

Outline

CS376 Computer Vision

Monday, March 21, 2011

Local invariant features and matching between views

Recall the three main components:

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

Recap:

- Rotation and scale invariant feature detection with Harris corner detector and LoG blob detector.
- SIFT descriptor

Matching stage

- Generating candidate matches
- Eliminating ambiguous matches
- Robust alignment pipeline using detection, description, and matching.
- Applications

Image formation: single view camera geometry

Physical parameters of image formation: geometric, optical, photometric

Pinhole camera model

- Perspective effects
- Projection properties
- Perspective projection equations (with homog. coords in matrix form)

Alternate projection models: weak perspective and orthographic

Optical factors

- Lens, thin lens equation; aperture, focal length
- Focus and depth of field
- Field of view

Midterm returned

Reminder: Pset 3 is due March 30.