

Sensing, computer vision, and artificial intelligence techniques: Transforming the field of physical ergonomics

Date: October 10, 2023

Time: 1:30 pm – 2:20 pm

Location: MEB 234



Dr. Denny Yu

BIO

Dr Yu is currently an Associate Professor of Industrial Engineering at Purdue University. He is also an Adjunct Associate Professor of Surgery at Indiana University School of Medicine and was a Summer Faculty Fellow at the Air Force Research Laboratory's 711th Human Performance Wing. He is a Certified Professional Ergonomist (CPE) and serves on the Board of Directors for the Board of Certification of Professional Ergonomics (BCPE) and the IISE Work Systems Board. Research from Dr Yu's group has been recognised by NIOSH Bullard-Sherwood Award (honourable mention), American Society of Safety Engineers Safety Research Fellow, National Safety Council Rising Stars of Safety, the RSJ/KROS Distinguished Interdisciplinary Research Award (RO-MAN 2021), and the 2021 Human Factors Prize (by the Human Factors and Ergonomics Society).

ABSTRACT

Overexertion in manual material handling (MMH) tasks is one of the leading causes of occupational injuries. The load weight often provides key information for manual injury risk assessments in MMH; however, load weight remains one of the most difficult for ergonomics practitioners to measure in the field as it varies greatly across different objects and is unknown in many circumstances. This talk will provide a brief background on existing techniques as well as emerging capabilities of wearable sensors, computer vision, and machine learning algorithms for discovering key features that predict worker force exertions and estimating load weight objectively and automatically to better enable ergonomic practitioners for assessing workplace injury risks.