**CS 6643 - Computer Vision Fall 2021**

**CANNY’S EDGE DETECTOR**

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**ABSTRACT:**

The Canny edge detector is an edge detection operator that uses a multi-stage algorithm to detect a range of edges in images.

The stages include

1. Gaussian Smoothing
2. Gradient Operation
3. Non-Maxima Suppression
4. Simple Thresholding

**IMPLEMENTATION:**

**Instructions on how to run the code**

Requirements include installation of python and python libraries like numpy, matplotlib and opencv-python.

1. Open Terminal window where ***canny.py*** is located.

2. Paste the input images at the same location as ***canny.py***.

3. Run the command: ***python3 canny.py -i “[path\_to\_input\_filename]”***

For eg- python3 canny.py -i "House.bmp"

4. The output images will be stored in a directory named ***filename\_output*** present at the same location.

For eg- After running the above command, a directory named “House\_Output” will be created with the 8 output images in bmp format.

**SOURCE CODE:**

**OUTPUT IMAGE:**

|  |  |
| --- | --- |
| **GAUSSIAN SMOOTHING** | **HORIZONTAL GRADIENT** |
|  |  |
| **VERTICAL GRADIENT** | **GRADIENT MAGNITUDE** |
|  |  |
| **NON MAXIMA SUPPRESSION** | **THRESHOLDING AT 25TH PERCENTILE** |
|  |  |
| **THRESHOLDING AT 50TH PERCENTILE** | **THRESHOLDING AT 75TH PERCENTILE** |
|  |  |

**OUTPUT IMAGES:**

|  |  |
| --- | --- |
| **GAUSSIAN SMOOTHING** | **HORIZONTAL GRADIENT** |
|  |  |
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