

Title: Scale-Space Inference of Causal Effects Based on Propensity Scores by Lingsong Zhang

Abstract: Estimating the Average Treatment Effect (ATE) for a population and the Conditional Average Treatment Effect (CATE) for an individual represent two extremes in causal effect analysis, corresponding to different levels of resolution. The ATE captures the effect at the population level, offering a coarser perspective, while the CATE provides a more granular, individualized assessment. In this talk, we introduce a multiresolution framework for causal effect exploration, where causality is assessed at varying levels of resolution, reflecting different groupings within the population. This approach enables the identification of subgroups that exhibit distinct causal effects. We demonstrate this method's utility through simulation studies and real-world applications.