Contrast Based Filtering for Salient Region Detection
Project ID - 3

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1 Main Goals

To realise and understand the concept of saliency map and implement it using contrast based filtering techniques.
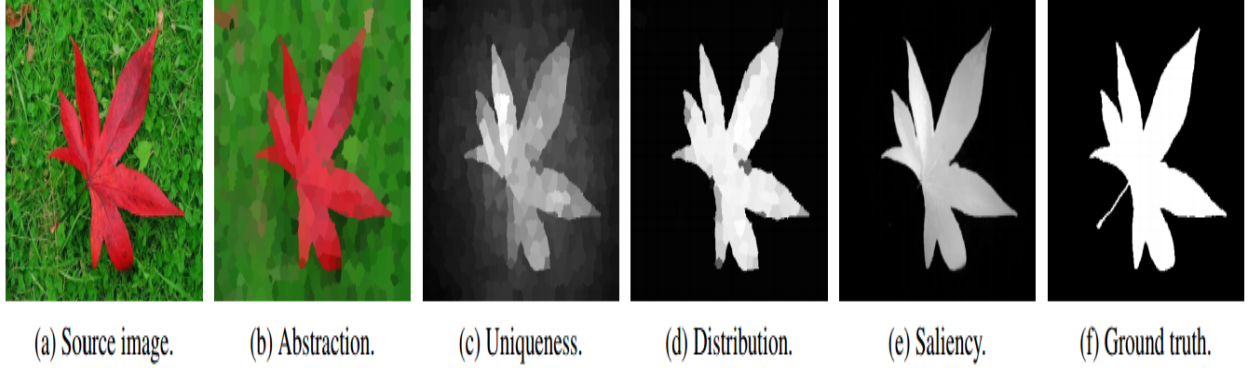
2 Problem Definition

Saliency estimation has become a valuable tool in image processing. Yet, existing approaches exhibit considerable variation in methodology, and it is often difficult to attribute improvements in result quality to specific algorithm properties.

The algorithm consists of four basic steps. First, the method decomposes a given image into compact, perceptually homogeneous elements that abstract unnecessary detail. Based on this abstraction we compute two measures of contrast that rate the uniqueness and the spatial distribution of these elements. From the element contrast derive a saliency measure that produces a pixel-accurate saliency map which uniformly covers the objects of interest and consistently separates fore and background.

3 GitHub Link:

https://tinyurl.com/contrastbasedfiltering

4   Results

(a) Source image.   (b) Abstraction.   (c) Uniqueness.   (d) Distribution.   (e) Saliency.   (f) Ground truth.

5   Tasks Assigned

Concept Understanding Concept of Super Pixels Element Distribution Tuning of Parameters for Element Distribution	Ashish
Uniqueness Assignment Understanding Permutohedral Lattice Embedding Tuning of Parameters for Element Uniqueness Applying Permutohedral Lattice for Element Distribution	Deepak
Saliency Assignment Testing and Improvement PPT and Report	Both

6   Project Milestones and Expected Deadlines

- Oct 1 - 3 : Getting accustomed to GitHub environment.

- Oct 4 - 9 : Build conceptual understanding and explore contrast based filters.

- Oct 17 - 24 : Implement abstraction.

- Oct 25 -Nov 1 : Implement element uniqueness and element distribution.

- Nov 3 - End : Saliency assignment and Miscellaneous tasks.