

395T Visual Recognition: Outline of lecture for Sept 21, 2012

- I. Generic object categorization
 - a. Basic pipeline
 - b. Window-based models
 - i. Face detection with boosting and rectangular features (Viola & Jones 2001)
 - 1. Boosting algorithm
 - 2. Integral images and rectangular features
 - 3. Viola-Jones detector
 - ii. Scene recognition with nearest neighbors and Gist (Hays & Efros, 2008)
 - 1. Gist descriptor
 - 2. Nearest neighbors with large database
 - iii. Person detection with SVM and HOG (Dalal & Triggs, 2005)
 - 1. Support vector machines
 - 2. HOG descriptor
 - iv. Pros and cons of window-based models
 - c. Part-based models
 - i. Bag-of-words
 - 1. e.g., with Naïve Bayes classifier
 - 2. Local feature sampling strategies for categorization
 - 3. Pyramid match kernel
 - ii. Generalized Hough for category detection
 - 1. Implicit shape model (Leibe et al. 2004)
 - 2. (Class-specific Hough forests – Lempitsky et al.)
 - iii. (Deformable part-based model with latent SVM (Felzenszwalb et al. 2008))

Assignment 2 out, due Oct 5.