

## Project Ideas (CS598 Spring'09 Hoiem)

Here are some ideas for projects. Feel free to think of your own as well.

**Object-based action recognition.** Most actions have an object. For instance, if someone is kicking, holding, or eating, they are doing it to something. Can we recognize actions through objects and vice-versa?

**Comparing Features.** Many different feature representations have been proposed (color and texture histograms, sift, hog, color sift, surf, shape context, etc.). If we want to build a region classifier, do we have to use them all? Is there a way of putting a bound on the gain from adding a new feature?

**Recognizing Shadows.** Try to recognize shadows and figure out where the object is based on them.

**Object Size.** Learn to predict object size without knowing the type of object or being able to assume that it sits on the ground.

**Depth from SIFT.** Use SIFT features to predict depth.

**Depth and Orientation.** Use surface orientation estimates (e.g., geometric context) together with depth estimates (e.g., Saxena et al.) to better predict depth and reconstruct scenes.

**Recognition Challenge.** E.g., PASCAL 2007. But come up with a novel idea to test within this framework.

**Datasets:** [MSRC Object Recognition](#); [INRIA's Hollywood Human Actions](#); [VOC PASCAL 2007](#); [Geometric Context dataset](#); [Stanford Range Image Data](#)

See also Efros' list: <http://www.cs.cmu.edu/~efros/courses/LBMV07/databases.htm>