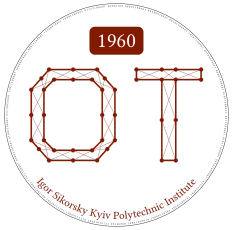

Computer Vision

Autumn 2021

Yuriy Kochura
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@y_kochura

Instructor

Lectures and practices :

- Yuriy Kochura
  - Department of Computer Engineering, FICS

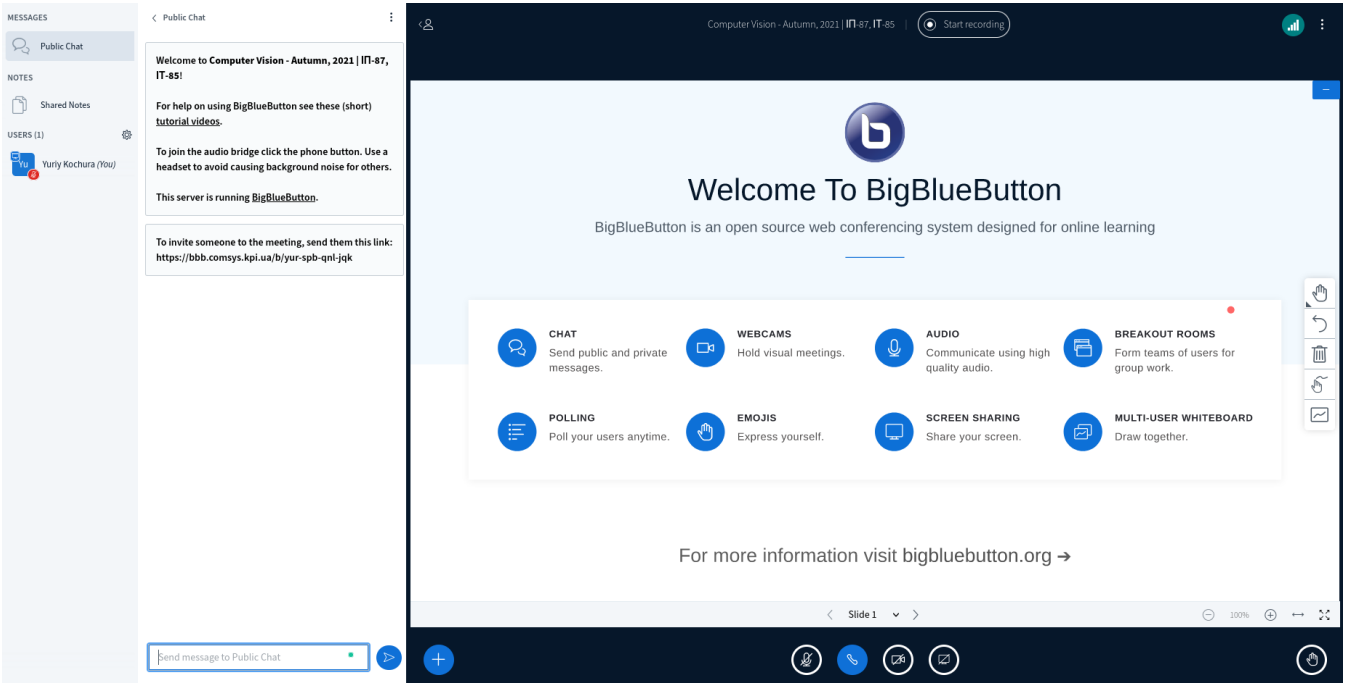
Course Description

This course will introduce you to deep learning approaches that are used in cutting-edge research in computer vision and provide practical experience:

- Using of neural networks (fully connected and convolutional layers, forward and backward propagation, activation functions, ...)
- Training of neural networks (initialization, optimization, regularization, model choice, ...)

