Topic 11: Pattern Recognition and Tracking

11.1 Introduction

Pattern recognition is a large and complex branch of image analysis and only the very basics can be introduced in this course. This topics convers the basica of Object, or Pattern Recognition from template matching the concenpt of the the feature vector, basics of classifiers, and some examples of features including shape and moments.

11.2 Principles of Pattern Recognition

There are two broad themes in *pattern recognition* which although have the same basis aim, *to recognise an object by a computer* take very differen routes. The two themes are *Statistical* and *Syntactic* pattern recognition.

Statistical Pattern Recognition

Here the aim is to label a set of known objects, for example to recognise the *letter* and *numbers* from digitsied image. This is most easily throght of by the proceedural scheme of:

1. Extract the object from background using image processing techniques such as edge detection.
2. Extract *features* (numbers) from the object, the simples being how well it matches with a know template.
3. Use these to assign the most probable *label* to the object.