CPSC Computer Graphics

Assignment 1

Additional Filter Implemented – **Pyramidal Filter.**

Reason - The filter assigns maximum weight to the center pixel and simulates a near gaussian filtering effect.

Program Operation – Steps to interact

(a) For the First 3 Questions, open the program **Assigment_Q123**. Add path to image in the **img** variable along with the extension [Line 5, 6 opencv test.py]

(b) Select the type of filtering amongst **gen_box_sq, gen_box_cir, gen_tri_sq, gen_tri_cir, and gen_pyr** [Line 102 opencv test.py]

(c) Run the file "**opencv test.py**". The mipmaps will be generated at each level and will be stored in the same directory. The input image with all the mipmap levels will be displayed.

(d) For the 4th Question open the program **Assigment_Q4**. Copy the desired image and corresponding mipmaps generated from Assignment_Q123 to the directory. Change the filepath accordingly [Line 5 raytracer.py]

By default, mipmaps generated by gen_box_sq are used in the directory for checkered_512x512.png.

(e)Enable the code *separately* for nearest texel [Line 258 raytracer.py] and bilinear filtering [Line 270 raytracer.py]. Run the file "**raytracer.py**"

(f) The resulting images, nearest, bilinear and anisotropic are dumped in **ppm** format. Use IrfanView or any other viewer to view the result.

External libraries used and their use – OpenCV-Python for image loading, writing and display

Non-standard technique – None