

TITLE: Fast and Exact Discrete Image Restoration Based on Total Variation and on Its Extensions to Levelable Potentials

ABSTRACT:

We investigate the decomposition property of posterior restoration energies on level sets

in a discrete Markov Random Field framework.

This leads us to the concept of 'levelable' potentials (which TV is shown to be the paradigm of). We prove that convex levelable posterior energies

can be minimized exactly with level-independent binary graph cuts.

We extend this scheme to the case of non-convex levelable energies, and present convincing restoration results for images degraded by impulsive noise.