AI-First Engineering Cybertraining Spring 2021

Updated On an ongoing Basis

Tags: application   ai

🕐 5 minute read

This describes weekly meeting and overall videos and homeworks

Contents

Week 1

Lecture

Our first meeting is 01:10P-02:25P on Tuesday

The zoom will be https://iu.zoom.us/my/gc.fox

We will discuss how to interact with us. We can adjust the course somewhat.
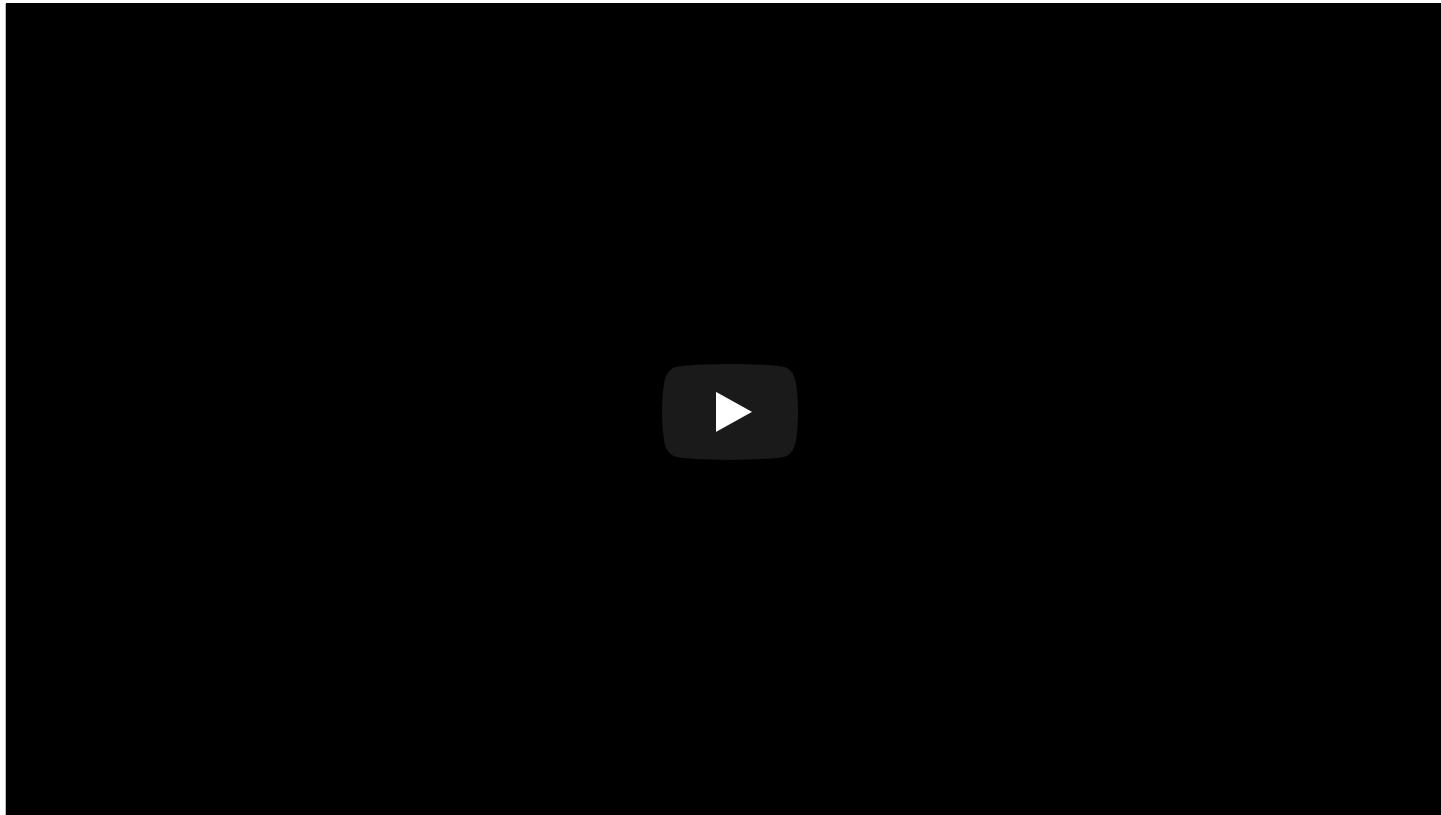
Also as lectures are/will be put on YouTube, we will go to one lecture per week – we will choose day

The Syllabus has a general course description

Please communicate initially by email gcf@iu.edu

This first class discussed structure of class and agreed to have a section on deep learning technology.

We gave Introductory Lecture

Assignments

- Assignment Github: Get a github.com account
- Assignment Slack: Enroll in our slack at * https://join.slack.com/t/cybertraining-3bz7942/shared_invite/zt-kzs969ea-x35oX9wdjspX7NmkpSfUpw Post your github account name into the slack channel #general and #ai
- Post a 2-3 paragraph **formal** Bio (see IEEE papers what a formal bio is. Use google to find examples for Bios or look at Geoffreys or Gregors Web Pages.)

Week 2

Introduction

We gave an introductory lecture to optimization and deep learning. Unfortunately we didn't record the zoom serssion but we did make an offline recording with slides IntroDLOpt: Introduction to Deep Learning and Optimization and YouTube
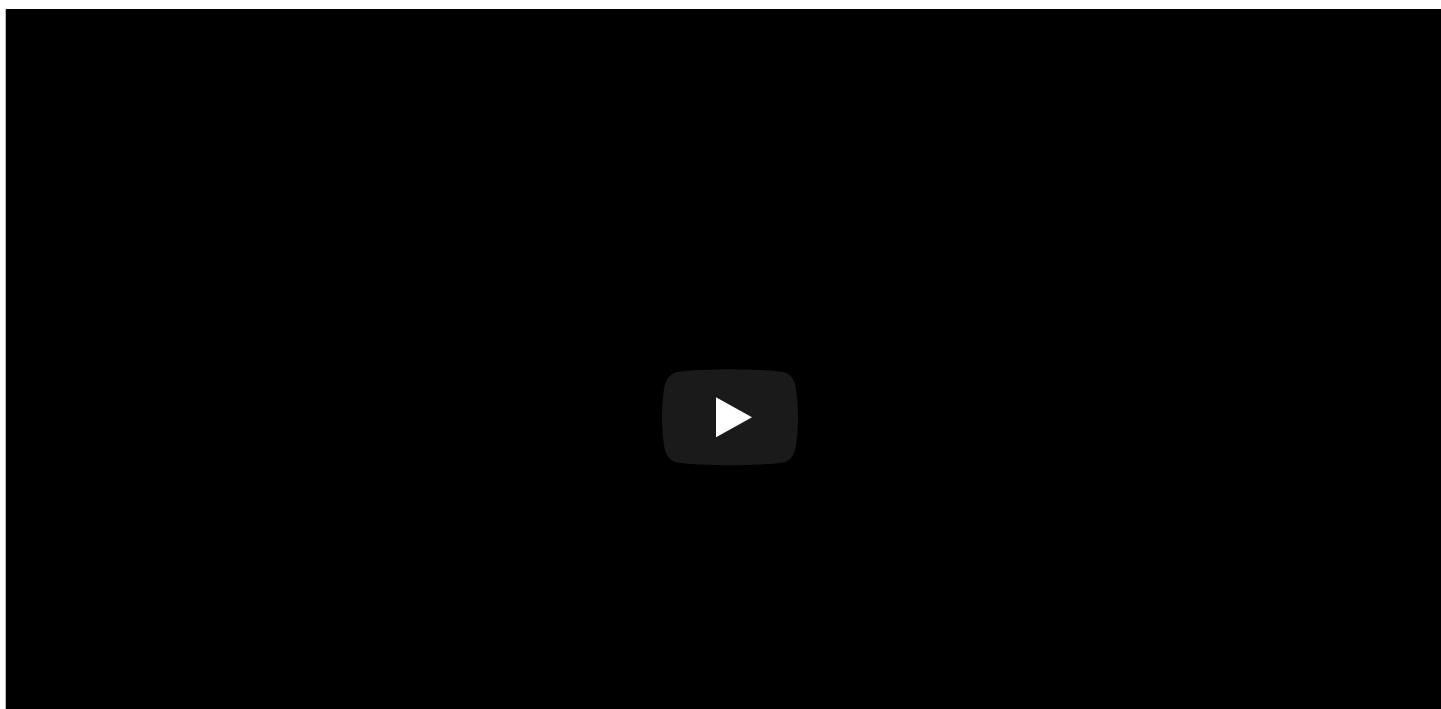
Google Colab

We also went through material on using Google Colab with examples. This is a lecture plus four Python notebooks

