

EECS 442

Computer Vision



Matthew Johnson-Roberson - Fall 2015

Contributors: Max Smith

Latest revision: April 30, 2015

Contents

1	Introduction and Welcome	1
2	Cameras	1
3	Color	1
4	Light and Shading	1
5	Linear Filtering	1
6	Detectors and Descriptors	1
7	Fitting and Matching	1
8	Recognition	1
8.1	Classifiers	1
8.2	Back Propagation	1
8.3	ConvNets	1
9	Face detection	1
10	Camera Calibration	1
11	Single-View Geometry	1
12	Epipolar Geometry	1
13	Stereo	1
14	Structure from Motion	1

Abstract

Computational methods for the recovery, representation and application of visual information. Topics from image formation, binary images, digital geometry, similarity and dissimilarity detection, matching, curve and surface fitting, constraint propagation relaxation labeling, stereo, shading texture, object representation and recognition, dynamic scene analysis and knowledge based techniques. Hardware, software techniques.

- 1 Introduction and Welcome**
- 2 Cameras**
- 3 Color**
- 4 Light and Shading**
- 5 Linear Filtering**
- 6 Detectors and Descriptors**
- 7 Fitting and Matching**
- 8 Recognition**
 - 8.1 Classifiers**
 - 8.2 Back Propagation**
 - 8.3 ConvNets**
- 9 Face detection**
- 10 Camera Calibration**
- 11 Single-View Geometry**
- 12 Epipolar Geometry**
- 13 Stereo**
- 14 Structure from Motion**