

## missKnockoffs: A Model-X Knockoff Framework for Variable Selection with Missing Data

Model selection in high-dimensional data has attracted substantial attention over the past two decades. However, existing methodologies rarely address the presence of missing data, despite its prevalence in many contemporary applications. We propose missKnockoffs, a novel extension of the Model-X knockoff framework for variable selection with incomplete observations. The procedure combines missing-value imputation with knockoff-based FDR control and incorporates multiple knockoff generations to improve stability. We also introduce a new aggregation method for knockoff statistics and investigate its theoretical properties. Extensive simulations demonstrate effective FDR control and favorable statistical power across a range of settings. The proposed methodology is further illustrated using real omics datasets, confirming its practical usefulness for high-dimensional inference in the presence of missing data.