

Segmentation, Registration, and Shape Models

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In this talk we discuss the connection between image segmentation, image registration, and prior shape models. The first part of the talk introduces a variational framework for simultaneous image registration and segmentation using active contours. Next, a model-based approach using principal component analysis is introduced into the active contour framework for segmentation of known shape classes. Finally, we discuss how this model-based representation of shape may facilitate the recognition task and further show how it may be integrated into the first technique for joint model-based image segmentation and registration.