



SEMINAR SERIES 2018-2019

When: Monday, December 10, 2018
Time: 3:30 – 4:30 pm
Refreshments at 3:15 pm
Where: Sidney Smith Hall Rm 1074
Speaker: Robert Tibshirani, Stanford University
Host: Jamie Stafford

Pliable Lasso

I propose a generalization of the lasso that allows the model coefficients to vary as a function of a general set of some pre-specified modifying variables. These modifiers might be variables such as gender, age or time. The paradigm is quite general, with each lasso coefficient modified by a sparse linear function of the modifying variables Z .

The model is estimated in a hierarchical fashion to control the degrees of freedom and avoid overfitting. The modifying variables may be observed, observed only in the training set, or unobserved overall. There are connections of our proposal to varying coefficient models and high-dimensional interaction models.

We present a computationally efficient algorithm for its optimization, with exact screening rules to facilitate application to large numbers of predictors. The method is illustrated on a number of different simulated and real examples.