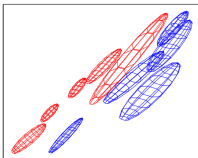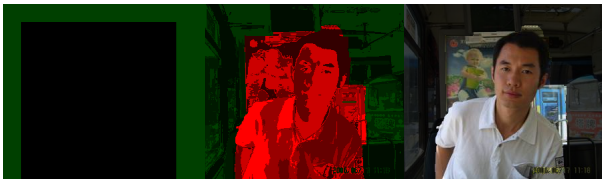# Extended GrabCut Model

trimap constraints

GMM

segmentation
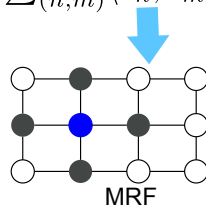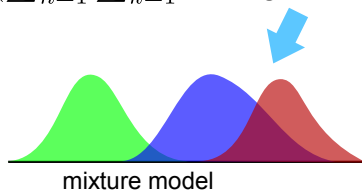
bounding box

Gaussian mixtures

$$p(\mathbf{z}) = \frac{1}{C}\exp\left(\sum_{n=1}^{N}\sum_{k=1}^{K} z_{nk}\log\pi_{nk} + \beta\sum_{(n,m)}\langle z_n, z_m\rangle\right)$$

mixture model

MRF

$$a_n = \log p(\alpha_n = 1) + E_{z_n|x_n}[\log p(x_n, z_n; \theta(\alpha_n = 1))]$$
$$- \log p(\alpha_n = 0) + E_{z_n|x_n}[\log p(x_n, z_n; \theta(\alpha_n = 0))]$$

MRF prior

marginal likelihood