# Lasso and Model Order Selection. In-class Exercise 2

EL-GY 6143 Intro Machine Learning. Prof. Sundeep Rangan

## Question

We wish to fit a linear model of the form,

for a problem with variables. Suggest regularizers to impose the following constraints:

1. All the coefficients should be close to zero, but not necessarily exactly zero.
2. Most of the coefficients should be exactly zero
3. Among the first fifty coefficients, , most coefficients should be zero. But, the other coefficients should be unconstrained.

## Solution

1. Use the L2-norm,
2. Use the L1-norm,
3. Only regularize the first 50 coefficients,