

‘segmenTree’ algorithm formal introduction

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22/04/2020

The ‘segmenTree’ algorithm is a decision tree based algorithm for discovery of heterogeneous treatment effects in randomized controlled trial results.

Problem setup

We observe a randomised controlled trial sample $\{y_i, x_i, t_i\}_{i=1}^N$ where $y_i \in \{0, 1\}$ is a binary outcome of interest, $t_i \in \{0, 1\}$ is a binary treatment and $x_i \in \mathbb{R}^p$ is a vector of observation covariates. Since we’re dealing with a randomised trial we can assume that the treatment assignment is independent of the covariates: $P(T_i = 1|x_i) = P(T_i = 1)$.