Localization: Single-Feature Case

extract   train/test

I ⇒   [P(I, 1^a) , …, P(I, m^a) , …, P(I, M^a)]   ⇒   MLP
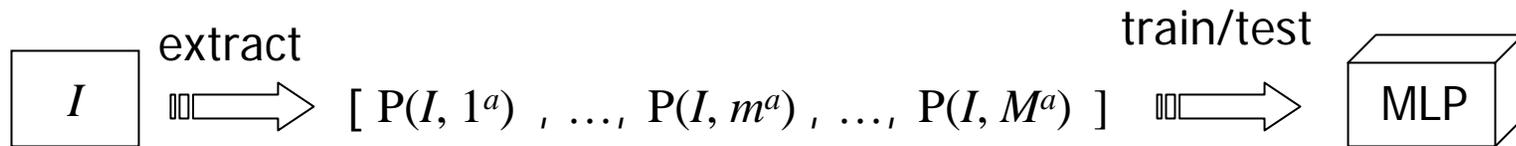
The contribution of region r^a to the MLP output through the component m^a:

[P(I, 1^a) , …,   0   , …, P(I, M^a)]   ⇒   MLP

[P(I, 1^a) , …, P(r^a, m^a) , …, P(I, M^a)]   ⇒   MLP

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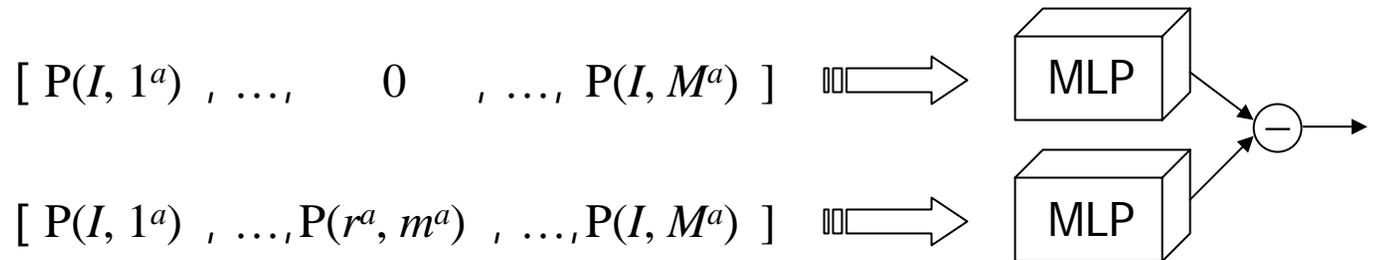
The contribution of region r^a to the MLP output through all the components:

$$C_r^a = \sum_{m=1}^{M} \left(MLP(Y_{I_i}^{1^a:M^a}|_{m^a=P(r^a,m^a)}) - MLP(Y_{I_i}^{1^a:M^a}|_{m^a=0}) \right)$$

# Localization: Multiple-Feature Case

Suppose a pixel, p, belongs to a region r^a_p for type a, the contribution of pixel p to the MLP output through all the components of all the feature types is defined by

$$C_p^A = \sum_{a \in A} \sum_{m^a=1}^{M^a} (MLP(Y_{I_i}^A|_{m^a=P(r_p^a, m^a)}) - MLP(Y_{I_i}^A|_{m^a=0}))$$

Localization: Samples

Original	Color Regions	Localization
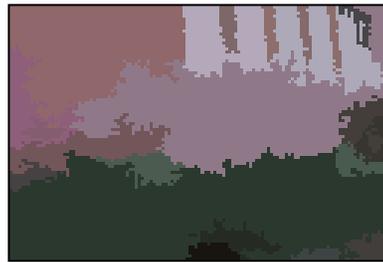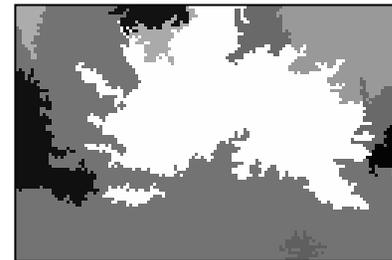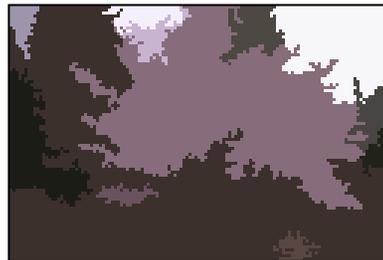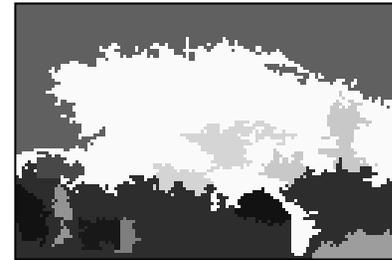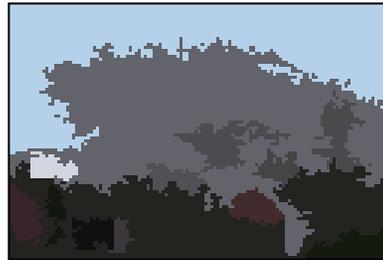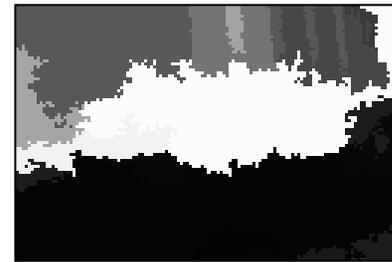
Localization: Samples

| Original | Blobworld | localization by Blobworld regions | mean shift | localization by mean shift regions | localization by combination |
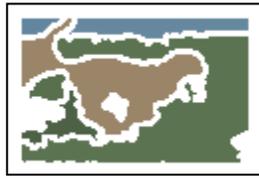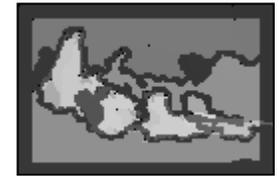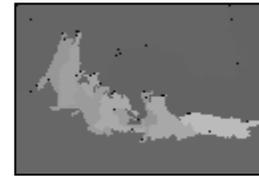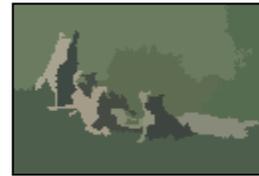
Localization: Samples

original | color segmentation regions | localization by color regions | structure | localization by structure regions | localization by combination