THE UNIVERSITY OF CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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The Knockoff Filter for FDR Control in Group-Sparse and Multitask Regression

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ABSTRACT

We propose the group knockoff filter, a method for false discovery rate control in a linear regression setting where the features are grouped, and we would like to select a set of relevant groups which have a nonzero effect on the response. By considering the set of true and false discoveries at the group level, this method gains power relative to sparse regression methods. We also apply our method to the multitask regression problem where multiple response variables share similar sparsity patterns across the set of possible features. We discussed various methods to handle partial missingness in some outcomes and potential high dimension setting. Empirically, the group knockoff filter successfully controls false discoveries at the group level in both settings, with substantially more discoveries made by leveraging the group structure.