- [First DL: Deep Learning MNIST Example Spring 2021](#)
- [Welcome To Colaboratory](#)
- [Google Colab: A gentle introduction to Google Colab for Programming](#)
- [Python Warm Up](#)
- [MNIST Classification on Google Colab](#)

with recorded video

## First DL: Deep Learning MNIST Example Spring 2021
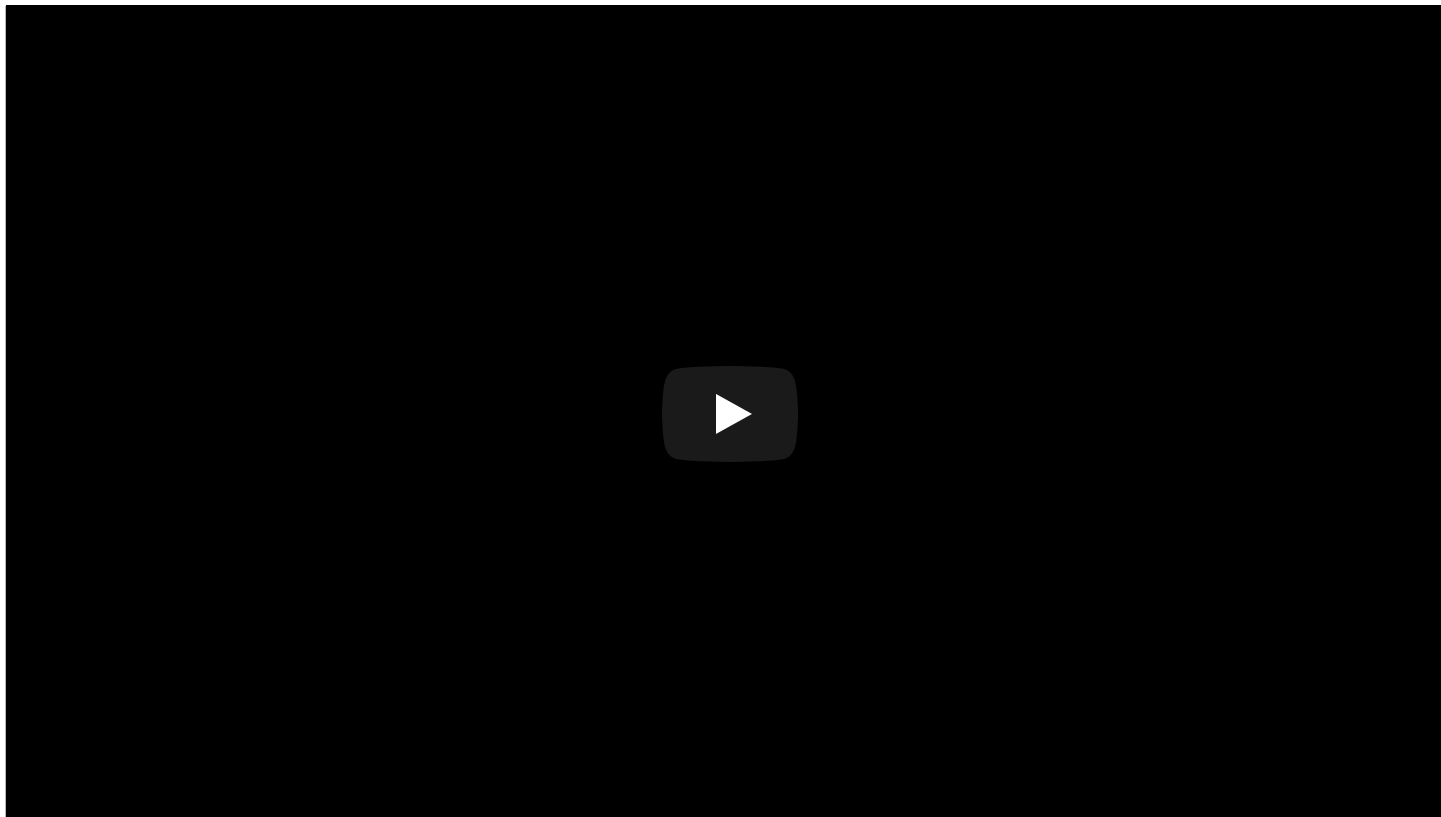
We now have recorded all the introductory deep learning material
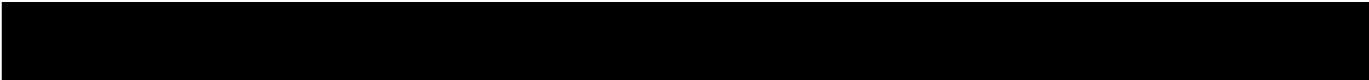
- [slides IntroDLOpt: Introduction to Deep Learning and Optimization](#)
- [slides Opt: Overview of Optimization](#)
- [slides DLBasic: Deep Learning - Some examples](#)
- [slides DLBasic: Components of Deep Learning](#)
- [slides DLBasic: Types of Deep Learning Networks: Summary](#)

with recorded videos

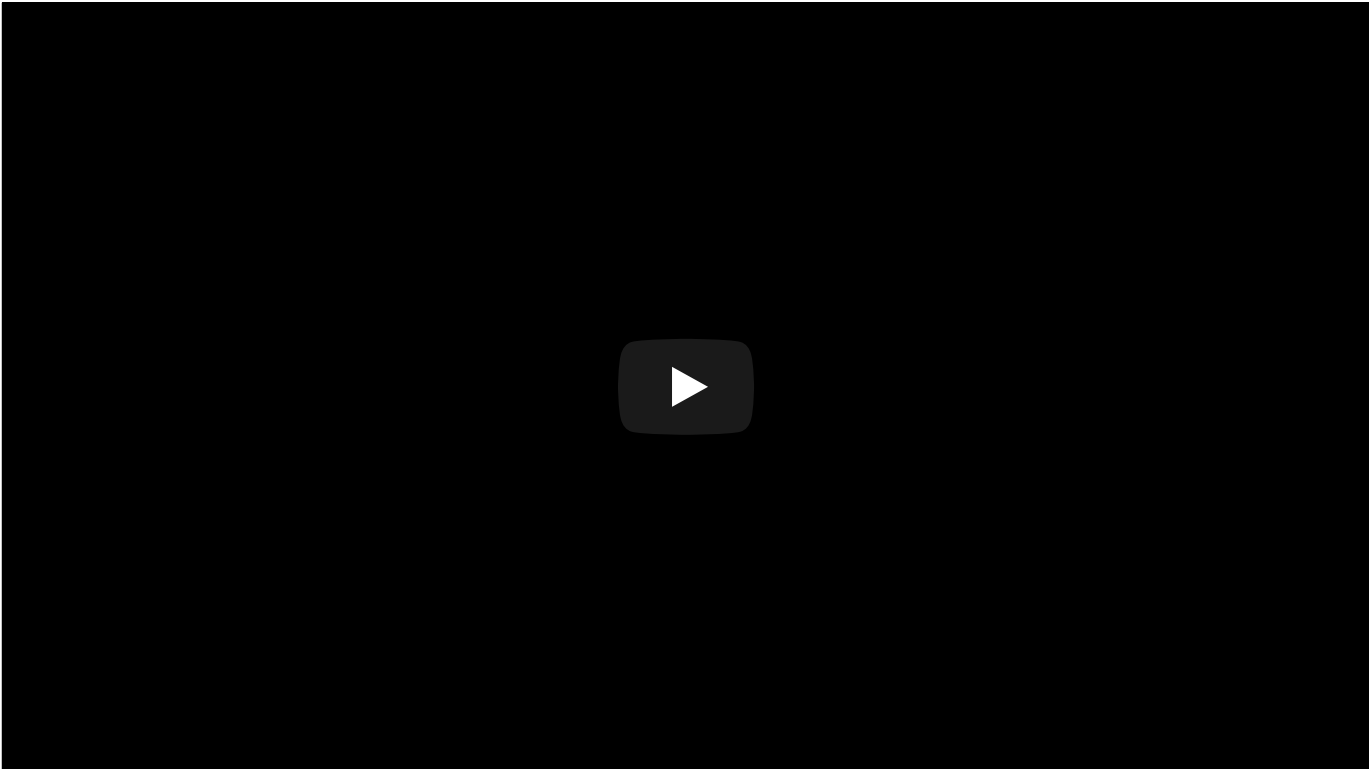## IntroDLOpt: Introduction to Deep Learning and Optimization

