People-Tracking-by-Detection and People-Detection-by-Tracking

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- Combining detection and tracking in a single framework
- Motivation:
  - People detection in complex street scenes, but with frequent false positives
  - Tracking for a particular individual, but challenged by crowded street scenes
- Extension of a state-of-the-art people detector with a limb-based structure model
- Hierarchical Gaussian process latent variable model (hGPLVM) to model dynamics of the individual limbs
  - Prior knowledge on possible articulations
  - Temporal coherency within a walking cycle
- HMM to extend the people-tracklets to possibly longer sequences
- Improved hypotheses for position and articulation of each person in several frames
- Detection and tracking of multiple people in cluttered scenes with reoccurring occlusions
- Evaluated on TUD-Campus dataset