

# MLRF Lecture 03

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# Agenda for lecture 2

1. Introduction
2. Local feature detectors (part 2)
3. Local feature descriptors
4. Descriptor matching and indexing
5. Projective transformations
6. Homography estimation and geometric validation

# Introduction

Lecture 03 part 01

Previously, in MLRF...

# Summary of last lecture

## Global image descriptors

- Color histogram
- Limited descriptive power
- Which distance function?

## Clustering

- K-Means
- Hierarchical

## Texture descriptors

- Many descriptors...
- Statistical, frequency...

## Character descriptors

- Many descriptors...
- Statistical, frequency...
- Structural

## Local feature detectors

- Image gradients
- Edge detector: Sobel
- Corner detector: Harris
  - Large image gradient in two directions

# Debriefing of practice session 2

## PS2 content

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

## Discussion

- Who completed part 1? 2? 3? 4?
- Any remarks, comments, questions?
- Things to keep, change, remove?

# Practice session 2: Take home messages

## Color histogram

- Very lightweight
- Good filtering stage
- But limited descriptive power

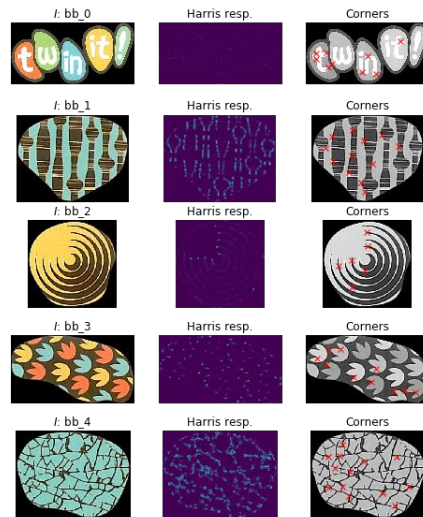
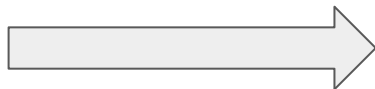
Harris, Matching...

Next practice session(s)



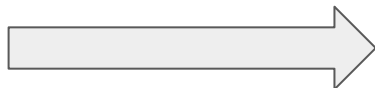
# Next practice session

**Implement Harris** for 1 hour  
(from practice session 2)



*Then, depending on how things go:*

Play with ORB keypoint matching  
to implement a simple AR technique  
(practice session 3)



**Goal:** resynchronize practice sessions and lectures at #4.