

Tuesday 23 July 2024

09:00-10:30 Invited Session 4 (Main Room)

Optimal individualized treatment rules (Chairs: Giorgos Bakoyannis, Rodolphe Thiebaux)

Robust Sample Weighting to Facilitate Individualized Treatment Rule Learning for a Target Population

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We consider a setting when a study or source population for individualized-treatment-rule (ITR) learning can differ from the target population of interest. We assume subject covariates are available from both populations, but treatment and outcome data are only available from the source population. Existing methods use "importance" and/or "overlap" weights to adjust for the covariate differences between the two populations. We develop a general weighting framework that allow a better bias-variance trade-off than existing weights. Our method seeks covariate balance over a non-parametric function class characterized by a reproducing kernel Hilbert space. Our weights encompass the importance weights and overlap weights as special cases. Numerical examples demonstrate that our weights can improve many ITR learning methods for the target population that rely on weighting.