Ubung: SIFT detector

This document explains the classes and script developed in order to complete/achive the SIFT keypoint detection algorithm successfully. The submission consists of four scripts

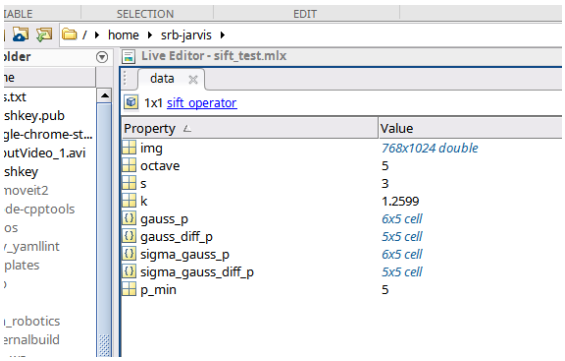
1. Sift_test
2. Sift_operaot
3. Sift_keypoints
4. Sift_Orientation

It consists of following matlab scripts, brief description of these function as follow

Sift_test:

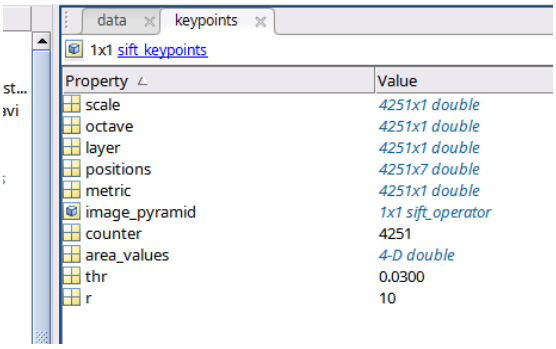
1. **Step1:**

- read the input image and generate the raw data using sift_operator – a user defied function for the next step.
- A variable named 'data' is being generated, contacting the pyramid of Gaussian, Difference of Gaussian and corresponding sigma values.
- Data structure of variable as follow:



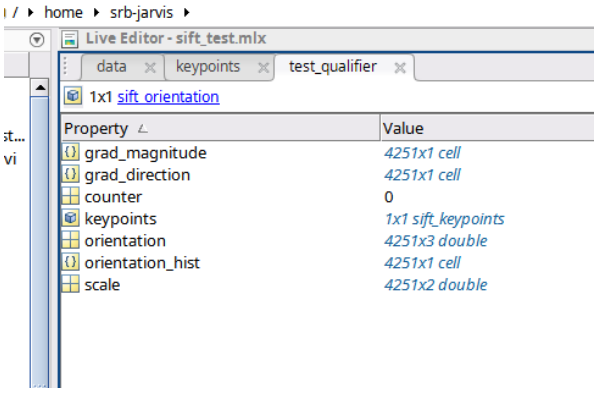
2. Step2:

- Keypoint detection- A user defined function sift_keypoint is used to detect the keypoints by processing the data generated in the previous step.
- Data structure of keypoints as follow:



3. Step2:

- Orientation histogram- In this step, the gradient and orientation is computed by using as kernel of size 16x16 around the point of interest and orientation data is being plotted as orientation histogram
- Based on the maxima of histogram the keypoint orientation is determined.



4. Step 4:

- Plot the keypoints and keypoint orientation with original image.

K**eypoints with their orientation**