CENTER FOR
HEALTHCARE ENGINEERING & PATIENT SAFETY
UNIVERSITY OF MICHIGAN

## PROVIDING BETTER HEALTHCARE THROUGH SYSTEMS ENGINEERING

# Engineering Machine Learning for Medicine: Developing, Deploying, and Evaluating Dynamic Prediction Models

Erkin Ötleş, MD/Ph.D. Student

**Monday 10/11 at 4:30 PM ET**

All seminars will be held in-person in IOE 1680 as well as

The development, validation, and implementation of machine learning (ML) models for use in healthcare requires a strong understanding of clinical needs, analytical methods, and systems engineering. A deep dive into the development of a ML model for predicting return to work of patients experiencing occupational injuries will be used to anchor a broad discussion on engineering ML for medicine. This discussion will cover the development of a dynamic prediction model using workers compensation claims data. Additionally, we will briefly cover issues surrounding ML model task framing, validation, and implementation.

**Erkin Ötleş** is a Medical Scientist Training Program Fellow (MD-PhD student) at the University of Michigan. He has completed three years of medical school training and is currently a PhD candidate in the department of Industrial and Operations Engineering. His research lies at the intersection of computer science, industrial engineering, and medicine, centered on creating machine learning and artificial intelligence tools for patients, physicians, and health systems. Erkin's dissertation work focuses on the development, implementation, and prospective usage of dynamic health outcome prediction models (e.g. early warning systems). He is co-advised by Dr. Brian Denton (Industrial and Operations Engineering) and Dr. Jenna Wiens (Computer Science and Engineering). Erkin has a professional background in health IT - having managed electronic health record development and healthcare data science teams. He holds a Master's of Industrial Engineering from the University of Wisconsin. After completion of his MD-PhD training, Erkin plans on pursing medical residency training in emergency medicine.

This seminar series is presented by the U-M Center for Healthcare Engineering and Patient Safety (CHEPS): Our mission is to improve the safety and quality of healthcare delivery through a multi-disciplinary, systems-engineering approach. For the Zoom link and password and to be added to the weekly e-mail for the series, please RSVP. For additional questions, contact CHEPSseminar@umich.edu. Photographs and video taken at this event may be used to promote CHEPS, College of Engineering, and the University.