

---

# Introduction to Computer Vision

---

Jean Ponce, Mathieu Aubry, Gül Varol, Karteek Alahari

Class notes by Antoine Groudiev



Last modified 1st June 2024

# Contents

1	Introduction to Computer Vision and Camera Geometry	2
2	Least squares and Calibration	2
3	Image processing using filters and convolutions	2
4	Edge detection	2
5	Radiometry and Color	2
6	Color perception and Two-view geometry	2
7	Epipolar Geometry and Binocular Stereopsis	2
8	Markov random fields	2
9	Recovering structure from motion	2
10	Mean-shift algorithm for segmentation	2
11	Multi-view object models	2
12	Neural Networks for Visual recognition	2
13	Learning methods	2

## Abstract

This document is Antoine Groudiev's class notes while following the class *Introduction to Computer Vision* (Introduction à la vision artificielle) at the Computer Science Department of ENS Ulm. It is freely inspired by the class notes written by Jean Ponce, Mathieu Aubry, Gül Varol and Karteek Alahari.

- 1 Introduction to Computer Vision and Camera Geometry
- 2 Least squares and Calibration
- 3 Image processing using filters and convolutions
- 4 Edge detection
- 5 Radiometry and Color
- 6 Color perception and Two-view geometry
- 7 Epipolar Geometry and Binocular Stereopsis
- 8 Markov random fields
- 9 Recovering structure from motion
- 10 Mean-shift algorithm for segmentation
- 11 Multi-view object models
- 12 Neural Networks for Visual recognition
- 13 Learning methods