Classroom

This quarter (Autumn 2021), the course takes place online (virtual in-class lectures) on **BigBlueButton** at https://bbb.comsys.kpi.ua/b/yur-spb-qnl-jqk

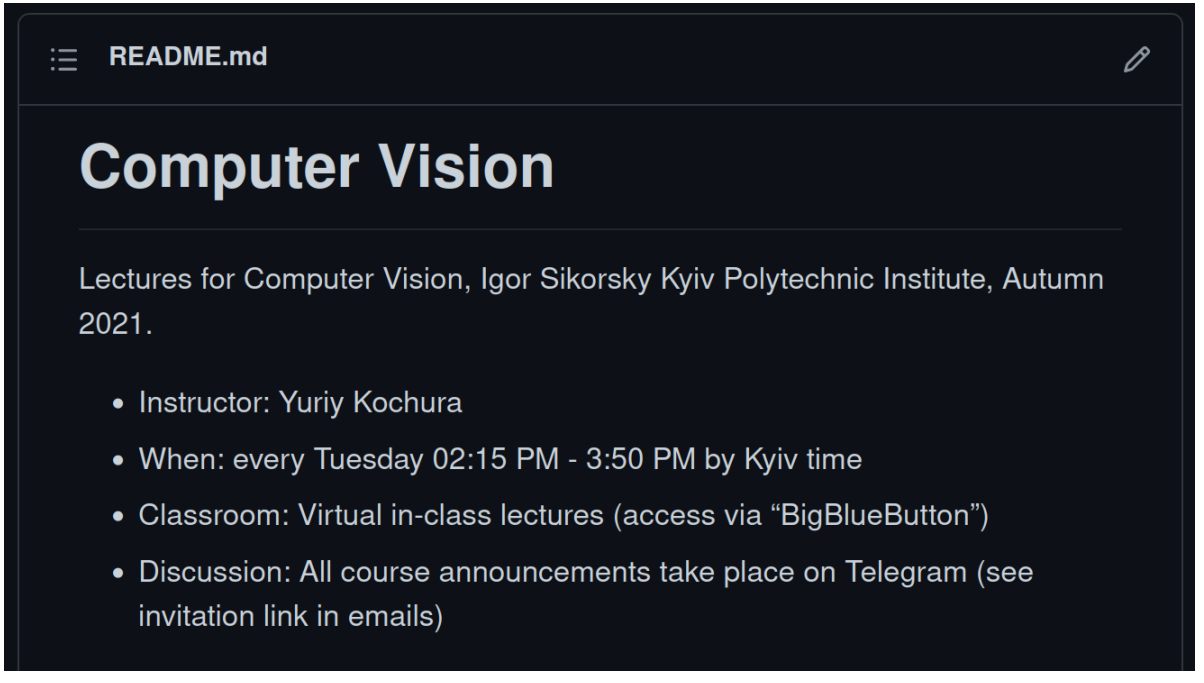


Schedule & Slides

The schedule and slides are available at https://github.com/YKochura/cv-kpi

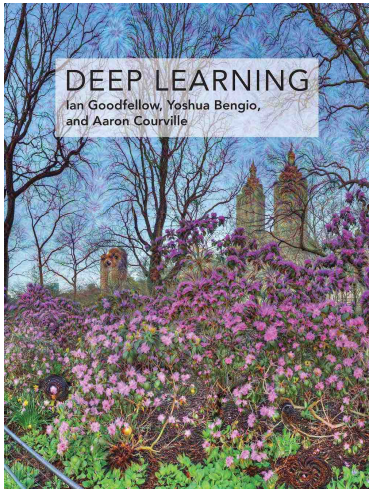
Lecture materials:

- In HTML and in PDFs
- Posted/updated online the day before the lesson (hopefully)



Textbook

There is no required textbook for this class, but I would like to recommend some books for a more comprehensive introduction with advanced topics in deep learning and computer vision or get another perspective on the lecture material:



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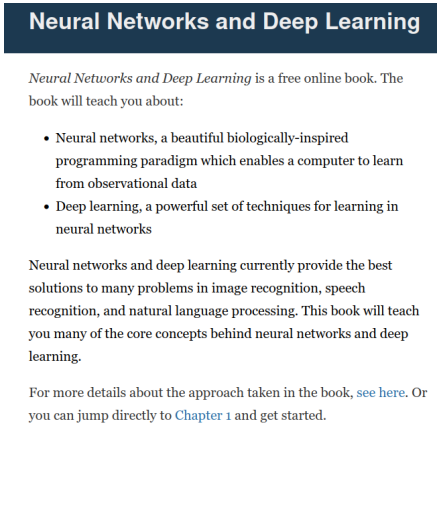


