Discretized Targeting Using Metalearners for Heterogeneous Treatment Effects

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Abstract

Metalearners for estimating heterogeneous treatment effects are used ubiquitously to estimate Conditional Average Treatment Effects (CATEs) in a variety of applications,and increasingly, for targeting based on causal estimates; however, when taking discrete actions, such as whether or not to give a costly dichotomous treatment to a user based on a predicted effect informed by these metalearners, there is considerable ambiguity aobut what to do due to inherently aggregated backtesting. This paper proposes a solution to this discretization problem that balances the bias-variance tradeoff that arises from proposing cutoffs based on coarser vs finer grained bins of backtesting results.

1 Introduction

Metalearners and other models for heterogeneous treatment effecst are widely used for a variety of applications that are increasingly not limited to the ex-post analysis of experimental data. In medical and industry use cases, *predicted* treatment effects, before any intervention is made, are either used directly or as features in models (Pan, et al, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9291969/) .

1.1 Existing Literature

More text.

2 Problem Description

3 Solution

4 Simulated Results