



University of Cyprus  
Department of Computer  
Science

## EPL445: Digital Image Processing

### Exercise 1

#### A. Create a New Notebook on Google Colab and apply the steps below:

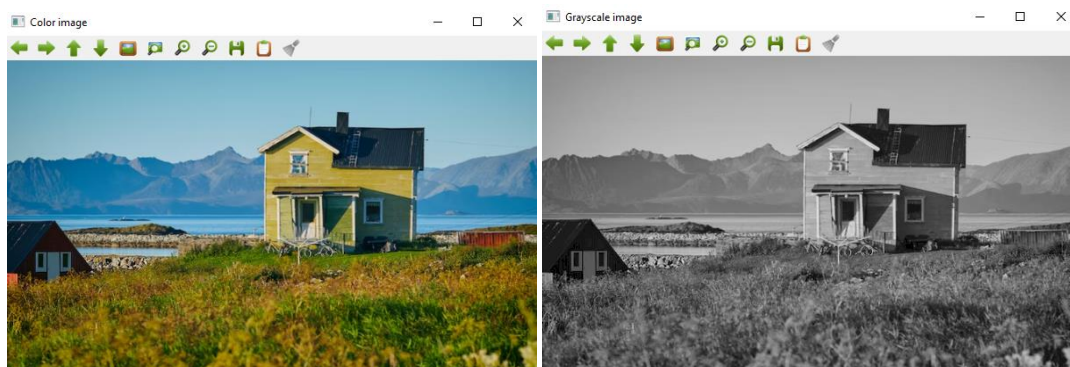
1. Take a photo from your smartphone and upload it to Google Drive.
2. Show the image as RGB and as grayscale.
3. Split the image into RGB channels and show them in chromatic tones (Red, Green, Blue).
4. Save the images (Red, Green, Blue) with the file extensions .jpg, .tiff, and .png, respectively.
5. Then, split the image into YCrCb channels and show them in chromatic tone (Luminance, Chroma red, Chroma blue).
6. Plot the histogram of the grayscale image as well as the histograms of red, green, and blue channels.

