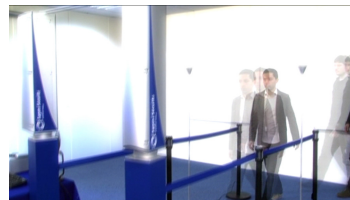
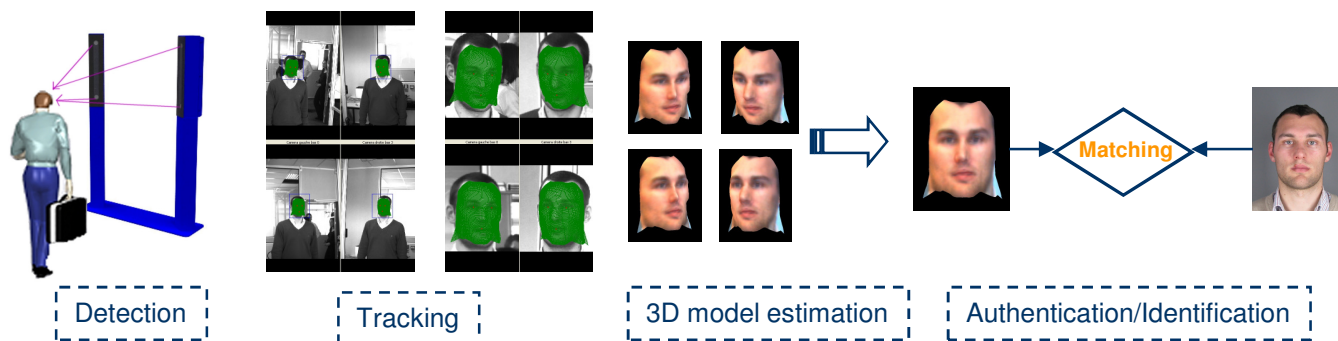


## Face on the fly

- A highly robust facial biometrics acquisition system which requires no interaction from users
  - provides face based robust authentication/identification of users
- Multiple video camera portal set-up : well adapted to many face-based recognition scenarii (border crossing, corridor, stadium, ...)
- Enables **fluid circulation** : camera are located on the side
- 3D can be reconstructed from multiple camera (stereo) : **robustness to pose**
- Spatial and temporal consolidation **increases accuracy**

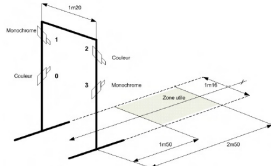


## System overview



## Subject detection

- Users entering the acquisition volume are automatically detected
  - by a moving head detection algorithm robust to motion and pose
  - using the stereo fusion of covariant detections



- A unique track is initiated for each user appearing on all sensors

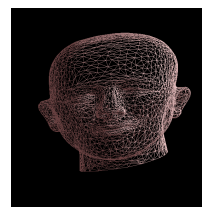
## Head features tracking

- Data are collected through the progression within the acquisition volume
  - Estimation of 2d face orientations
  - Detection and filtering of a set of facial features
  - Segmentation of the face textures from sensors



## 3D face modeling

- Each track is represented as a 3D trajectory of a 3D deformable face model
  - estimated by the maximization of a likelihood function embedding :
    - single video camera face textures correspondences
    - 3d features matching
  - regularized by constraints on the temporal smoothness of the model
- 2D ideal frontal textures are reconstructed
  - from model 3D trajectory
  - from face textures
- Face-based authentication/identification is finally performed based on a **set of ideal frontal views** without requiring a restrictive protocol, i.e. **without any system/user interaction.**



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