

Robust Doubly Robust Estimates

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Search engines that place ads on the web are dynamic systems. New tools that help advertisers fine-tune and enhance their campaigns are always being developed and offered to advertisers, and advertisers are always changing their ads and target audience. In an ideal world, the effectiveness of both tools for advertisers and campaigns by advertisers would be evaluated with statistical experiments, but in the real world such experiments are rare. Worse still, the outcome is often a rare binary event, analysis is often automated, and results are evaluated without the benefit of a statistician. Causal models and doubly robust estimation are obvious candidates for estimation in such circumstances, but they may also behave poorly if some of the controls had little chance to be treated, even if the goal is only to estimate the effect on the treated. This talk describes a score test and alternative estimate that can be used to detect the presence of untreatable controls and further robustify estimated treatment effects.