Outline
CS376 Computer Vision
Monday, March 7, 2011

Midterm is Wednesday. Closed book, ok to bring one 8.5"x11" page of notes.

Local invariant feature detection and description

Overview of main components:
1. Detection: find the interest points
2. Description: extract a descriptor for each one
3. Matching: determine correspondence

Desirable properties: repeatability during detection, distinctiveness during description

<u>Detection</u>
   Rotation invariant interest point detection
   - Harris corner detection: review of measure, main steps, properties
   Scale invariant interest point detection
   - Intuition behind automatic scale selection
   - Laplacian of Gaussian filter: 1d, 2d
   - Characteristic scale selection
   - Interest point detection across an image
   - Laplacian approximated as DoG in practice

<u>Description</u>
   Desired invariance properties: geometric and photometric transformations
   Simplest solution: SSD on patch intensity
   SIFT descriptor
   - Definition, rotation invariance
   - Examples

<u>Matching</u>
   - Generating candidate matches
   - Eliminating ambiguous matches

Recap of robust alignment pipeline using detection, description, and matching.

Applications