Variable Selection with Support Vector Machine Algorithms

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After a short intro into both, support vector machines and methods for dimension reduction and variable selection and some history of the field which includes methods like *Ridge Regression*, *Garotte*, *LASSO*, and *Elastic Net*, a more detailed view of the following methods

1. SVM Feature Selection (Guyon, Weston, Barnhill & Vapnik, 2002)
2. Sparse L1 SVM (Bradley & Mangasarian, 1998; Zhu, Rosset, Hastie & Tibshirani, 2003; Fung & Mangsarian, 2004)
3. Structured Multicategory SVM (*SMSVM*: Lee, Kim, Lee, & Ko, 2006)
4. Smoothly Clipped Absolute Deviation (*SCAD*: Fan & Li, 2002; Benner, Ittrich, & Mansmann, 2006)

is provided. Implementations of these methods in CMAT are compared with respect of computer resources and results based on a few examples.