

TrabHCI

*Technologies to Reduce the Access Barrier
in Human Computer Interaction
Erasmus Intensive Programme IP29588-1-1731-10*

Projects on Image processing for gesture recognition

Michela Goffredo
University Roma TRE
goffredo@uniroma3.it

Project Work 1

Real time **pose recognition** based on **skin detection** algorithms

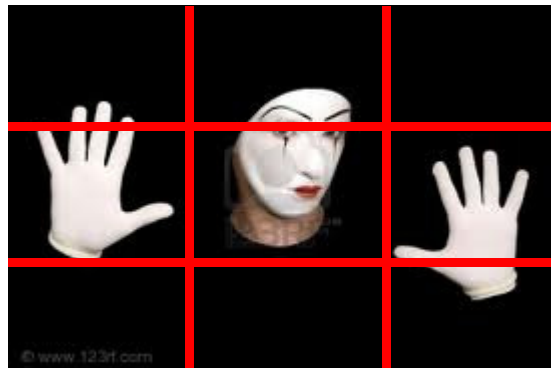
- ▶ The project aims at developing a program for recognising a set of static poses performed in front of a webcam.
- ▶ The system:
 - ▶ will work in real time;
 - ▶ will be based on a smart threshold –based skin detection algorithm.
- ▶ A training phase could be used for setting thresholds and for increasing robustness and accuracy.



Project Work 1

Hypothesis:

- ▶ Camera view
- ▶ 3-by-3 grid where hands can be
- ▶ # poses
- ▶ Time to pass so that the pose will be recognised



Project Work 1

Inputs:

- ▶ Frames from a webcam

Processing: what do you need?

- ▶ Colospace transformation
- ▶ Thresholding images
- ▶ Background subtraction (see *Chapter 9.pdf*)
- ▶ Blob analysis (see *cvblobslib_OpenCV_v8_3* library)

Outputs:

- ▶ Pose id

Project Work 2

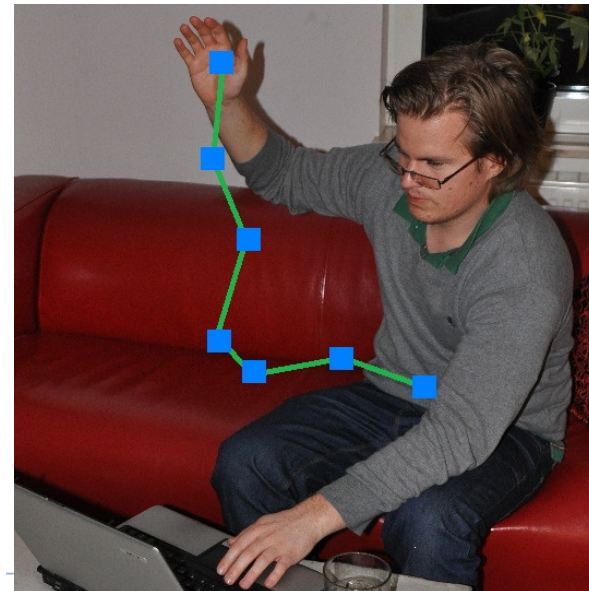
Real time **gesture recognition** based on (hand) **tracking**

- ▶ The project aims at developing a program for recognising a set of gestures executed in front of a webcam.
- ▶ The system:
 - ▶ will work in real time;
 - ▶ will be based on hand tracking algorithms

Project Work 2

Hypothesis:

- ▶ Camera view
- ▶ Type of gestures
- ▶ # gestures
- ▶ How to separate consecutive gestures



Project Work 2

Inputs:

- ▶ Frames from a webcam

Processing: what do you need?

- ▶ Colospace transformation
- ▶ Feature extraction (good points to track)
- ▶ Tracking and motion (see *Chapter 10.pdf*)

Outputs:

- ▶ Gesture id