Image Segmentation Package

Aman Bhatia
Supervisor - Prof. Subhashish Banerjee

About

- Several Techniques for Image Segmentation
- Combining non-rudimentary techniques in a single Package

Various Segmentation techniques :-

- Mean-Shift
- Efficient Graph-Based Segmentation(Local Variation)
- Normalized Cut Image Segmentation
- Spectral Min-Cut

Mean-Shift Segmentation

- Iterative Algorithm
- Mean, ***M(x)*** is calculated for each point, ***x*** in a neighbourhood
- ***X*** $\leftarrow$ ***M(x)***, until convergence.

Mean Shift Results

Eff. Graph-Based Segmentation (Local Variance)

- Graph is formed with nodes representing pixels & edges representing pixel neighbourhood.
- Edge weights determine similarity between two pixels.
- Connected Components are found in the graph
- Modified Kruskal Algorithm is used which takes into account local variation of a conn. component.

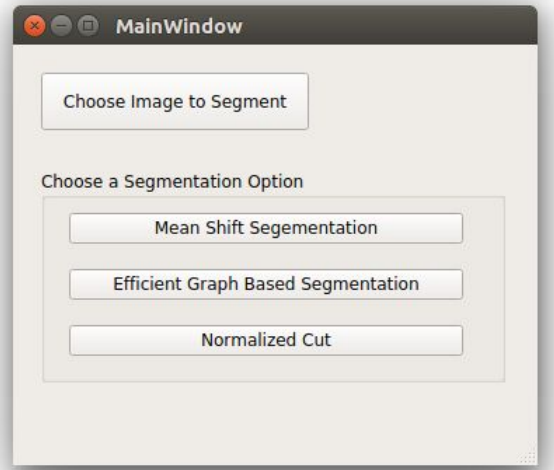
EGBIS Results

Normalized Cut

- Graph is formed with nodes representing pixels & edges representing pixel neighbourhood.
- Edge weights determine similarity between two pixels.
- N-Cut is found in the graph recursively.
- N-Cut takes in account the size of the components which are getting formed.

Normalized-Cut Results

Demo


MainWindow
Choose Image to Segment
Choose a Segmentation Option
Mean Shift Segementation
Efficient Graph Based Segmentation
Normalized Cut

Questions?