THE UNIVERSITY OF CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Using Probabilistic Knockoffs of Binary Variables to Control the False Discovery Rate

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Eckhart 117, 5734 S. University Avenue

ABSTRACT

Variable selection for regression is a key problem in applied statistics. The knockoff filter method provides one method of variable selection for linear regression. It relies on generating 'knockoff' features, which replicate the correlation structure of the original variable. When the full path of LASSO regression is fit, the points at which a null variable and its knockoff first have nonzero coefficients will be exchangeable; this leads to a method of controlling FDR. However, for other GLMs, the method breaks down. I will provide an alternative method of randomly generating knockoffs for binary variables which will will satisfy the original correlation condition in expectation and offer improved performance for other GLMs.

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