

3.29 Multi-camera Detection and Tracking

Keywords

Multi-camera; pedestrian detection; surveillance; behavior analysis

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Corporate Sponsorship Program

See Section 4 of the present document

File reference & version number:

Software disclosure 7632

Functional description

This technology allows the detection of pedestrians or vehicles from multiple synchronized video streams taken from calibrated cameras looking at a common area of interest. It can either performs the detection in real-time in separate frames, or process a batch of frames to exploit temporal consistency to increase the accuracy.

Innovative aspects

- Robust system with a limited number of parameters
- Can handle very a degraded signal
- Consistent estimates in case of occlusion
- Meaningful probabilistic prediction

Commercial application examples

- Video-surveillance
- Behavioral analysis
- Crowd counting

More information

J. Berclaz, F. Fleuret, E. Turetken, and P. Fua, “Multiple Object Tracking using K-Shortest Paths Optimization,” *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 33(9):1806-1819, 2011.

Software & IPR status

- An implementation of the tracker (“Multi-Tracked Paths”) is available under the GPL3 license: <http://www.idiap.ch/scientific-research/resources/mtp>
- The algorithms were developed in collaboration with the CVLab at EPFL and are covered by two (EPFL) patents:
 - International patent WO2013072401 on “Tracklet-based Multi-Commodity Network Flow for Tracking Multiple People”.
 - US patent US20130177200 on “A method and apparatus for multiple object tracking with k-shortest paths”.