

MATH/SIUC COLLOQUIUM



9-27-18 ^{3:00PM}
Neckers 156

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Title
Schatten Quasi-Norm Induced Models
for Image Decomposition, Completion
and Salient Object Detection

Place: Neckers 156

Time: 3:00pm

Reception immediately following in Math Library.

Abstract

Image decomposition, completion and salient object detection are not only ubiquitous but also challenging tasks in the study of computer vision. Image processing using mathematical methods has always been the trend of applied mathematics. In recent years, the latest research hotspot is the matrix rank minimization problem which arises in a wide range of applications. Inspired by this, we firstly propose a novel regularization model for image decomposition and data completion, which integrates relative total variation (RTV) with Schatten-1/2 or Schatten-2/3 norm, respectively.

Secondly, we give salient object detection based on weighted group sparsity and Schatten-1 or Schatten-2/3 or Schatten-1/2 norm. The proposed model is in essence divided into "regularization term+double nuclear norm" and "regularization term+ Frobenius/nuclear hybrid norm", which can be solved by splitting variables and then by using the alternating direction method of multiplier (ADMM). Meanwhile, Convergence of the algorithm is discussed in detail.