Joint Trajectories with Variable Selection

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Abstract: Patterns of change over time can serve as the basis for identifying subtypes of diseases in a heterogeneous population, and utilizing data from multiple sources allows for the simultaneous study of longitudinal patterns. Motivated by a birth cohort study, we will discuss approaches based on mixture models and machine learning, along with variable-selection strategies, to classify children in terms of biological risks, clinical pathways and environmental exposures for developing chronic conditions, such as asthma. To illustrate the methodology, numerical results from both real data and simulations will be presented. (This is a joint work with Zihang Lu).