

Outline

CS376 Computer Vision

Monday, February 14, 2011

Segmentation by cutting graphs (*wrap-up from last time*)

Graph definition

- Visualizing affinity matrices

Min cut and Normalized cut

- Objectives
- Pros and cons

Fitting

Fitting problem definition and main issues

Hough Transform for lines

- Image space vs. parameter space and concept of voting
- Complete Hough Transform algorithm for lines
- Examples: interpreting Hough space, strengths and weaknesses
- Extensions to the basic approach: esp., using gradient direction

Hough Transform for circles

- Parameterization
- Variants depending on (un)known gradient direction, radius

Voting/Hough recap

- Implementation tips
- Strengths and weaknesses of the approach

Generalized Hough Transform

- Offline training for arbitrary shape model
- Detection of shapes in novel images
- Applicability beyond shape fitting

Summary: Grouping vs. Fitting