Hing-dimensional model selection under covariate shift

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Abstract: We consider a high-dimensional variable selection problem under covariate shift, which has been paid much attention in statistics and machine learning fields. We first use the orthogonal greedy algorithm (OGA) to implement model selection and then adjust the selected model for covariate shift using an importance weighted OGA (IWOGA). Under a weak sparsity condition on regression coefficients, a rate of convergence of IWOGA is derived. In addition, the performance of IWOGA under the covariate shift is demonstrated through a simulation study and a real data example.