NJIT New Jersey Institute of Technology

BME

Department of Biomedical Engineering
Graduate Seminar

Date	Location	Time
Friday, March 6th	Central King Building (CKB 217)	11:30 AM

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Title- Traumatic Brain Injury: Prediction, Prevention, and Diagnosis

Abstract:

Turns Traumatic brain injury (TBI) is the most common cause of cognitive and behavioral deficits in the United States and worldwide and its rate is increasing every year. Despite ongoing efforts to address and decrease TBI, it is still alarming that approximately 1.6 - 3.8 million TBIs occur in the United States each year. To reduce the number, severity, and devastating outcomes of TBI, better understanding of underlying brain injury mechanisms and neuro-axonal damage evolution processes as well as more effective head protective devices and more precise TBI diagnostic and prognostic tools are needed. This talk will address how I integrated multiscale computational modeling techniques, in-vivo animal experiments, histopathology assessments, anthropomorphic surrogate experiments, clinical assessments, and in-vitro experiments to understand the relationships between head biomechanics and the neuropathological pathways of TBI across scales and species to develop prediction, prevention, and diagnosis tools for TBI. In this talk, I will review my research activities in the field of TBI including: 1) Development and validation of computational-experimental integrated toolboxes to determine tissue injury thresholds, predict the possible presence, degree, location, and distribution of injury following head biomechanical events, and develop helmet design criteria; 2) Characterization of head impact biomechanics and development and evaluation of head protective devices; 3) Development of clinically translatable diagnostic biomarkers of TBI.

Light refreshments will be served.