CS7GV1 Computer Vision

Mid-term Project 2022/23

**Part 1: Photo effects**

For each of the following photo filters the many of the processing steps are similar, such as splitting the image into its 3 channels (RGB), clipping the values between 0 and 255 and converting them to integers.

For each of these tasks I created functions that are called where needed in each filter.

The split function takes the img array as an input and returns three 1D arrays of the R, G and B channels.

The clipping function takes an array as input and uses the numpy clip function to limit the array to values between 0 and 255.

1. Exposure Filter

My implementation of the exposure filter is to multiply every value in each channel by the parameterized amount. To do this the

1. Contrast Filter
2. Saturation Filter
3. Temperature Filter
4. Solarization (White Clipping)

Part 2: Sharpening, blur, and noise removal

1. Softening
2. Gaussian Sharpening
3. Median Sharpening
4. Bilateral
5. Non-Linear Diffustion

Part 3: High-quality image resampling