Variation-Based Image Segmentation and its Multiscale Realizations

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(Joint work with Yongping Zhang and Nanning Zheng)

Abstract:

Image segmentation is one of the most important components of image processing, having a wide range of applications in image understanding, image coding, image synthesis etc. Besides, it is required as a low-level step to a large number of high-level computer vision tasks. In this talk, we describe our formulation of a multi-scale image segmentation method using the variational approach. Each image segment is to be defined by an interpolation surface based on edge information. The corresponding optimization problem is then solved by a new, efficient Sequential Relaxation Algorithm which is globally convergent. The performance of our method is demonstrated on a variety of real and synthetic images and compared with traditional techniques.