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- Monday, May 14, 2007
  Multi object class detection with a generative model

  We deascribe an approach capable of simultaneous recognition and localization of multiple object classes using a generative model. A novel hierarchical representation allows to represent individual images as well as various objects classes in a single similarity invariant model. The recognition method is based on a codebook representation where appearance clusters built from edge based features are shared among several object classes. A probabilistic model allows for reliable detection of various objects in the same image. The approach is highly effi- cient due to fast clustering and matching methods capable of dealing with millions of high dimensional features. The system shows excellent performance on several object categories over a wide range of scales, in-plane rotations, background clutter, and partial occlusions. The performance of the proposed multi-object class detection approach is comparable with state of the art approaches dedicated to a single object class recognition problem.

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