkers will result in robust surrogate markers to advance precision medicine.