Likelihood Model

Tissue Segmentation

Tumour Segmentation

Gaussian Mixture Model for intensities estimated using EM algorithm

Multiatlas Segmentation of subcortical structures

Multiatlas Segmentation of lobes

Basic voxel wise nonparametric label likelihood

Prior Model

Potts Model prior

defined over a graph with vertex set V and a set of possible colours C, probability of state X is given by,

$$\pi(X) = \frac{e^{\beta \sum_i J(X_i)}}{Z_\beta} \quad where \quad J(X_i) = \sum_{j \in V} W_{i,j} \mathbb{I}_{X_i = X_j}$$

Label image prior as a hidden MRF with Potts model