Automatic Image Analysis
— Exercise 2 - Task 2 —

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1 Overview

The selected task is classifying the shape of hands made in sign language. We chose this task because it can be part of the process of converting sign language to written or spoken text. A simple use case we had in mind goes like the following :

1. Extract frames from a sign language video.
2. For each frame:
   (a) Detect the hands.
   (b) Find the letter that corresponds to the detected hand image by applying the Fourier descriptors classification algorithm.
3. Combine the letters into words.

2 Results

The suggested task has many challenges, but here we concentrate on the Fourier descriptors classification part. We used only three template images, which are the hand shapes of letters (A, L, V) .

It can be noticed from the result image, that this method was able to detect those classes successfully. Some times the hand shape was hard to classify (e.g. hand shapes of letters I & F).

We believe this result can be enhanced by simply adding the hand shapes of all letters to our templates database.

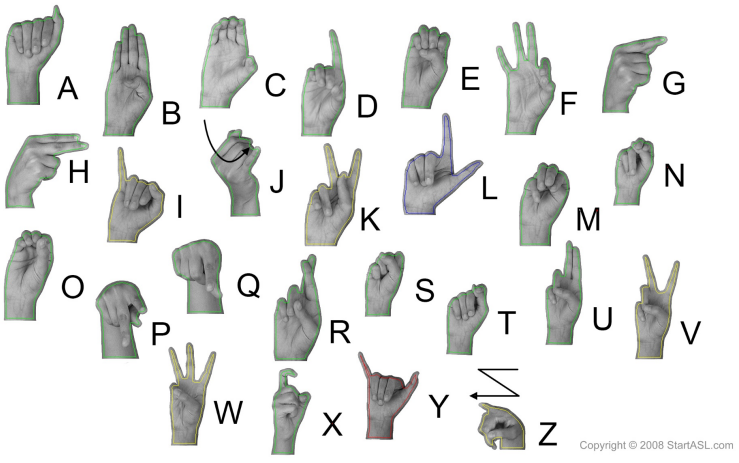

Figure 1: The result of classification. Class1 (A template) Green. Class2 (V template) Yellow. Class3 (L template) Blue