Bernoullis Tafelrunde

Graduate Student Seminar

Monday, 14 November 2022, 12:15-13:00
Seminarraum 05.002, Spiegelgasse 5

Woo Jung Kim

University of Warwick

Feature Allocation Approach for Multimorbidity Trajectory Modelling

Abstract

A multimorbidity trajectory charts the time-dependent acquisition of disease conditions in an individual. This is important for understanding and managing patients who have a complex array of multiple chronic conditions, particularly later in life. We construct a novel probabilistic generative model for multimorbidity acquisition within a Bayesian framework of latent feature allocation, which allows an individual's disease profile to be driven by multiple latent factors and allows the modeling of age-dependent multimorbidity trajectories. We demonstrate the utility of our model in applications to both simulated data and disease event data from patient electronic health records. In each setting, we show our model can reconstruct clinically meaningful latent multimorbidity clusters and their age-dependent susceptibility.