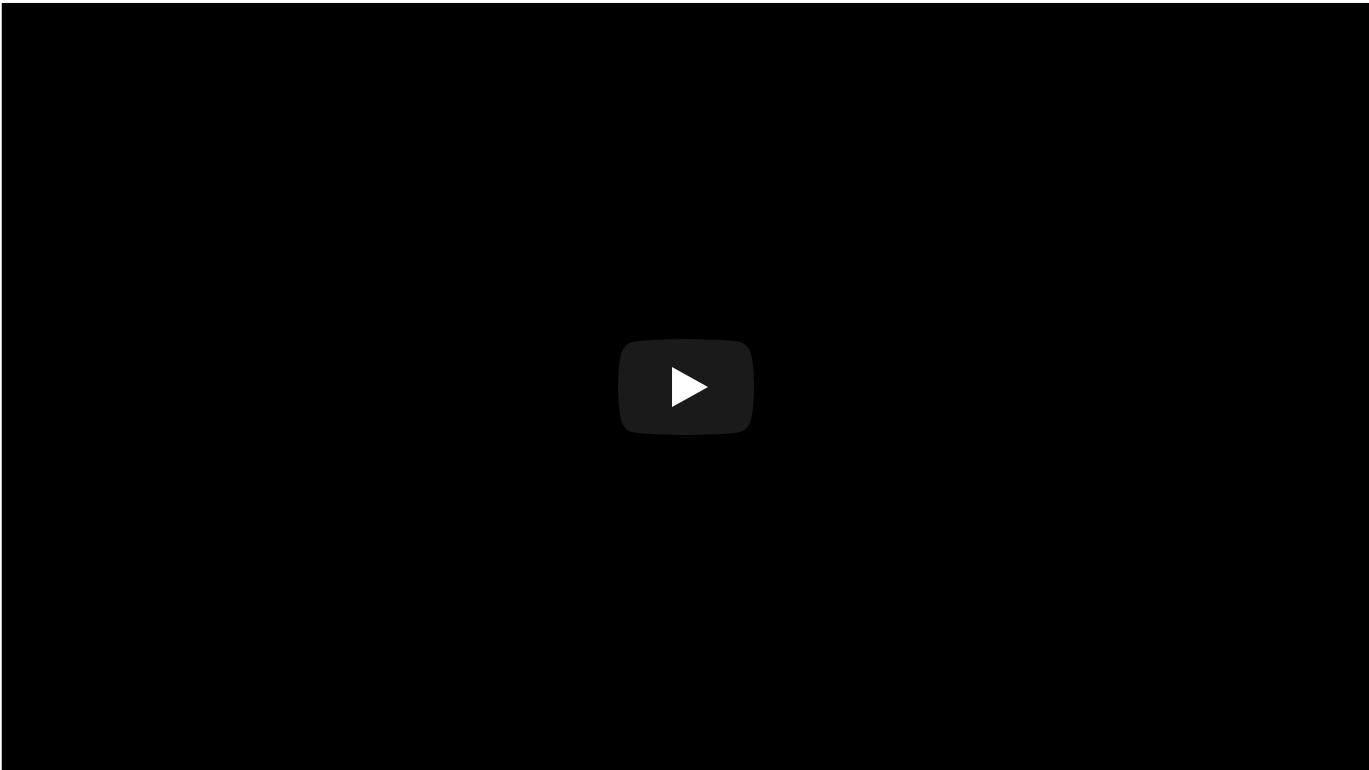- Video: IntroDLOpt: Introduction to Deep Learning and Optimization
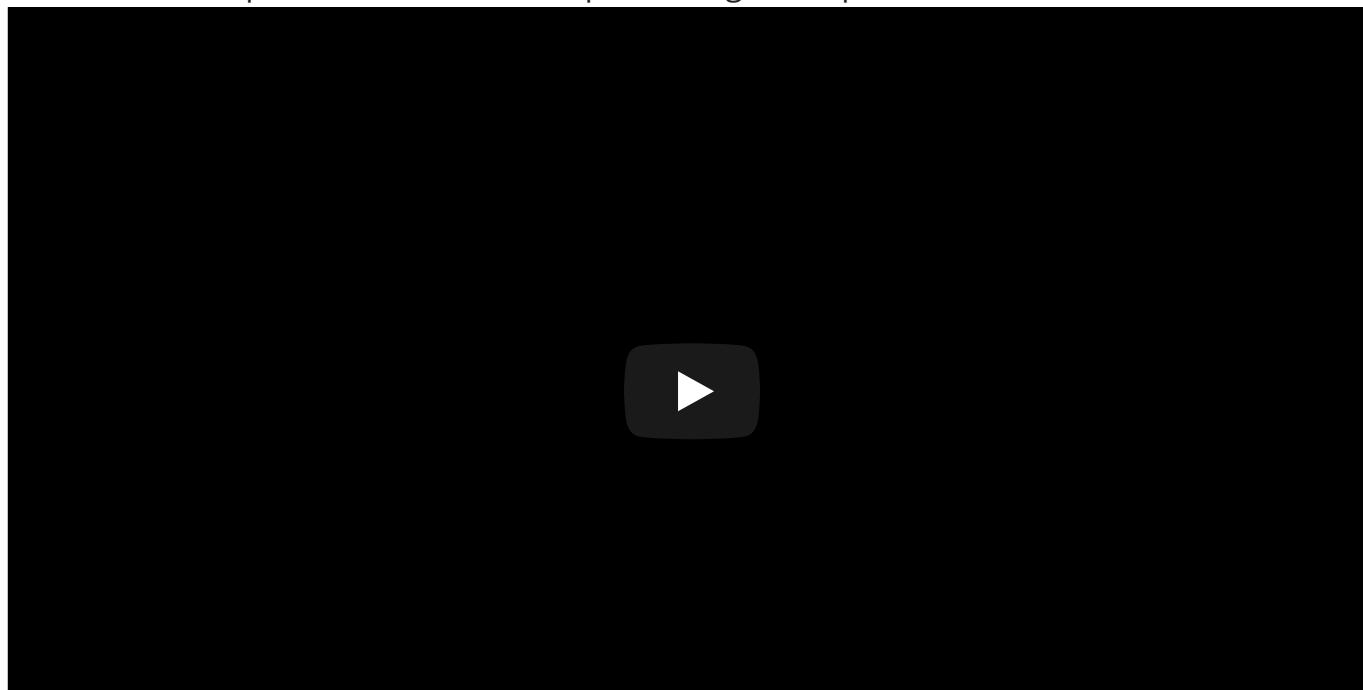
Opt: Overview of Optimization Spring2021

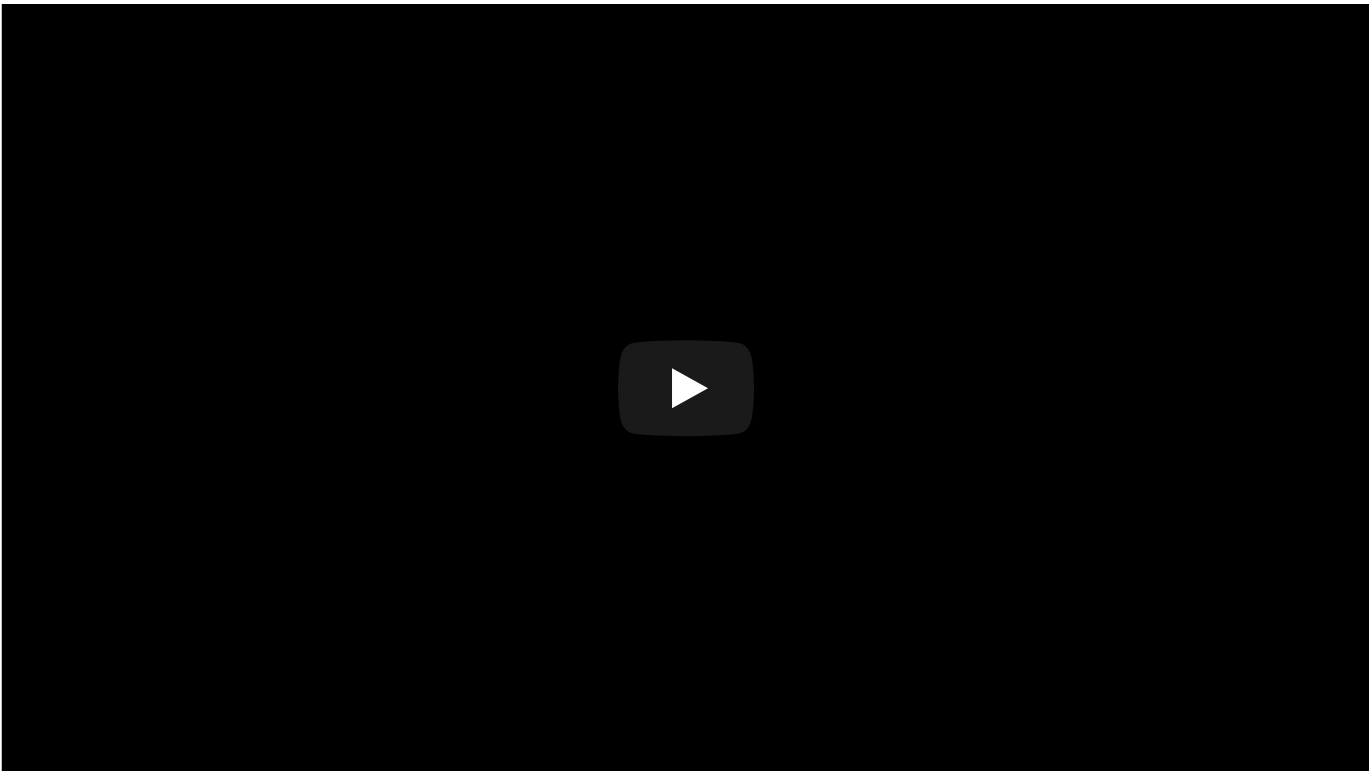- Video: Opt: Overview of Optimization Spring2021

