
Intro to the course

02476 Machine Learning Operations
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Who am I

- Bachelor, master, PhD from DTU
- Currently: Postdoc
- Old focus:
 - Inductive biases in deep learning
 - Generative models
 - Geometry aware manifolds
- New focus:
 - MLOps
 - Efficient machine learning



Who am I

- Eager open-source contributor
 - This course is open-source

- ML Engineer at <https://lightning.ai/>

Nicki Skaftes Detlefsen
SkaftesNicki

Postdoc at section for Cognitive Systems (CogSys), Technical University of Denmark (DTU). Main focus: Generative models and geometrical deep learning.

129 followers · 3 following

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Achievements

YoLo x2 x3 x3

Repositories 38 **Projects** **Packages** **Stars** 72

You unlocked new Achievements with private contributions! Show them off by including private contributions in your Profile in settings.

Pinned

- ddtn** (Public) Python ☆ 50 🍴 7
Repository for our upcoming code, that we used for our "Deep diffeomorphic transformer networks" paper (Accepted to CVPR 2018). Will be update during the spring of 2018.
- libcpab** (Public) Python ☆ 45 🍴 8
CPAB Transformations: finite-dimensional spaces of simple, fast, and highly-expressive diffeomorphisms derived from parametric, continuously-defined, velocity fields in Numpy, Tensorflow and Pytorch
- dtu_mlops** (Public) Jupyter Notebook ☆ 203 🍴 141
Exercises and supplementary material for the machine learning operations course at DTU.

824 contributions in the last year

Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct

Mon
Wed
Fri

Happy Halloween! Learn how we count contributions

Less More

Course settings

- 5 ECTS
 - 3 weeks period
 - Level: Master
 - Grade Pass/not passed
 - Type of assessment:
 - Code hand-in
 - Weekly project updates
 - Final oral examination
- Recommended prerequisite
 - General understanding of machine learning (datasets, probability, classifiers, overfitting etc.)
 - Basic knowledge about deep learning (backpropagation, convolutional neural network, auto-encoders etc.)
 - Coding in Pytorch

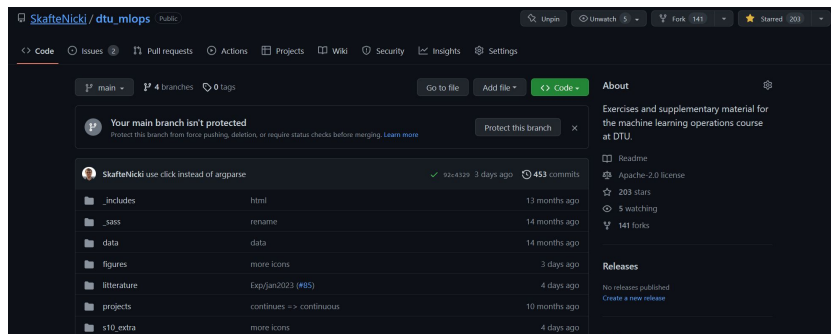
Course webpage

Github:

https://github.com/Skaftenicki/dtu_mlops/tree/january2022

Rendered page:

https://skaftenicki.github.io/dtu_mlops/



Communication

Join the slack channel

https://join.slack.com/t/dtumlops/shared_invite/zt-1j1zx8t4h-nTbUPibR9xCz58erDyyikw

- General announcements
- Asking questions
- Communication with team members

For non public info we use DTU learn

<https://learn.inside.dtu.dk>

What is this course/What it is not

What is this course:

Introduce the student to a number of coding practices that will help them organization, scale, monitor and deploy machine learning models either in a research or production setting. To provide hands-on experience with a number of frameworks, both local and in the cloud, for doing large scale machine learning models.

Keywords:

- Organization
- Scalability
- Reproducibility
- Hands-on experience

What this course is not:

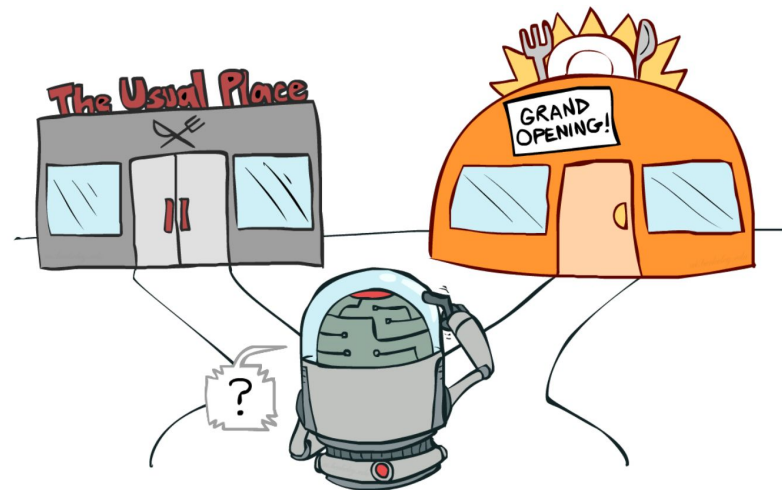
- How different machine learning models works

What do I expect from you

The course is centered around two principals:

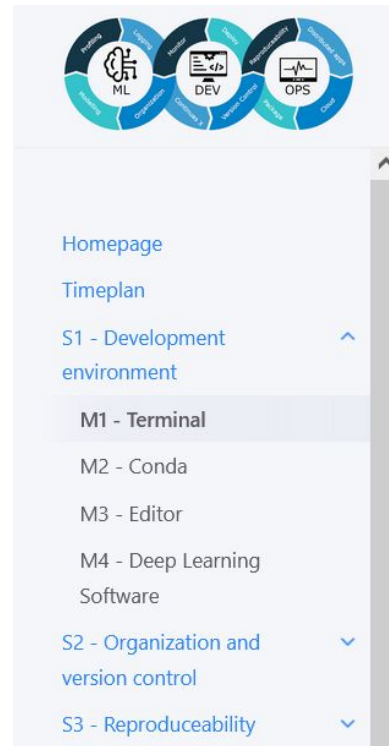
- Learning by doing
- Learning by exploration-exploitation

We provide lectures, exercises and guidance but encourage self study.



Organisation of material

- 1 day = 1 session (S)
- 1 session = multiple modules (M)
- Core modules:
 - Essential in some way
- All other modules are highly recommend
- S10 contains additional modules



[Homepage](#)
[Timeplan](#)
[S1 - Development environment](#)
M1 - Terminal
[M2 - Conda](#)
[M3 - Editor](#)
[M4 - Deep Learning Software](#)
[S2 - Organization and version control](#)
[S3 - Reproduceability](#)

Search dtu_mlops

[S1 - Development environment](#) / [M1 - Terminal](#)

The terminal

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IMPORTANT

Core module

What I hope from this course

- Have fun!
- That you get to fill your toolbox with useful frameworks
- (Maybe) Learn something along the way

People with no idea
about AI, telling me my
AI will destroy the world



Me wondering why my
neural network is
classifying a cat as a dog..



hygge

[huc-gah] *noun*

An atmosphere of warmth, wellbeing, and cosiness when you feel at peace and able to enjoy simple pleasures and being in the moment.

A typical day in this course

Exercise days:

- Meet in at 9:00
- Lecture for 15-30 mins
 - I am still learning how to do lectures
 - Lectures are not meant to give teach you anything, but provide some context to the topic of the day
- Exercises until 14:00-17:00
 - Remember to take a lunch break
 - Workload will depend on you

Project days

- Sometimes a small lecture or company presentation
- Rest of the day you work on projects
- Office hour

Projects + exam

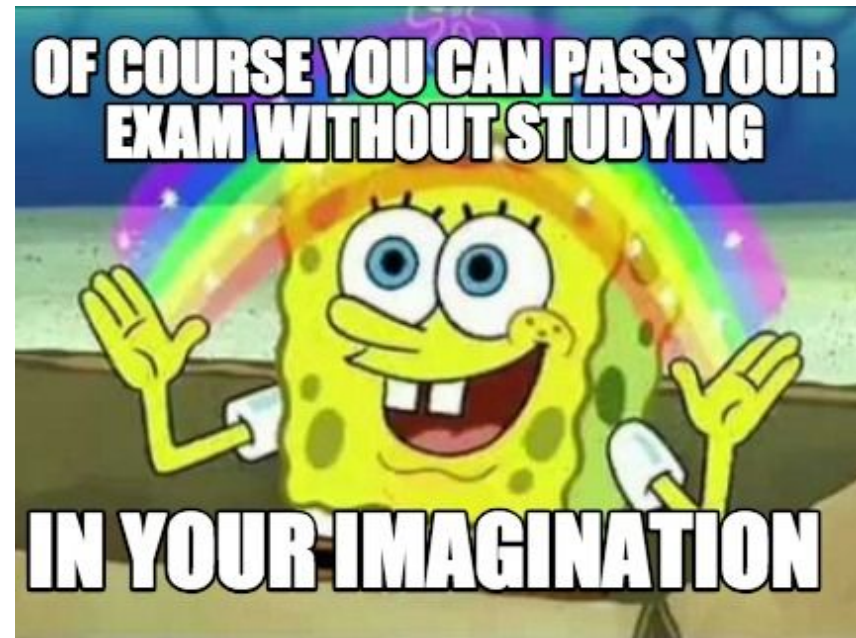
- Approximately 1/3 of the course time is spend on project work
- More info here: https://skaftenicki.github.io/dtu_mlops/projects
- Already now you are recommended to think about forming groups
 - 4 people (3 and 5 is also acceptable)
 - Thursday we will do some speed dating to form groups for people not already having one.
 - Also feel free to write in the *#find-a-group* slack channel.

How to pass

- Meet in and do the exercises
- In the final project:

Show that you can use the tools you learn about throughout the course

We still have a 100% pass rate after approx ~180 students.



Hands-in

<input type="checkbox"/>	Assignment	
	No Category	
<input type="checkbox"/>	Exercises ▼	<div> <input type="checkbox"/> [Redacted] </div>
<input type="checkbox"/>	Project description ▼	<div> Text Submission 1 Unevaluated Friday, 7 January 2022 2:13 PM https://github.com/[Redacted]/Project-MLOps-[Redacted] Github link </div>

Big zip file with everything + github link

**LEARNING ML/DL
FROM UNIVERSITY**

ONLINE COURSES

FROM YOUTUBE

FROM ARTICLES

FROM MEMES

