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Department of Statistics
Seminar Series

RYAN TIBSHIRANI

Department of Statistics
Stanford University

The Solution Path of the Generalized Lasso

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ABSTRACT

We present a path algorithm for the generalized lasso problem. This problem penalizes the ℓ_1 norm of a matrix D times the coefficient vector, and has a wide range of applications, dictated by the choice of D . Our algorithm is based on solving the dual of the generalized lasso, which greatly facilitates computation of the path. For $D = I$ (the usual lasso), we draw a connection between our approach and the well-known LARS algorithm. For an arbitrary D , we derive an unbiased estimate of the degrees of freedom of the generalized lasso fit. This estimate turns out to be quite intuitive in many applications.

Keywords: lasso; path algorithm; Lagrange dual; LARS; degrees of freedom

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