DLBasic: Deep Learning - Some examples Spring 2021

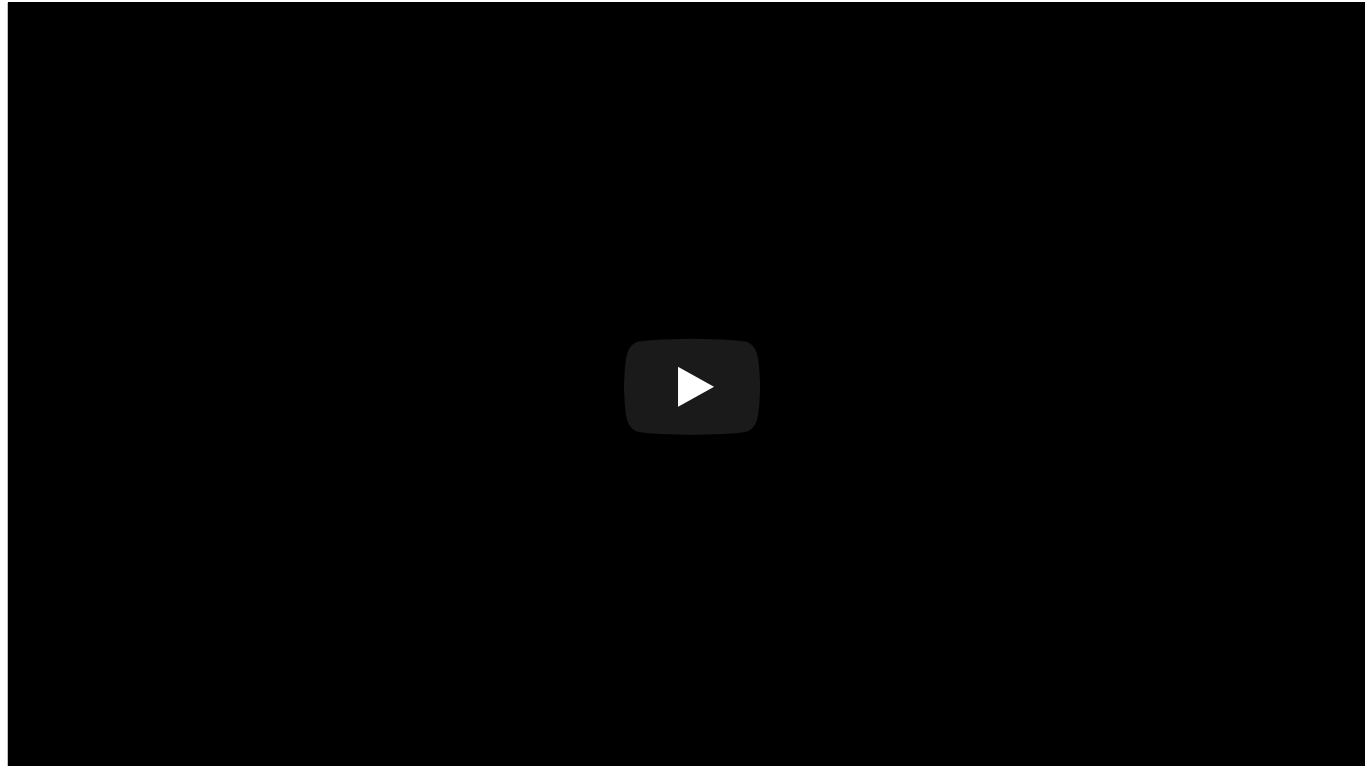- Video: DLBasic: Deep Learning - Some examples Spring 2021

DLBasic: Components of Deep Learning Systems

- Video: DLBasic: Components of Deep Learning Systems

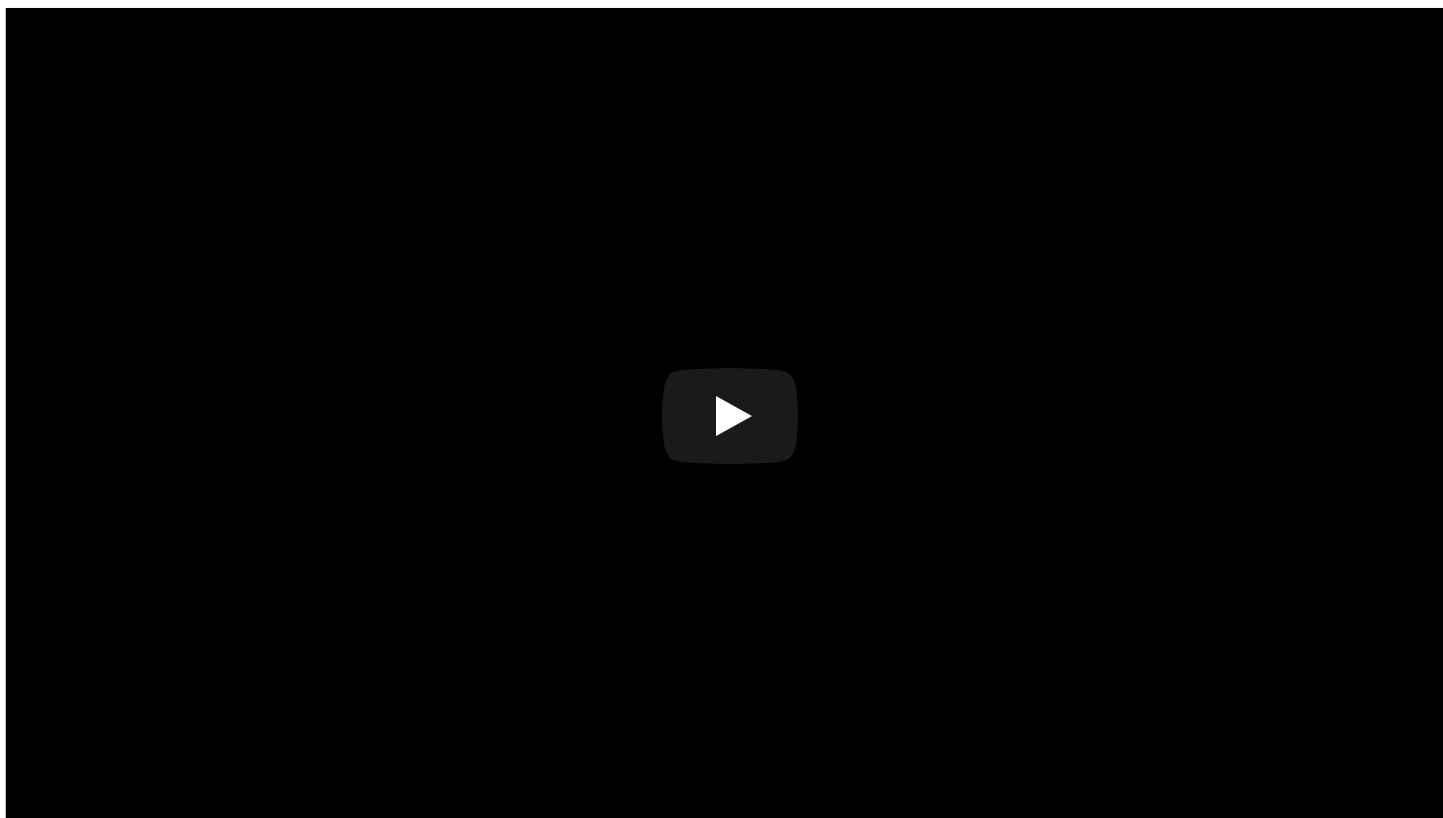## DLBasic: Summary of Types of Deep Learning Systems

- Video: DLBasic: Summary of Types of Deep Learning Systems
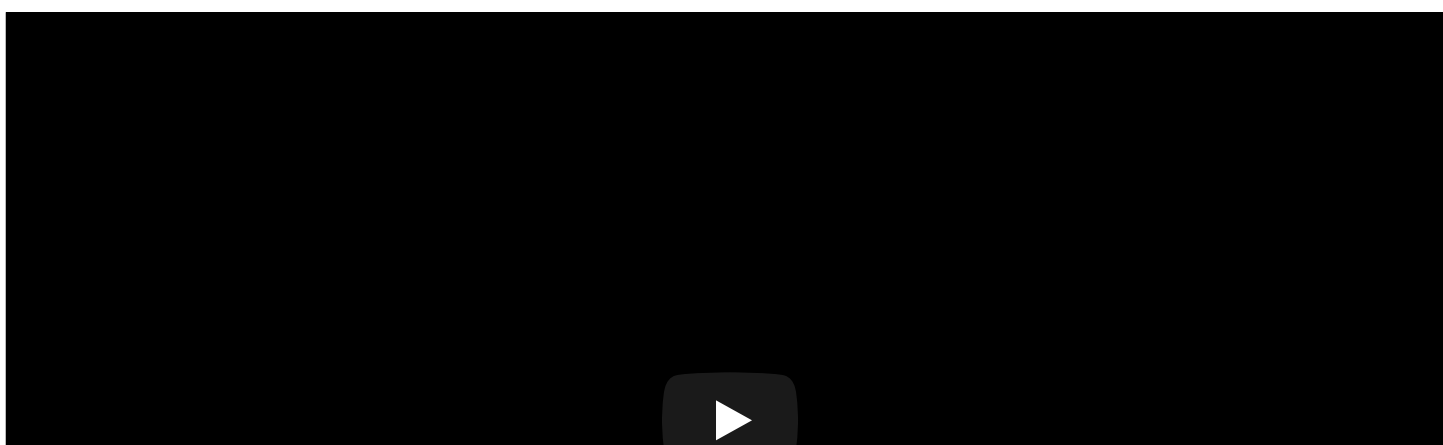