Neural Networks and Deep Learning

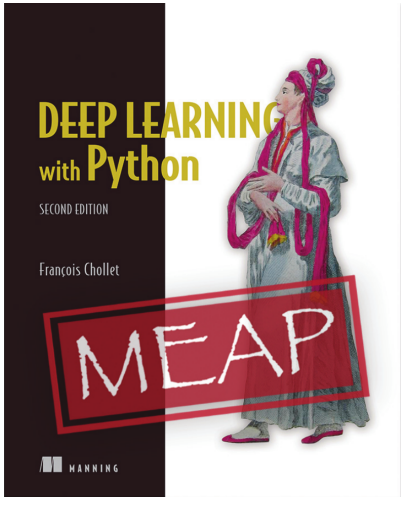
Neural Networks and Deep Learning is a free online book. The book will teach you about:

- Neural networks, a beautiful biologically-inspired programming paradigm which enables a computer to learn from observational data
- Deep learning, a powerful set of techniques for learning in neural networks

Neural networks and deep learning currently provide the best solutions to many problems in image recognition, speech recognition, and natural language processing. This book will teach you many of the core concepts behind neural networks and deep learning.

For more details about the approach taken in the book, see here. Or you can jump directly to Chapter 1 and get started.

Free

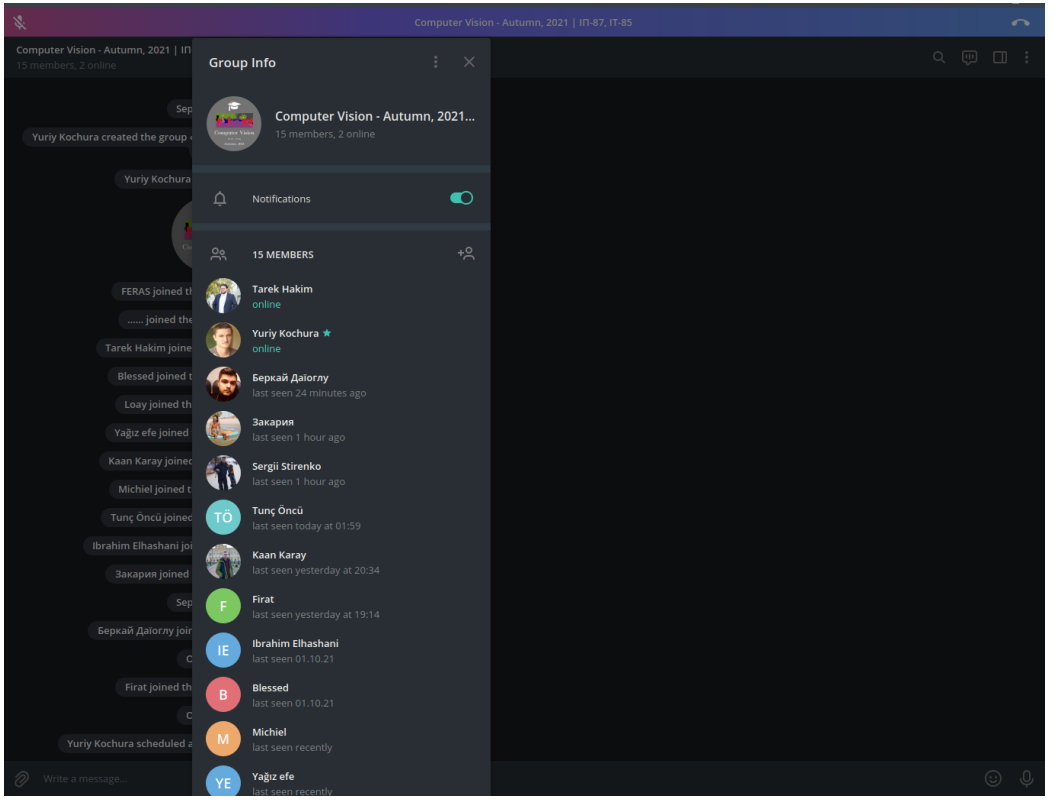


Freely previewing

Discussion

All course announcements will take place on Telegram (see invitation link in emails)

- Ask your questions offline in the group.
- Don't be shy!



Assignments

Exercises to get you started with deep learning techniques for computer vision tasks.

Project

Project of your choosing. Details to be announced soon.

Grading

- 30% Programming assignments (5% each)
- 40% Project
- 30% Final exam

Note! Requisition of admission to semester control (final exam):

$$\text{Programming assignments} + \text{Project} \geq 42\%$$

Let's start!