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STATISTICS SEMINAR

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**Title:** Fast and accurate L1-penalized least squares

**Date:** Wednesday – December 12, 2007

**Time:** 3:20 PM

**Place:** 552 Hill Center

**Abstract**

L1-PENALIZED GREEDY PURSUIT is a simple algorithm for minimizing squared error with a L1 penalty on the coefficients of linear combination. Terms are introduced iteratively. Given the previous fit, the next term and its coefficient are chosen such that in linear combination with the previous fit the criterion is optimized. After  $k$  such iterations the criterion is within order  $1/k$  of the minimum. Explicit bounds are given that hold for arbitrary data-sets. The risk of the estimator is also characterized in a similar way under statistical assumptions. Similar conclusions hold for L1 penalized log likelihood. We discuss the relationship of this algorithm to early work on greedy algorithms and to other work on L1-penalized optimization by various authors.

**Refreshments:** 2:50 PM, 502 Hill Center

