

# MODELS AND FAST ALGORITHMS FOR IMAGE SEGMENTATION.

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In this talk, we will explore the relationship between graph cut, convex relaxation and some recent continuous max-flow approaches proposed in the literature. Especially, we will see the continuous versus discrete relationship between them. There are two advantages with these approaches: 1) different fast numerical algorithms have been used for these approaches; 2) global minimization can be guaranteed for some nonconvex problems. We shall the connections between some of these algorithms.

Image restoration and segmentation will be used as examples for applications of these algorithms. Extended application of ROF model, global minimization of the Chan-Vese model and different global minimization approach for multiphase labeling problems will be presented. In the end, we will also talk about incorporating shape priori and shape signature into our models with different applications. This talk is based on collaborative work with Bae, Boykov, Yuan, Liu and other collaborators.

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