Towards a Practical PTZ Face Detection and Tracking System

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Main Approach

- **Person detection**
  - Joint ranking of granules features (JRoG) [1].
  - A simulated annealing (SA) step and Real Adaboost for feature selection.

- **Multiple target tracking**
  - Multiple instances of “context tracker” [2].
  - Exploring “Supporters” and “Distracters” for tracking.

- **Camera scheduling**
  - A weighted Round Robin approach.
  - People moving towards the camera.
  - People about to exit the field of view.

- **Person-to-person association**
  - To re-acquire a person in the list after zooming out.
  - Color and location affinity + Hungarian algorithm.

- **Face detection**
  - Illumination invariant Local Structure Feature [3].
  - 20 fps on 640*480 images.

- **Face-to-face association**
  - Color histogram + Hungarian algorithm.

Experimental Results

Five hours of continuous operation, 19 faces and trajectories from 21 people.

One hour of continuous operation, 19 faces and trajectories from 25 people.

References: