A Mathematical Model Development for Prediction of Liver Cancer Treatment Response

Monday, October 29, 2018
2:00PM–3:00PM
Room 646 PGH

Abstract: Curative therapies are not available to the majority of patients with liver cancer. Treatment decisions are difficult and must intricately balance treatment of the disease extent with quality of life and preservation of liver function while minimizing risk of recurrence and metastasis. As each therapeutic approach imposes significant physical, emotional, and financial impact on the patient, there is a well-recognized need for reliable methods that can predict the response to therapy. In this work, we develop an automated approach that uses clinical factors combined with quantitative image features on computed tomography to predict hepatocellular carcinoma (HCC) response to transcatheter arterial chemoembolization (TACE). Our approach for data curation, feature reduction, model calibration, and validation to build confidence in the model prediction accuracy will be discussed. Reliable image registration and segmentation methods are essential for repeatable extraction of quantitative image features as model input.