**Project Report**

**TOPIC 1: INTENSITY TRANSFORMATIONS & SPATIAL FILTERING**

**Image Processing (BEJ42903)**

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# 1. Introduction

In their lecturer paper “INTENSITY TRANSFORMATIONS AND SPATIAL FILTERING” Gonzalez, R. and Woods, R. describe the topics like this: “Intensity transformations operate on single pixels of an image for tasks such as contrast manipulation and image thresholding. Spatial filtering performs operations on the neighborhood of every pixel in an image. Examples of spatial filtering include image smoothing and sharpening“.

The methods can be very useful for every person, to help improve their own pictures. Pictures that they have taken of themselves or of a sight during vacation. But afterwards the pictures can turn out to have flaws, like being too dark or need smoothing. This project is addressing this issue by establishing an android application to process the images with flaws. This report is the documentation of the app and its development. The transformation techniques, the development tool, an user instruction and a analyzation of its output.

# 2. Transformation Technique

The following chapter will describe the applied transformation techniques. The android application does one transformation of each of the topic’s intensity transformation and spatial filter.

## 2.1 Intensity Transformation

Summation transformation

## 2.2 Spatial Filter

Average filter, no zero padding

# 3. Development Software

# 4. Application Instruction

# 5. Picture Analysis

## 5.1 Intensity Transformation

## 5.2 Spatial Filter

# 6. References

Gonzalez, R. and Woods, R., *Digital Image Processing*, 4th edition, 2018