

THE UNIVERSITY



OF HONG KONG

Department of Mathematics

Numerical Mathematics and Applied Analysis Group Seminar (NMAA)

Minimization of nonsmooth nonconvex objectives for image reconstruction

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Abstract

In this talk, the restoration of discrete signals or images using optimization with convex data fidelity term and nonconvex nonsmooth regularization is considered. Our goal is to find an efficient algorithm for computing the global minimizer which there are no effective methods to get before. The global minimization of the cost function J is reduced to a sequence of local minimizations of J_e , where e is an increasing relaxation sequence from 0 to 1. The starting cost function is convex and the last one fits J . The potential function in the subproblems is decomposed into a nonsmooth term and an $\|\cdot\|_1$ -norm term. By primal-dual interior point method, the nonsmooth minimization problems are solved. Two numerical experiments show the efficiency of our method. Comparison with simulated annealing method further strengthens this point.

All are welcome