Week 3

Deep Learning Examples, 1

We discussed deep learning examples covering first half of slides DLBasic: Deep Learning - Some examples with recorded video

Week 4

Deep Learning Examples, 2 plus Components

We concluded deep learning examples and covered components with slides Deep Learning: More Examples and Components with recorded video
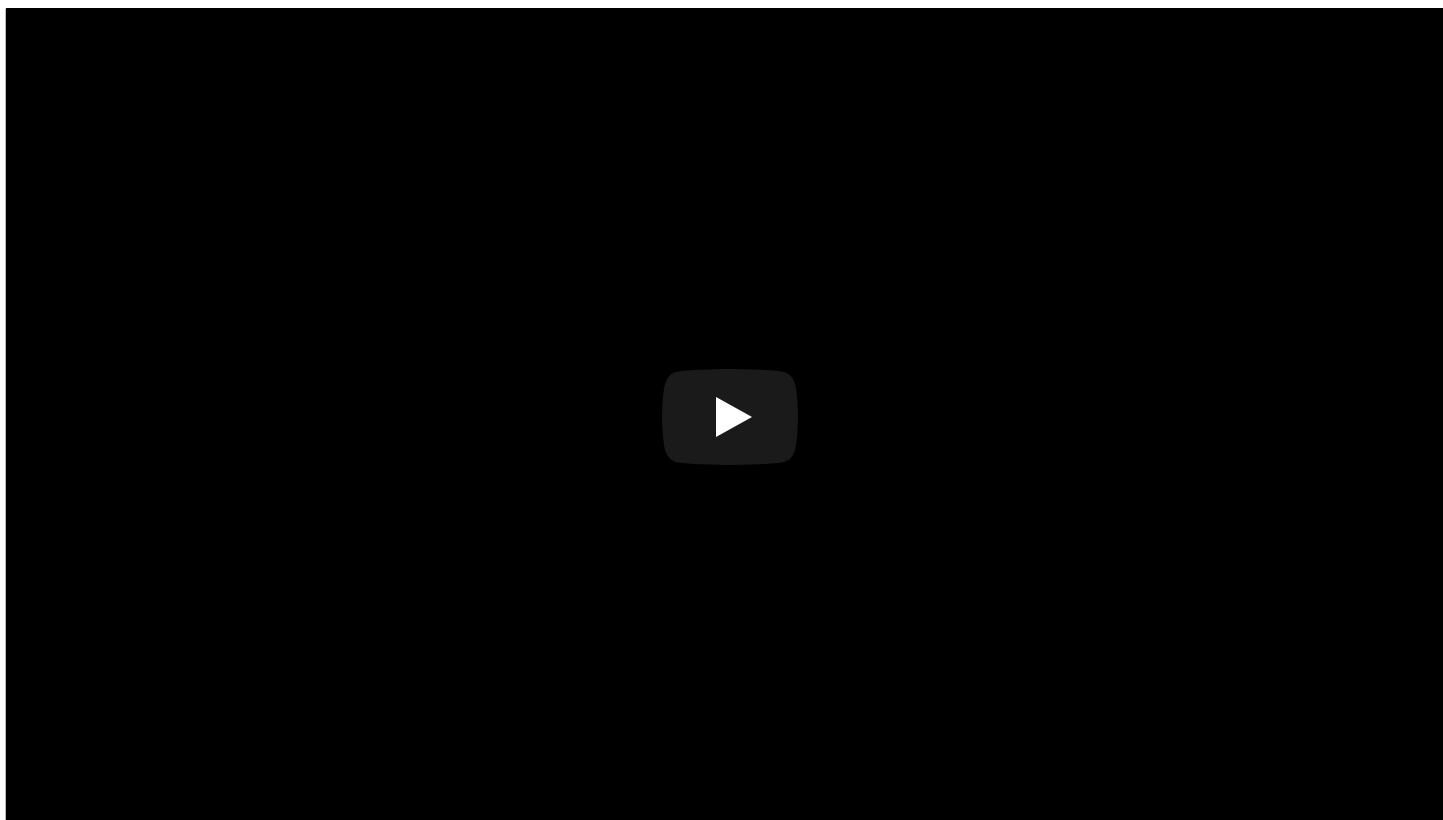
Week 5

Deep Learning Networks plus Overview of Optimization

We covered two topics in this weeks video

- Deep Learning Networks with presentation DLBasic: Types of Deep Learning Networks: Summary
- General Issues in Optimization with presentation Week5 Presentation on Optimization
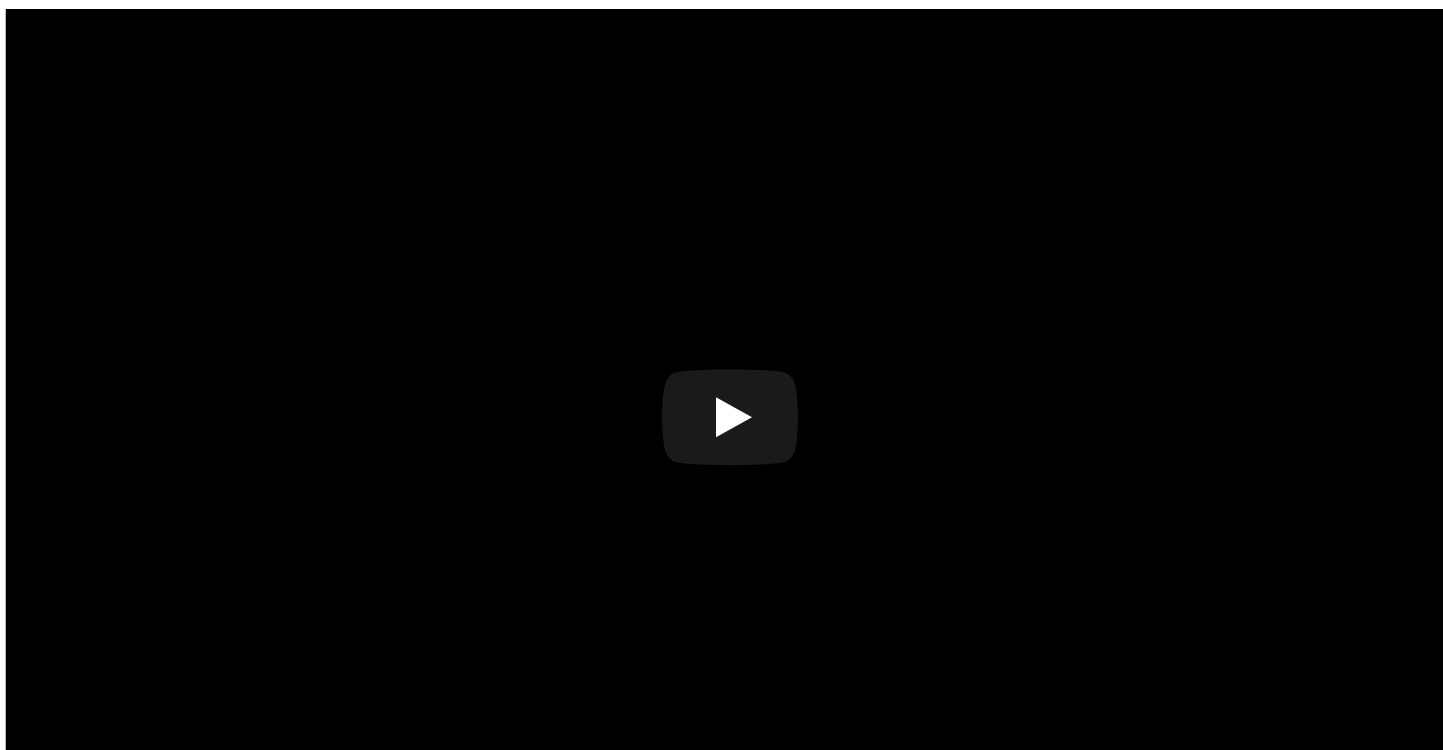
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Week 6

