



北京理工大学

数学与统计学院学术报告

Balancing utility and cost in dynamic treatment regimes

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摘 要: Dynamic treatment regimes (DTRs) are personalized and adaptive strategies for sequential treatment decisions based on individual characteristics over time. Before each treatment assignment, covariate information is collected to improve decision quality. Collecting more information can improve decision accuracy, but it also increases data collection costs. In this work, we propose a Bifurcated Q-learning method that performs individualized covariate assessment prior to individualized treatment assignment, balancing the utility of the DTR with the costs of both treatment assignment and covariate assessment. The performance of the proposed method is demonstrated through extensive numerical studies, including simulations and a real-data application to the MIMIC-III database.

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