

## **Performance of Histogram-Based Skin Colour Segmentation for Arms Detection in Human Motion Analysis Application**

### **Abstract**

Arms detection is one of the fundamental problems in human motion analysis application. The arms are considered as the most challenging body part to be detected since its pose and speed varies in image sequences. Moreover, the arms are usually occluded with other body parts such as the head and torso. In this paper, histogram-based skin colour segmentation is proposed to detect the arms in image sequences. Six different colour spaces namely RGB, rgb, HSI, TSL, SCT and CIELAB are evaluated to determine the best colour space for this segmentation procedure. The evaluation is divided into three categories, which are single colour component, colour without luminance and colour with luminance. The performance is measured using True Positive (TP) and True Negative (TN) on 250 images with manual ground truth. The best colour is selected based on the highest TN value followed by the highest TP value.