UNIVERSITAT POLITÈCNICA DE
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Computer Vision

Flower detection using features

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1 Introduction

The aim of this assignment is to classify 12 different types of flowers using feature extraction.

We have first implemented several ways to extract features that we believed could be key in order to classify correctly the flowers, we tested them, and using different classifiers (decisions trees, SVM or random forest) have tested the accuracy, specificity or sensitivity.

2 Descriptors

In the following sections we will introduce different descriptors we have used to find those valuable features.

2.1 Compactness

2.2 Color

2.3 Number of petals

Figure 1: Ptile

2.4 Relative distance of the centroid

2.5 Hoggs form: Orientation

2.6 Fourier descriptor: Shape

3 Data augmentation

In order **to strenghten our descriptors** we have also used the following public repository:*Albumentation: fast image augmentation library and easy to use wrapper around other libraries*(see AFEGIR NUM in References for more, which proporcionates facilities to augment the dataset including several transformations like: flipping, blurrring, RGB Shifting, Random contrast, Random brightness, etc...

To decide which transformations we wanted to apply, we looked first to our descriptors and the importance of each feature. For example, we discarted the Channel Shuffle because we believe that the color is very important for our implementation. Then, based on trial and error, we picked some of them which gave us an overall better result. Finally we are using:

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References

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