MLRF Lecture 03

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Agenda for lecture 3

1. Introduction
2. Descriptor matching and indexing
3. Projective transformations
4. Homography estimation and geometric validation

Introduction

Lecture 03 part 01

Previously, in MLRF…

Summary of last lecture

Local feature detectors

- Image gradients
- Edge detector: Sobel, Canny
- Corner detector: Harris
  - Large image gradient in two directions
- Corner detector: FAST
- Corner detectors: LoG, DoG, DoH
- Blob detector: MSER

Local feature descriptors

- Binary: BRIEF
- Float: HoG

Complete pipelines

- ORB = FAST + BRIEF
- SIFT = ~Harris-Laplace + HoG + Tricks

Debriefing of practice session 2

PS2 content

1. Implement Harris
2. Extract simple descriptors
3. Match descriptors and solve *Twin it!*

Discussion

- Who completed part 1? 2? 3?
- Any remarks, comments, questions?
- Things to keep, change, remove?

Practice session 2: Take home messages

Harris-Stephens

- Many little tricks: **can you list some?**
- Classical approach
- Can be used to detect local maxima in some DoG image (level)

Using raw pixel data as **descriptors**: good idea?

Matching descriptors: how does naive matching scales to a large number of descriptors?

Next practice session(s)

Next practice session

Play with **ORB keypoint matching** to implement a simple AR technique