

Department of Applied Mathematics and Statistics
The Johns Hopkins University

SEMINAR

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304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

MINIMIZATION MODELS AND ALGORITHMS FOR
IMAGE SEGMENTATION, IMAGE DECOMPOSITION,
AND TEXTURE MODELING

ABSTRACT

This talk is devoted to some computational methods for image segmentation, cartoon-texture separation, and texture modeling, in a variational and partial differential equations approach. A multilayer curve evolution model will be presented for image segmentation that is well adapted for volumetric MRI brain data and is more efficient than other existing models. Also, computational methods for modeling oscillations and image decomposition into cartoon and texture will be presented. Inspired by ideas of Meyer and of Mumford and Gidas, images and in particular oscillatory patterns are now represented by more refined texture norms, such as dual norms or generalized functions. The difficulty arising in the minimization of such models will be addressed, and theoretical and experimental results will be presented.