

Department of Applied Mathematics and Statistics
The Johns Hopkins University

THE 2008 DUNCAN LECTURE

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Thursday, April 24, 2008
Refreshments: 3:30 p.m.
in 301 Whitehead Hall
Lecture: 4:00 p.m.
in **213 Hodson Hall**

STATISTICAL MODELS IN COMPUTER VISION

ABSTRACT

The goal of Computer Vision is the automatic labeling of images containing multiple objects as well as noise and clutter. Recent work has focused on two main tasks. The first is the classification among object classes in segmented images containing only one object and the second is the detection of a particular object class in a large image. Both tasks have been primarily addressed using discriminative learning. It is not clear however how these methods can extend to deal with the recognition of multiple object classes in images containing a number of objects in a wide range of configurations. I will present an approach which starts from simple statistical models for individual objects. With these models the important notion of invariance can be clearly formulated. Furthermore the individual object models can be composed to define models for object configurations. Decisions are likelihood-based and do not depend on pre-trained decision boundaries. The model formulation also leads to a coarse-to-fine strategy for efficient computation of the optimal scene annotation. These ideas will be illustrated in several applications such as the reading of license plates, the reading of handwritten ZIP Codes, and some object detection problems.

Professor Amit will give a second lecture on Friday, April 25 at 11:00 a.m. in 304 Whitehead Hall (followed by a luncheon reception at 12:00 noon in 301 Whitehead Hall). The title of his second lecture is “Estimation of deformable object models.”