Nonsmooth nonconvex optimization approach to clusterwise linear regression problems

Contributed talk

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In this paper we consider the clusterwise linear regression problem. A new approach for solving the clusterwise linear regression problems is proposed based on a nonsmooth nonconvex formulation. We present an algorithm for minimizing this nonsmooth nonconvex function. This is an incremental algorithm that gradually funds clusters and linear regression functions within these clusters and minimizes the overall fit function. A special procedure is introduced to generate a good starting point for solving global optimization problems at each iteration of the incremental algorithm. Such an approach allows one to find global or near global solution to the problem when the data sets are sufficiently dense. The algorithm is compared with the multistart Spath algorithm on several publicly available data sets for regression analysis.

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