

Outline

CS376 Computer Vision

Wednesday, March 23, 2011

Stereo : Epipolar geometry

Cues for 3d shape and depth

Human stereopsis

- Disparity in two retina views
- Psychophysical signs of fusion

Stereo photography: stereo viewers, stereograms, motion, autostereograms

Estimating depth: main idea

Geometry of a simple stereo system

- Geometry, relating depth and disparity

General epipolar geometry

- Epipolar constraint: geometry, purpose
- Terms: baseline, epipole, epipolar line, baseline, epipolar plane
- Examples: connecting view geometry to constraints for correspondence
- Algebraic representation, essential matrix
- Rectification to make scanlines the epipolar lines

Example application: audio camera as “cross-modal” epipolar geometry

Coming up:

- Monday: Stereo correspondence, calibration
- Pset 3 due March 30