Deep Learning and AI Examples in Health and Medicine

We went about 2/3rds of way through presentation AI First Scenarios: Health and Medicine
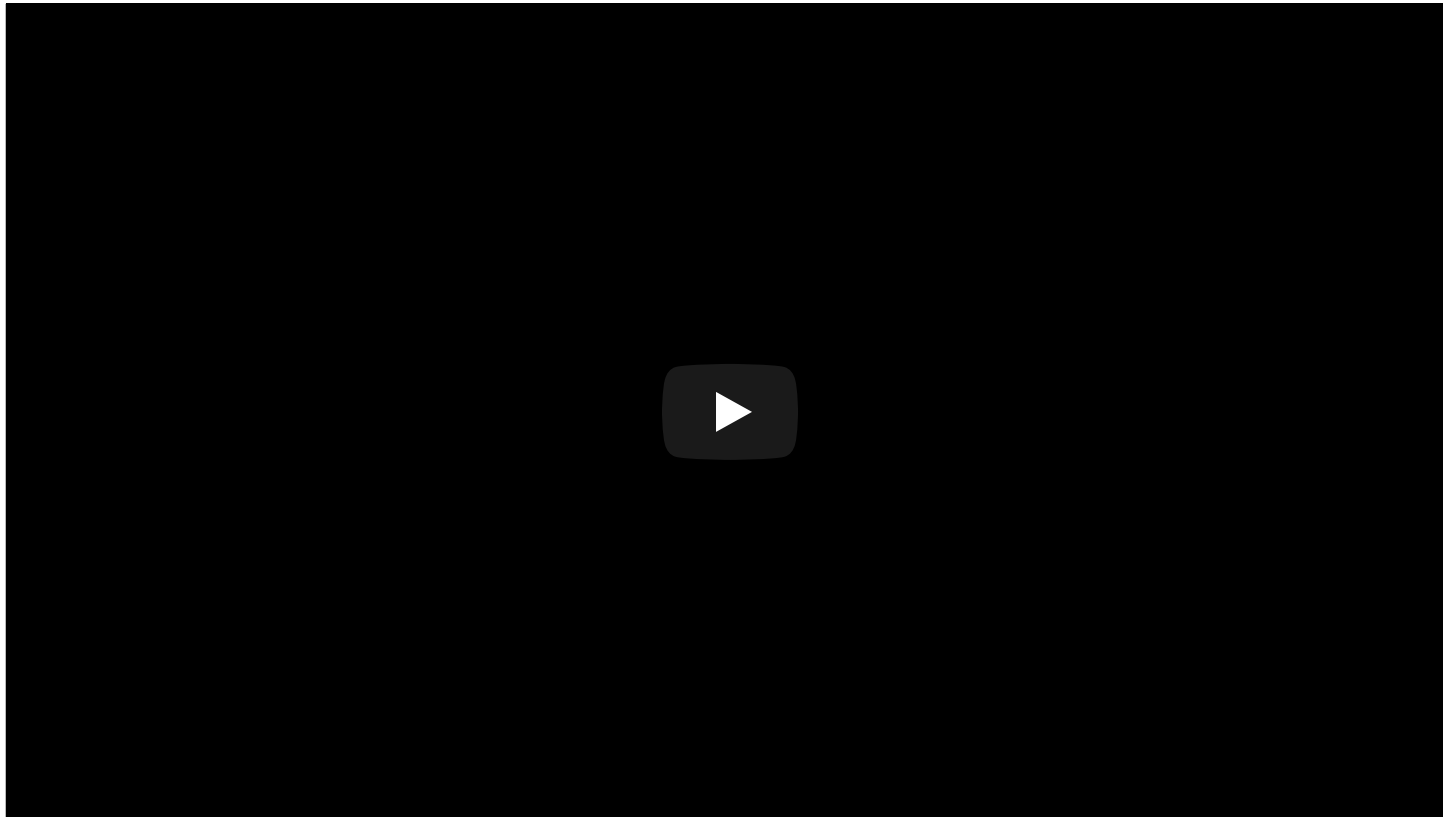
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Week 7

Deep Learning and AI Examples

- We finished the last 1/3rd of the presentation [AI First Scenarios: Health and Medicine](#)
- We finished [AI First Scenarios - Space](#)
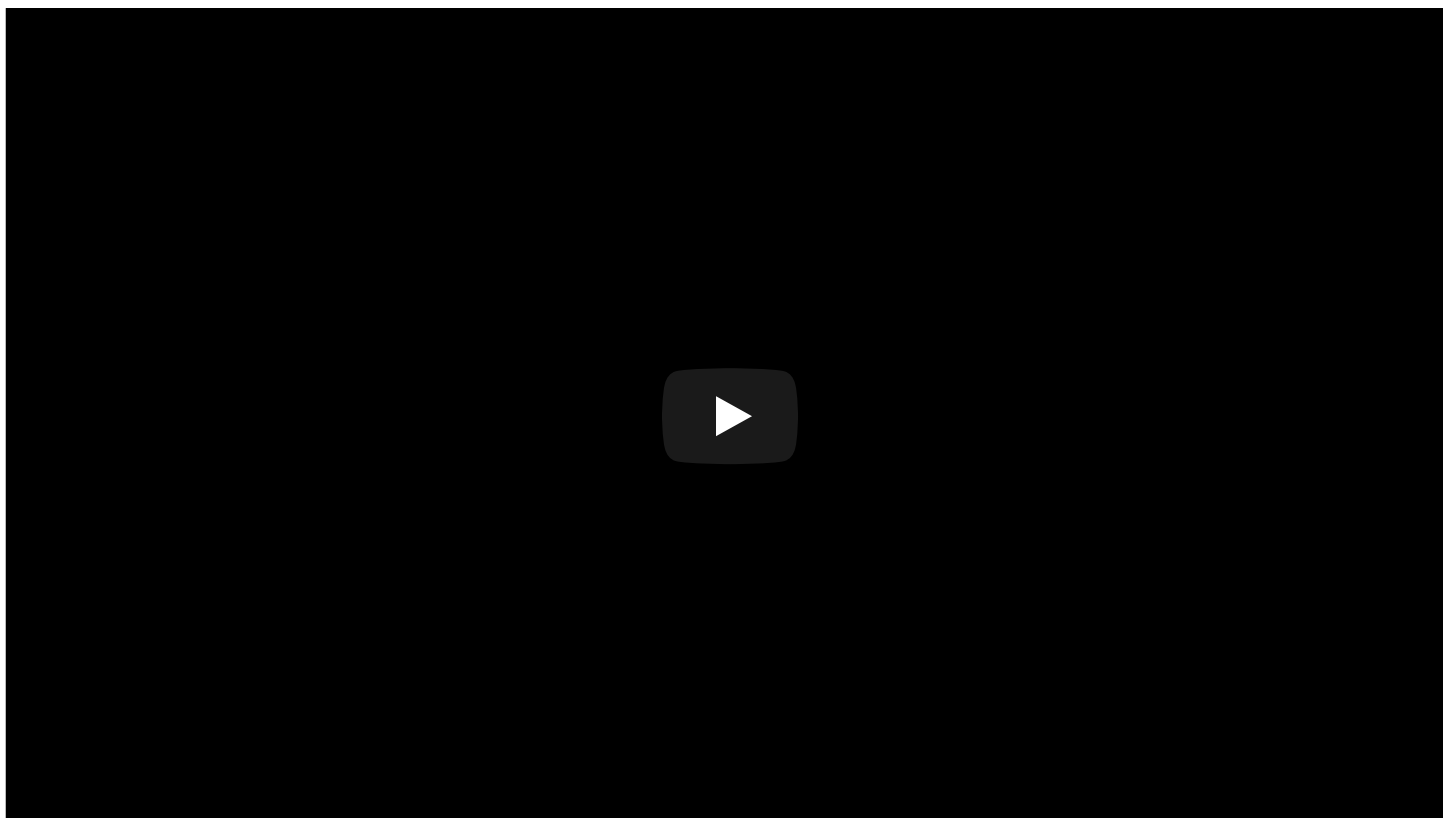- We started [AI First Scenarios - Energy](#)

with recorded video

Week 8

Deep Learning and AI Examples

- We finished [AI First Scenarios - Energy](#)
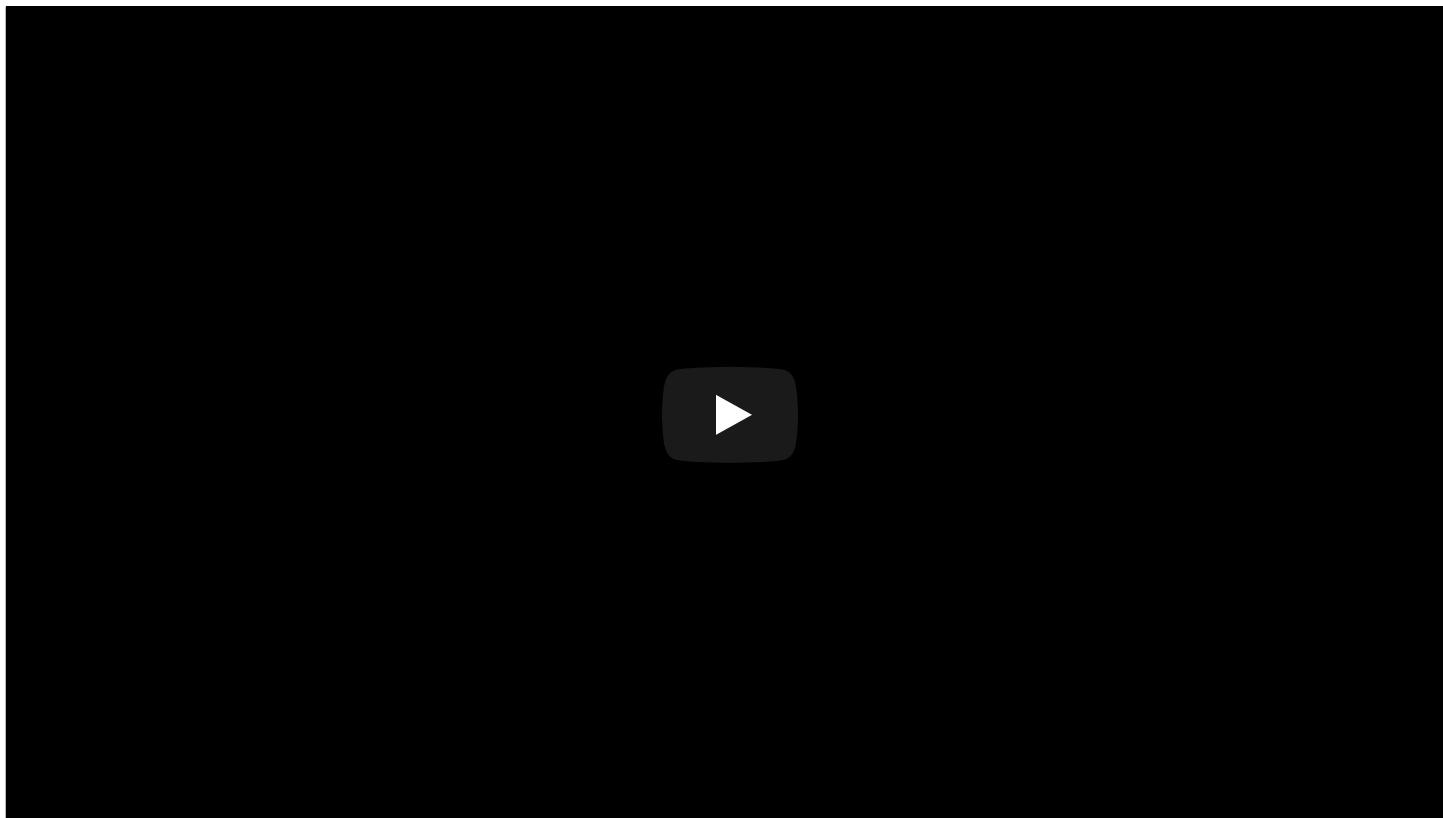- We started [AI First Scenarios: Banking and FinTech](#)

