

Title:

L_1 Regularization Path Algorithm for Generalized Linear Models

Author(s):

Mee Young Park and Trevor Hastie

Technical Report number (Dept. of Statistics, Stanford Univ.):

2006-14

Date:

September 2006

Abstract:

In this study, we introduce a path-following algorithm for L_1 regularized generalized linear models. The L_1 regularization procedure is useful especially because it, in effect, selects variables according to the amount of penalization on the L_1 norm of the coefficients, in a manner less greedy than forward selection/backward deletion. The GLM path algorithm efficiently computes solutions along the entire regularization path using the predictor-corrector method of convex-optimization. Selecting the step length of the regularization parameter is critical in controlling the overall accuracy of the paths; we suggest intuitive and flexible strategies for choosing appropriate values. We demonstrate the implementation with several simulated and real datasets.