

Introduction to Computer Vision

Course overview

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02504 Computer vision course lectures,
DTU Compute, Kgs. Lyngby 2800, Denmark



**This lecture is being
livestreamed and recorded
(hopefully)**

Two feedback persons

Welcome

About me: Morten Rieger Hannemose

Assistant prof. at DTU Compute, Section for Visual Computing

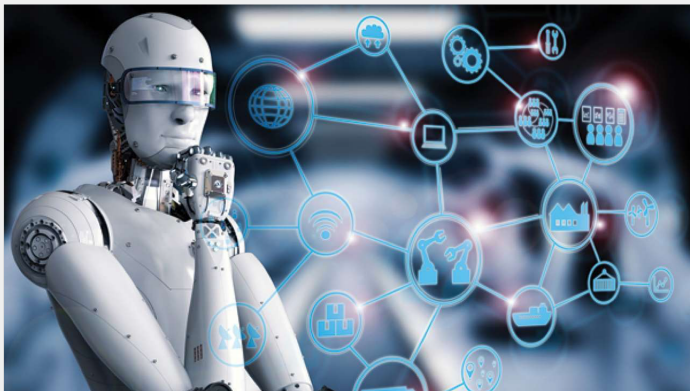
Background in computer vision and differentiable rendering

I work with various applications within computer vision

camera calibration, 3D scanning, human pose estimation, and skin cancer.

What is computer vision?

Making machines **see** and **perceive**



Observing requires a lot more than *just* taking a photo!

- Seeing with cameras
- Recognize features
- Measure lengths and depth

Core elements of this course

This course focuses on the 3D aspects of computer vision.

- Camera model
- Multi view geometry
- 3D reconstruction
- Image features and matching

Other courses

Prerequisite: 02502 Image analysis

- Digital representation of images
- Image filters
- Image features

Other courses in computer vision/image analysis:

- 02506 Advanced Image Analysis (Spring)
- 02516 Deep Learning in Computer Vision (January)
- 02501 Advanced Deep Learning in Computer Vision (Spring)

Course overview

- 12 weeks of lectures + 1 guest lecture
 - Shorter lecture followed by examples and exercises
- Grade: 100% written exam
 - 4 hours
 - Multiple choice
 - You will get last year's exam
- Weekly quizzes
 - Questions from last year's exam
 - Don't affect the grade
 - Small prize at the end of the semester for the winner(s)
- Piazza

Reading material

- “Computer Vision: Algorithms and Applications”
by R. Szelisky, 2nd ed. (F&P)
- Lecture notes by Henrik Aanæs (LN)
- Two papers: Zhang 2000 and Zhang 2018
- Further reading:
 - “Multiple view geometry in computer vision”, by R. Hartley and A. Zisserman

Exercises

- Find them on DTU Learn
- No hand-ins, some solutions.
- Help each other and use the TAs
 - Don't expect TAs to magically spot errors
 - Learn how to debug from them

Expectations

- I expect that you complete all exercises before the final exam.
- Some exercises in later weeks require solutions to exercises from previous weeks.
- Talk to your neighbour about your solutions and compare results visually.
- Talk to the TAs and ask them if it looks correct.
- A week after the exercise you will get a pdf of how the result should look visually.
- If you are struggling you can always ask questions on Piazza.

Questions?

- Feedback is welcome throughout the course