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Stacey E Levine* (sel@mathcs.duq.edu), 440 College Hall, Department of Mathematics & Computer Science, Duquesne University, Pittsburgh, PA. *Image Decomposition via Total Variation and Besov Minimization.*

Variational methods provide powerful tools for solving the image decomposition problem, however, these methods still pose challenges which can prevent them from being applied to real world situations. We will discuss two variational formulations based on minimizing the total variation and Besov norm of an image which address two such problems. The first is finding accurate numerical schemes that properly penalize edges and smooth regions. The second is reducing the staircasing effect in which smoothly varying regions can be improperly segmented into piecewise constant ones. The well-posedness of the models, convergence of the numerical schemes, and numerical results will be discussed. (Received February 28, 2008)