with recorded video

Week 9

Deep Learning and AI Examples

- We ended [AI First Scenarios: Banking and FinTech](#)
- We started [AI Scenarios in Mobility and Transportation Systems](#)

with recorded video

Week 10

GitHub for the Class project

- We explain how to use GitHub for the class project. A video is available on YouTube. Please note that we only uploaded the relevant portion. The other half of the lecture went into individual comments for each student which we have not published. The comments are included in the GitHub repository.

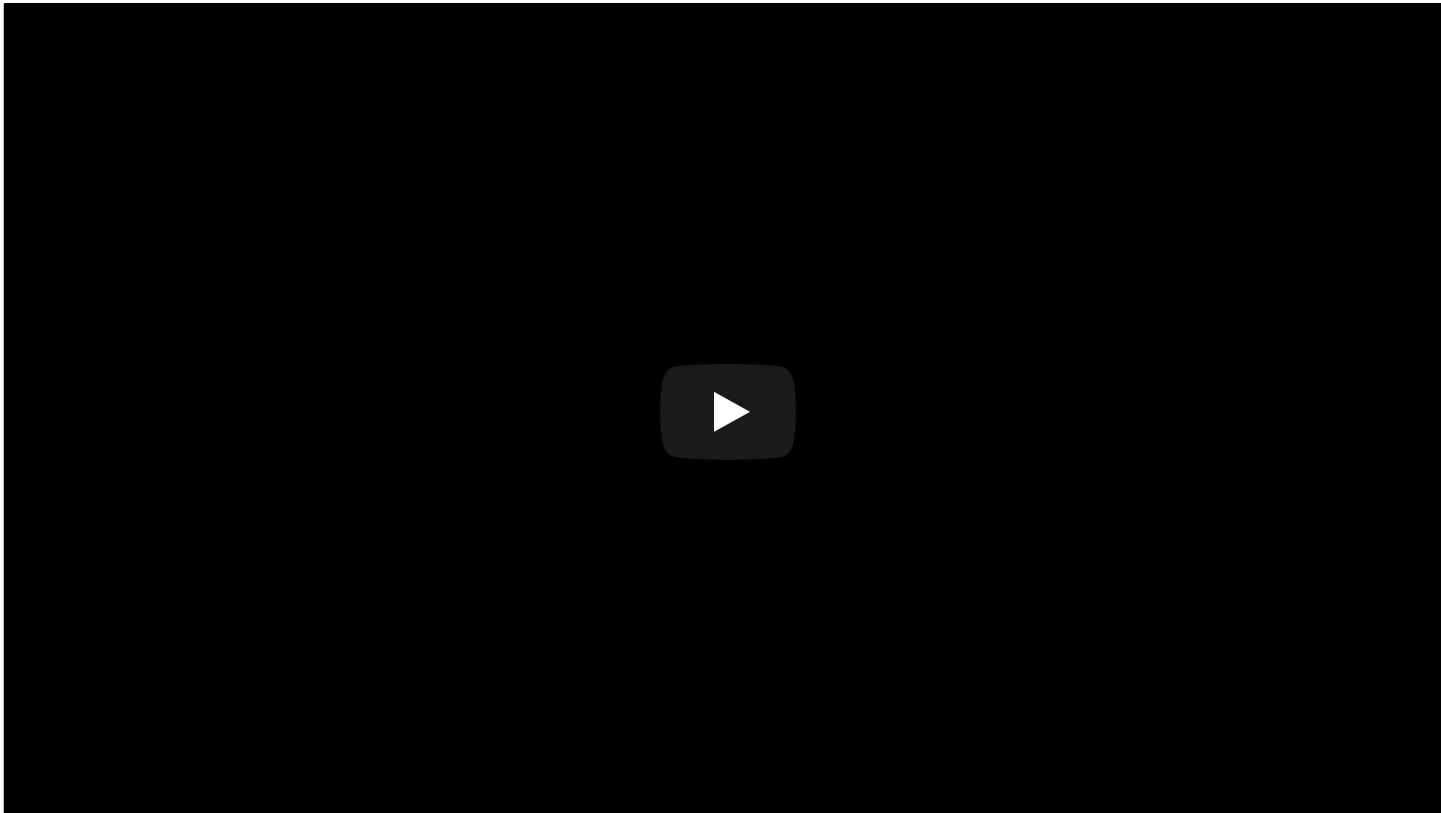Note project guidelines are given [here](#)

Video
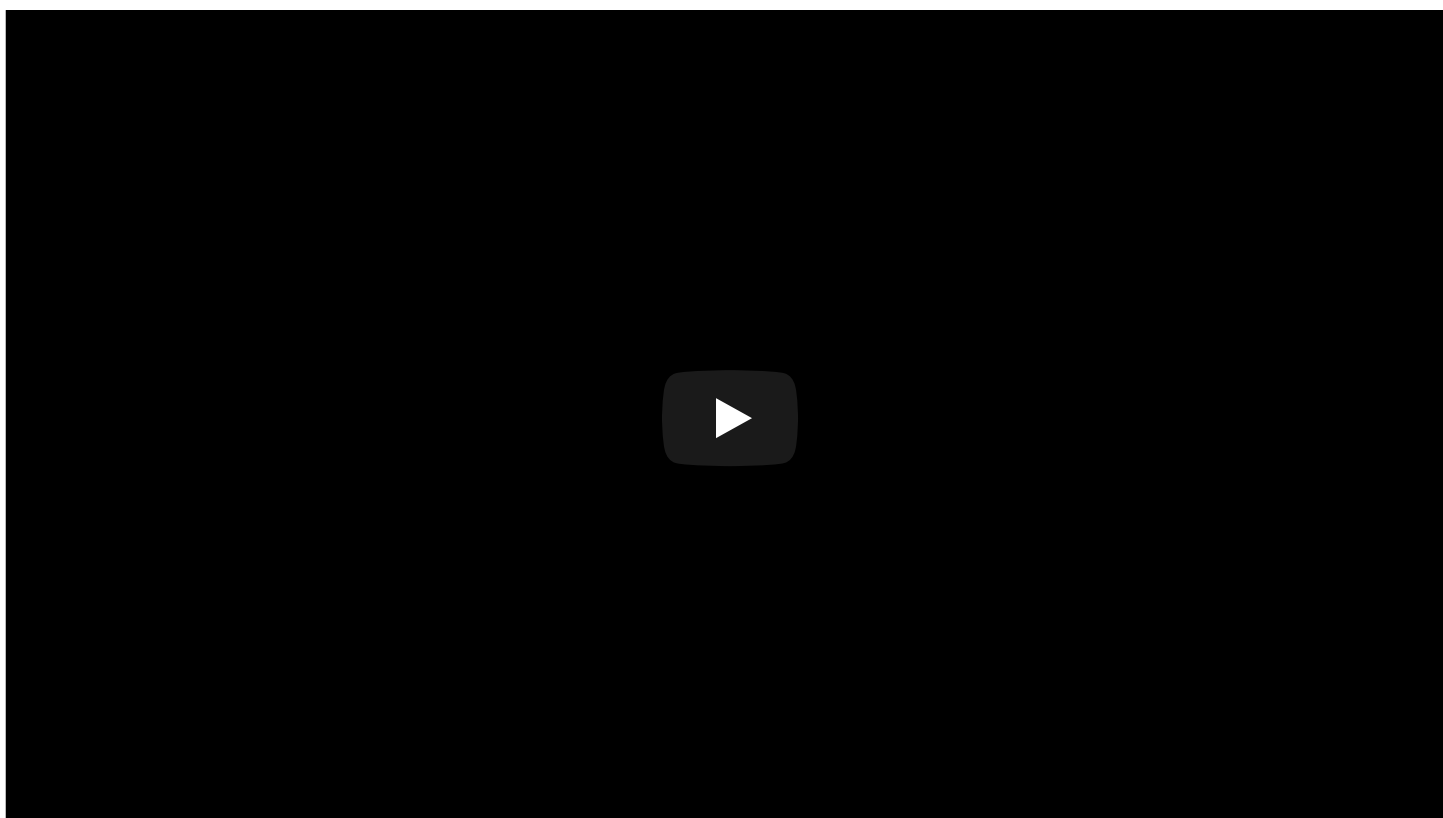
Week 11

The Final Project

- We described the gidelines of final projects in [Slides](#)

