

**Abstract:** We consider the variable selection problem, where we attempt to discover relevant variables influencing response  $Y$  out of many possible features  $X_1, \dots, X_p$ . In this problem, the selection procedure should choose as many relevant variables as possible while controlling the type I error (e.g., false discovery rate) under a certain predetermined level.

This talk focuses on this topic and introduces the novel methodology based on the knockoffs that has been rapidly developing especially in high-dimensional statistics. (Keywords: Large-scale inference, Variable selection, FDR control, Power, Model-X knockoff, Lasso)