1. Problem description

1.1 Overview

According to the articel **?** face recognition can be segmented into three key steps, shown in figure 1.

Figure 1: Face Recognition Progress

Face Detection is responsible for a rough normalization (like face tracking) and use for this task different approaches (see figure 2).
Face Extraction generates a more accurate normalization (like human emotions). The different approaches to get this emotions are shown in figure 3. Face detection and face extraction approaches can use the same feature-based-method (like informations out of color, Motion, ... see figure) so they can perform simultaneous.
Face Recognition is the last step to identify/verify a picture. For a verification/identification several methods (see figure 4) are available.

Figure 2: Face Detection divided into approaches.

Figure 3: Face Extraction divided into approaches.

Figure 4: Face Recogntition divided into approaches.

1.2 Face Detection

The most interest part from our point of view was the Face detection. To find an approach which we can study, implement and test we made further researches in this segment. The article **?** gives a good overview of the topic face detection. The figure 5 (out of **?**) represents the different approaches to detect faces in a picture.

The most interesting approach for us was *Face detection based on color likelihood* approach (in figure **??** marked as *Color*).

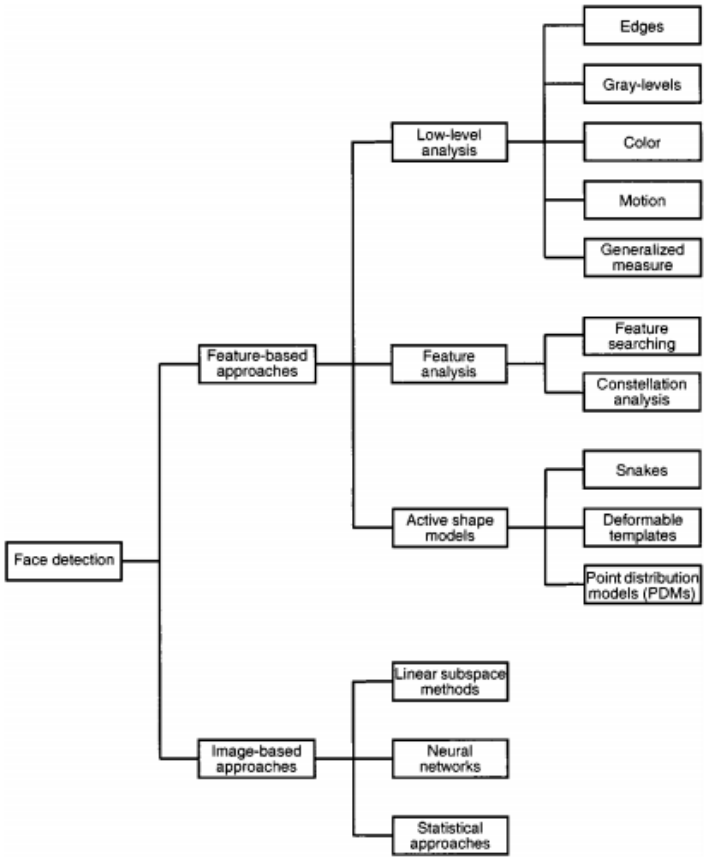

Figure 5: Face Detection divided into approaches (**??**.