- We were impressed by the seven student presentations describing their chosen project and approach.
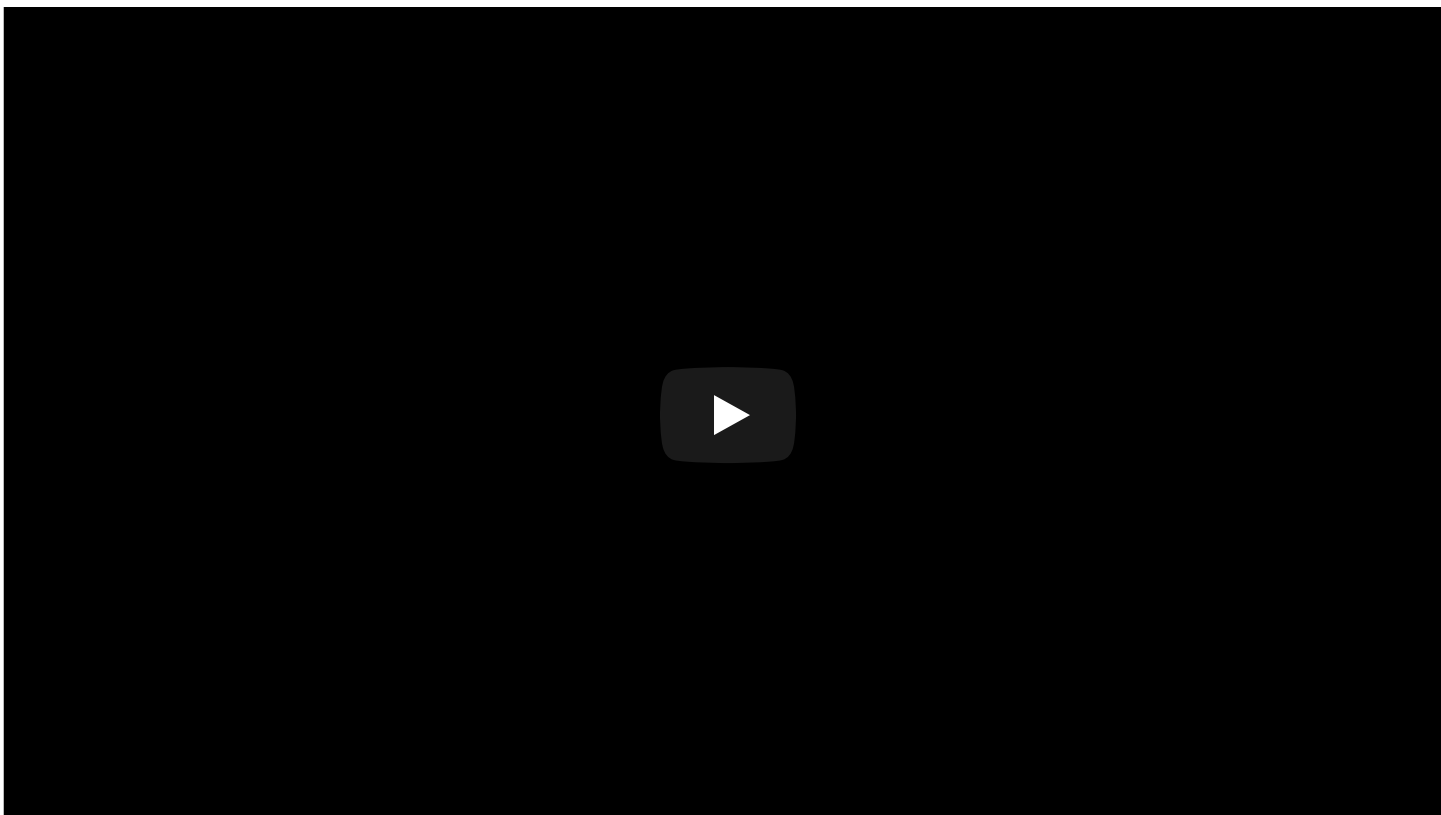
Video

Week 12

Practical Issues in Deep Learning for Earthquakes

We used our research on Earthquake forecasting, to illustrate deep learning for Time Series with slides
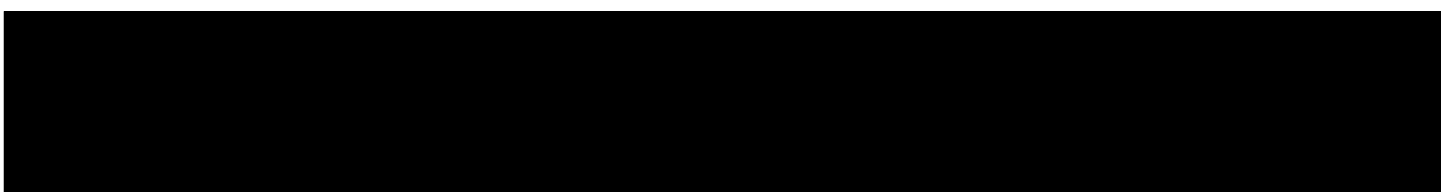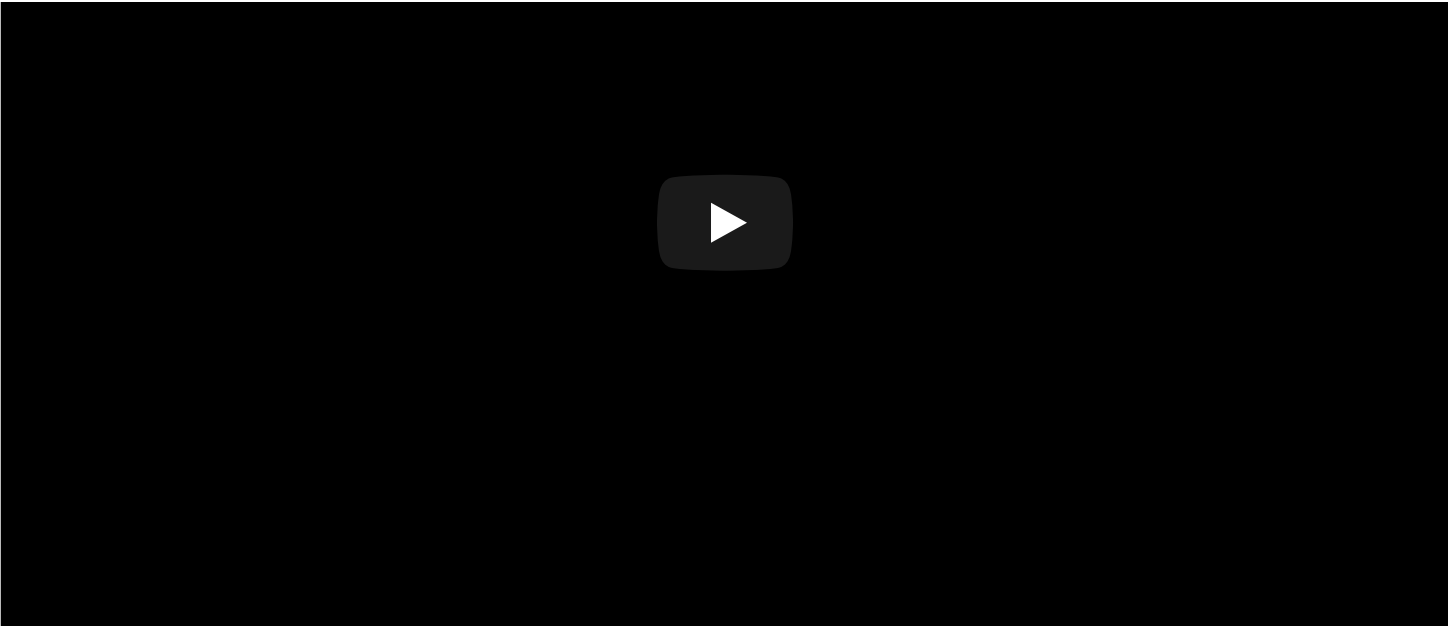
Video

Week 13

Practical Issues in Deep Learning for Earthquakes

We continued discussion that illustrated deep learning for Time Series with the same slides as last week

Video

Last modified June 17, 2021 : add aliasses (6b7beab5)