Project title: Building a 3D Object Model in a Low-Dimensional Space for Object Detection

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Project summary:

The main idea is to employ \texttt{Locally Linear Embedding} to represent the appearance of object parts in a low-dimensional space. The linear embedding technique is also used to model the class of background patterns. Given a novel image, features are classified as belonging to certain object parts or background. Objects are then localized based on applying a spatial consistency check to the hypothesized object parts. This technique has been used to detect objects in an arbitrary view from various classes including: face, bicycle, car, airplane, shoe, toaster, cell phone, etc. Click \texttt{here} for more details and results related to this work.

Publications:

(Conf) Gurman S. Gill and Martin D. Levine, Multi-View Object Detection Based on Spatial Consistency in a Low Dimensional Space, German Association for Pattern Recognition, DAGM09(211-220), Sept. 2009.

(Conf) Gurman Gill and Martin Levine, Incorporating Shape Features in an Appearance Based Object Detection System, Computer Analysis of Images and Patterns, CAIP09(269-276), Sep. 2009.

