Localization: Single-Feature Case

The contribution of region \( r^a \) to the MLP output through the component \( m^a \):

\[
[ P(I, 1^a), \ldots, 0, \ldots, P(I, M^a) ] \xrightarrow{\text{extract}} \text{MLP}
\]

\[
[ P(I, 1^a), \ldots, P(r^a, m^a), \ldots, P(I, M^a) ] \xrightarrow{\text{train/test}} \text{MLP}
\]

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

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

\[
C^A_p = \sum_{a \in A} \sum_{m^a=1}^{M^a} (MLP(Y^A_{I_i}|m^a=P(r^a_p,m^a)) - MLP(Y^A_{I_i}|m^a=0))
\]
Localization: Samples

Original

Color Regions

Localization
Localization: Samples

- Original
- Blobworld
- Localization by Blobworld regions
- Mean shift
- Localization by mean shift regions
- Localization by combination
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<th>color segmentation regions</th>
<th>localization by color regions</th>
<th>structure</th>
<th>localization by structure regions</th>
<th>localization by combination</th>
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<td><img src="image2" alt="Color Segmentation" /></td>
<td><img src="image3" alt="Localization by Color" /></td>
<td><img src="image4" alt="Structure" /></td>
<td><img src="image5" alt="Localization by Structure" /></td>
<td><img src="image6" alt="Combination" /></td>
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