DOAS 2007:

Looking at people

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Background

Visual CCTV surveillance systems

- *very popular and effective but*
- *labor-intensive for human operators*

Automated CCTV surveillance

- *detect "suspicious" events in video sequences*
- *automate "simple" tasks*
- *allow human operators to focus on difficult cases*

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Context: the CASSANDRA project

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The CASSANDRA project

- *joint research of UvA and RUG (Groningen)*
- *an audio- and video-based system for aggression detection*

DOAS Looking-at-people

- *will have support from the CASSANDRA project*
- *real-world video sequences*
- *hardware (cameras, etc.) if necessary*
- *basic image processing algorithms*

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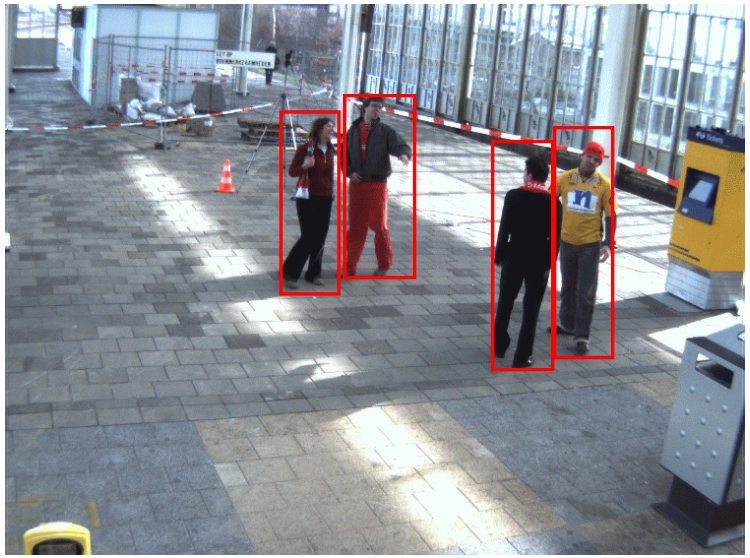
DOAS objectives

Objective:

- *develop an algorithm for detecting humans in still images*

Assumptions:

- *people are mostly upright with variety of poses (stretched arms, legs)*
- *partial occlusions*
- *multiple people in an image*



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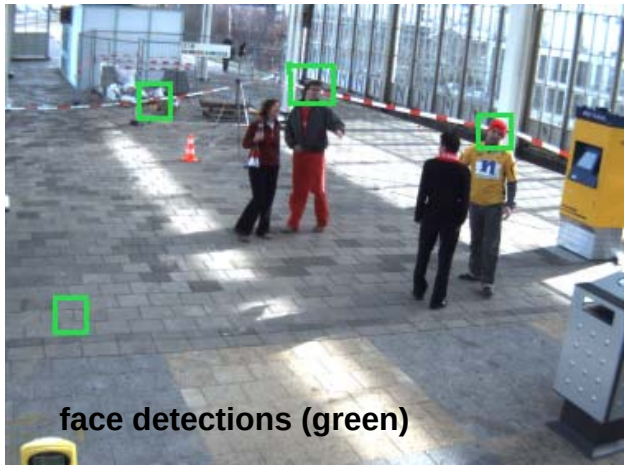
Approach

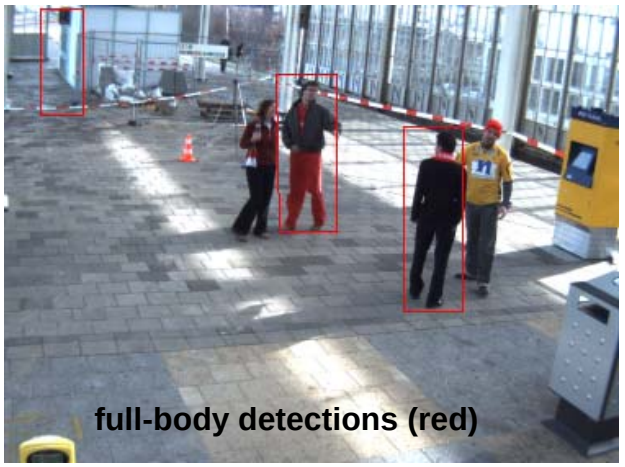
Run several body-part detectors (available)

- *head*
- *upper-body (head-neck-arms-torso)*
- *head-shoulder*
- *full-body template*

Project task:

- *Assemble loose body-parts into a proper configuration*





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Environment

Image processing routines

- *Intel's OpenCV library*
  - *bacis image IO*
  - *mid-level routines (e.g. edge detection)*
  - *several detectors*
- *UvA's Chamfer system*
  - *template matching routines*

Implementation, testing

- *MS Windows OS*

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Plan

Plan (approximate)

- *study relevant literature*
- *practice usage of libraries (OpenCV, Chamfer)*
- *practice usage of part detectors*
- *develop & test assembly algorithm(s)*

- ***important:***
  develop simple labeling tool
  manually label around 200 images
  (will be used for verification of the assembly algorithm)

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