The Gravitational Method and Restricted Least Squares Problem

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ABSTRACT

The Gravitational Method is a new LP algorithm which can be seen as a variant of the gradient projection method, The method consists of two alternating routines; direction finding and step length determination. The direction finding is done by solving a PD-symmetric quadratic programming problem in varying dimension, where the dimension is determined to be the number of active constraints at the current local region.

This direction finding problem is viewed as a least squres problem with nonnegativity restriction, and an efficient combinatorial method for solving this algorithm are to be discussed, together with some interesting computational features of the Gravitational Method.

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