Computer Assignment #5- Abstract Data Handling and Use of Channels

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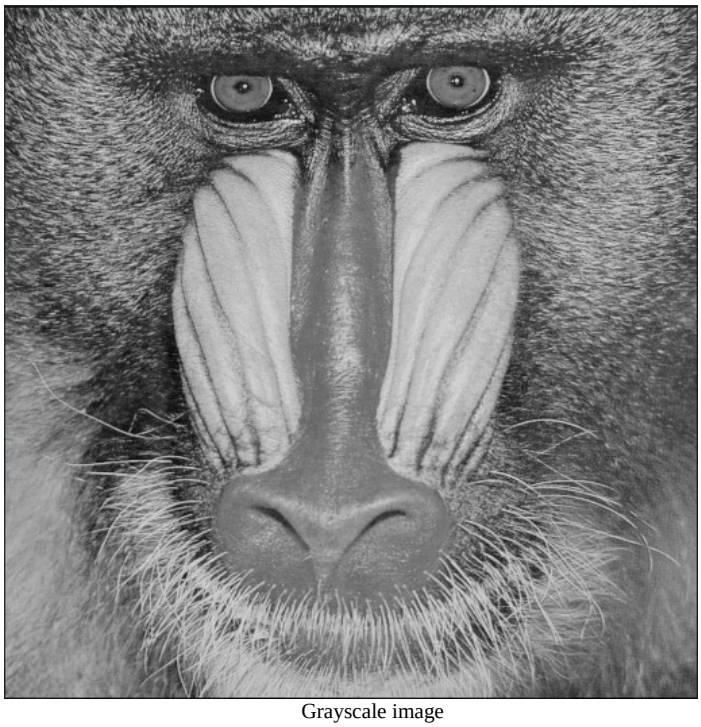
2021-06-14

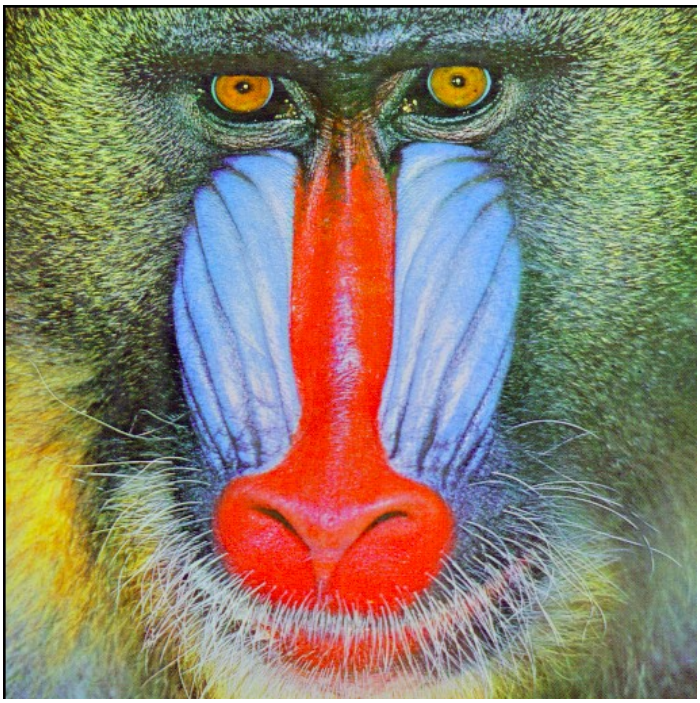
In this assignment, an RGB image is converted to a grayscale image by means of a module and then transmitted to another module to detect edges. This transfer is done by means of channels.

GrayScaler:

At first, it reads image and put values in three different vectors.
This module calculate the mean of 3 layers in 64 segments. Then try transmitting. If this could be done, transfer will be done, otherwise; it computes next segments.
The grayscale values are stored in an external file.



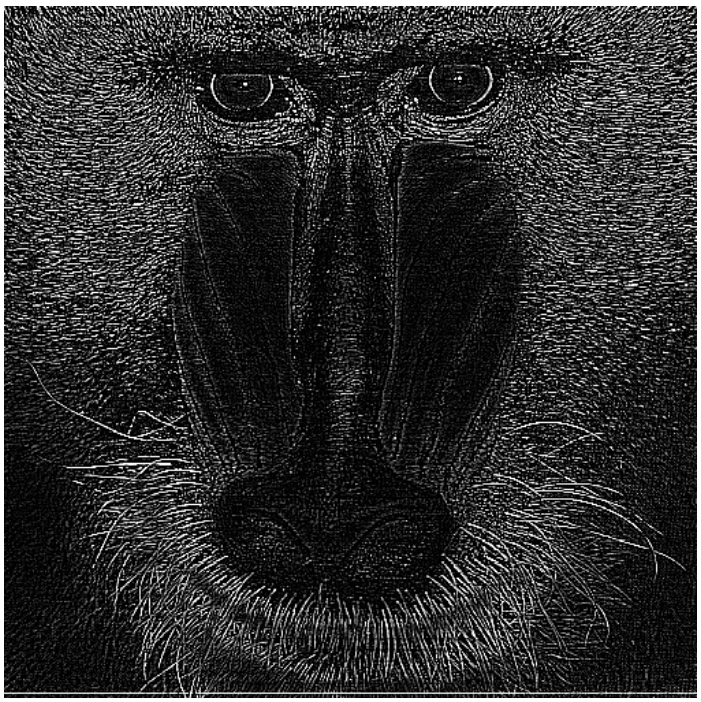
Grayscale image



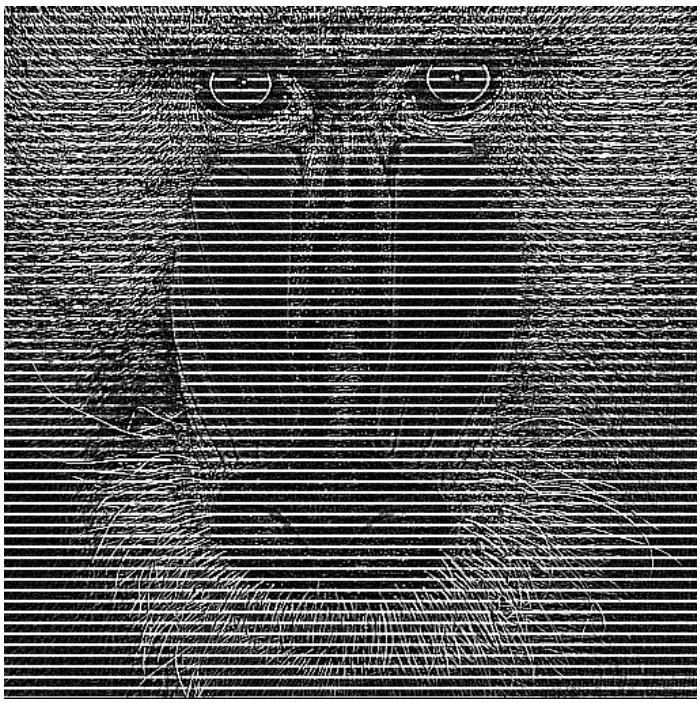
RGB image

EdgeDetector:

This module computes the convolution of each segment. If the segment is received, computation will start, otherwise; it continues getting the data.



EdgeDetected image(extra lines added to first and last segments)



EdgeDetected image(extra lines added to all segments)

The channel has a fifo with size of 4096 bytes. If buffer is empty or full, nothing happens. It is not a blocking channel, so it returns true or false to acknowledge transmitter and receiver.