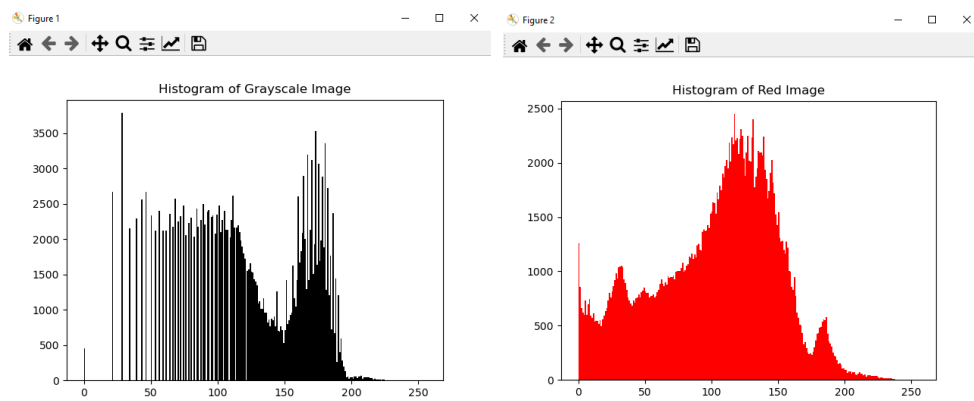
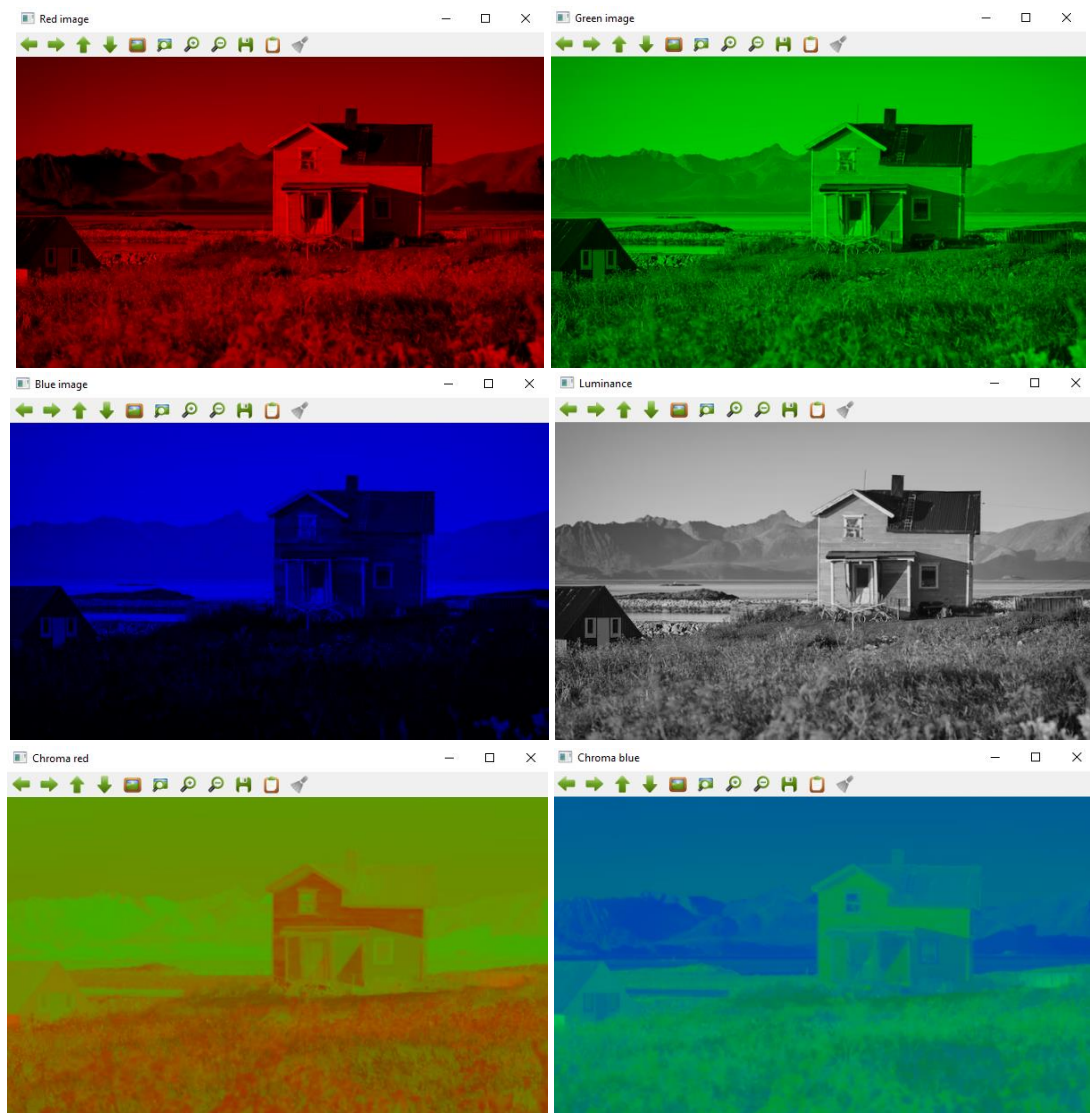
#### B. Take a video from your smartphone and upload it to Google Drive. Choose a frame and apply the steps 1-6.

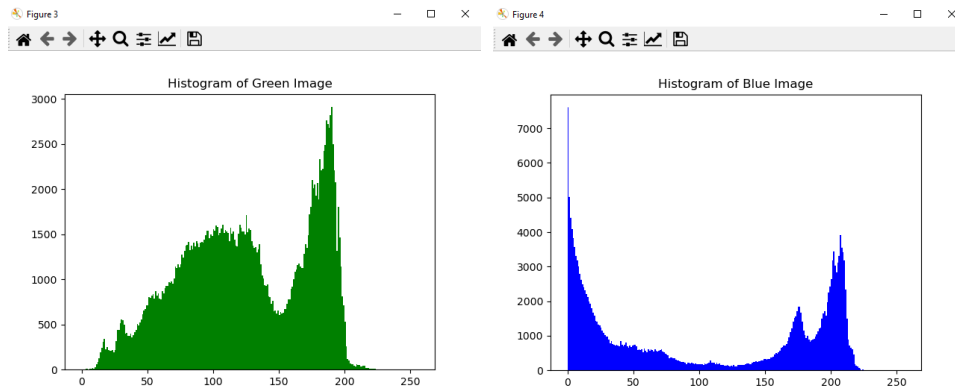
[ For your information:

[https://www.tutorialspoint.com/opencv\\_python/opencv\\_python\\_extract\\_images\\_video.htm](https://www.tutorialspoint.com/opencv_python/opencv_python_extract_images_video.htm) ]

#### Example:





**Note:**

If you want to work in groups to carry out the laboratory exercises, each group should consist of 2 or 3 people. The groups submitted in your 1<sup>st</sup> laboratory exercise will apply to all laboratory exercises of the semester.

**Deliverables:**

The code and the report must be compressed to a ZIP file and submitted on Moodle by **February 5, 2025**.

For the report use the template that is posted on Laboratory material on Moodle