



University of Colorado
Colorado Springs

Math Distinguished Lecture Series
Spring 2025

Thursday,
April 3, 2025



12:30-1:30 pm
Dwire Hall 121
Refreshments at 12:15pm

Dr. Jeffrey Humpherys, Missouri S&T

Learning to Care: Can AI/ML help fix the U.S. Healthcare System?

Abstract: The healthcare ecosystem is a complex network of patients, providers, and payers that involves a variety of nuanced decision-making processes. We give an overview of some of the challenges in the US Healthcare System and the role that AI/ML can play in helping to manage and inform clinical decisions. Specifically, we highlight two areas of research: (i) the development of computational phenotypes (or medical concepts) to improve clinical understanding and (ii) the application of AI/ML for survival analysis which can inform personalized treatment strategies. Through these efforts, AI/ML has the potential to significantly enhance both the precision and efficiency of healthcare delivery.

About the speaker: Dr. Jeffrey Humpherys is the Kummer Endowed Professor of Data Science in mathematics and statistics at Missouri S&T University. His research focuses on the mathematical foundations of artificial intelligence and machine learning (AI/ML). He uses AI/ML in healthcare to develop medical devices and health informatics solutions that predict the onset and severity of both chronic and infectious diseases, and identify their optimal care pathways. He has also published several papers in nonlinear dynamical systems and stochastic control theory. Dr. Humpherys was most recently the chief data scientist at Harbor Health in Austin, Texas. He also previously served as a research professor at the University of Utah's School of Medicine, chief data scientist at Owlet Baby Care, vice president of research at UnitedHealth Group, and professor of mathematics at Brigham Young University. He earned a Ph.D. in mathematics from Indiana University and a bachelor's degree in mathematics from Utah State University.

