21.10.25

OPENCAMPUS.sh

Scientific
Machine Learning

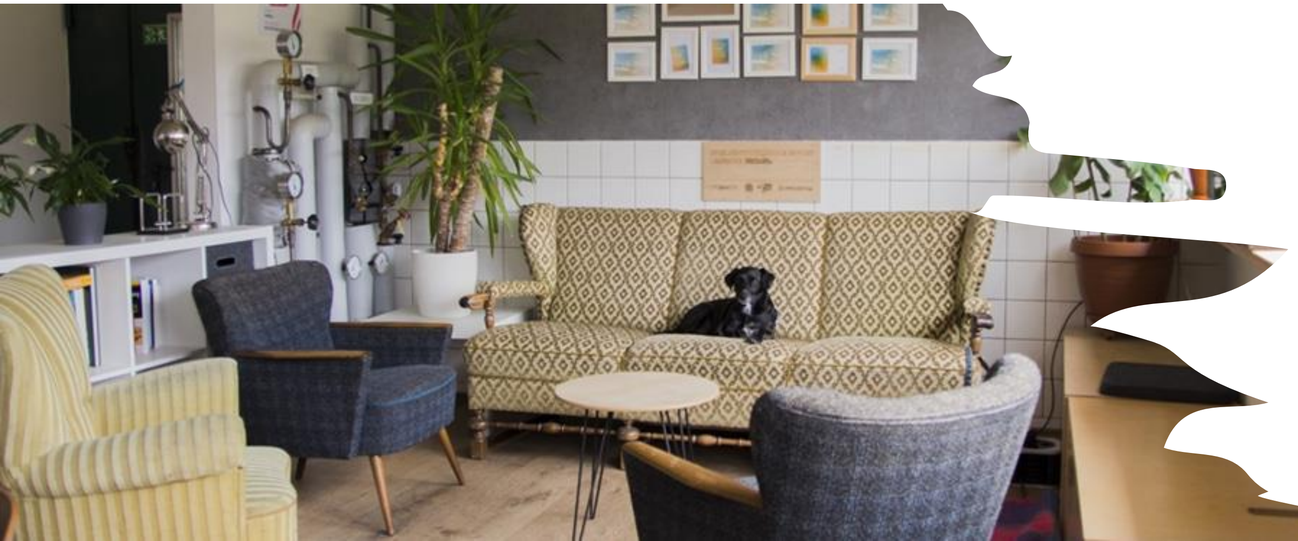
GENERAL INTRODUCTION

- Personal Introduction
- Intro to opencampus.sh
- Organizational Matters
- Course Projects
- ML Frameworks

PERSONAL INTRODUCTION

OPENCAMPUS.sh

- Nonprofit organization which oversees a variety of initiatives
- Offering a wide range of educational opportunities, support, and networking for entrepreneurs, creatives, and anyone curious, regardless of age, educational background, or origin
- The services are open to everyone and mostly free.
- The goal is to support the entrepreneurial landscape, promote creative change processes, and contribute to innovative and sustainable future development.



starter kitchen.de

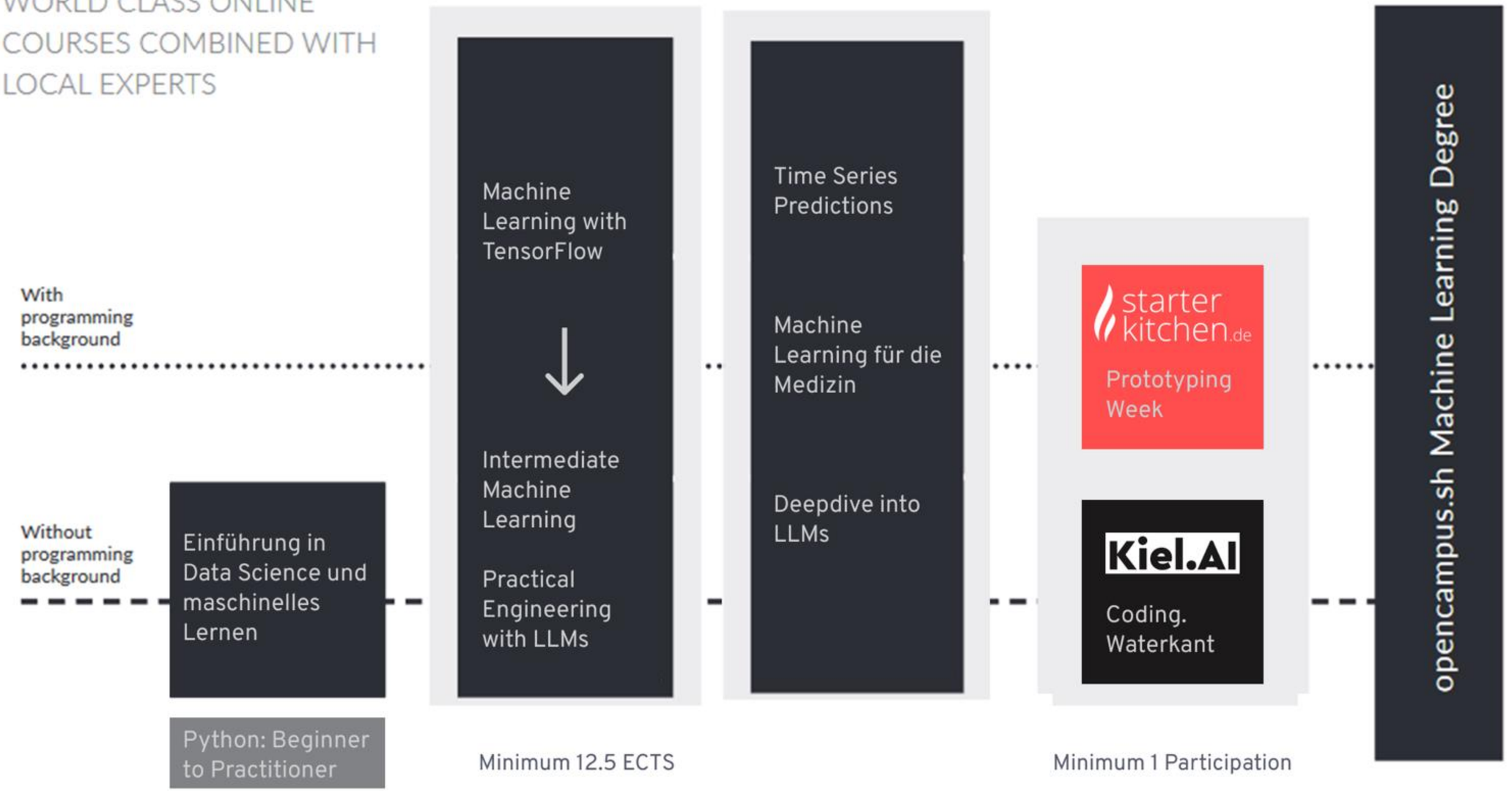
COBL

COZY WORKING, CULTURE & EVENTS

FABLAB KIEL

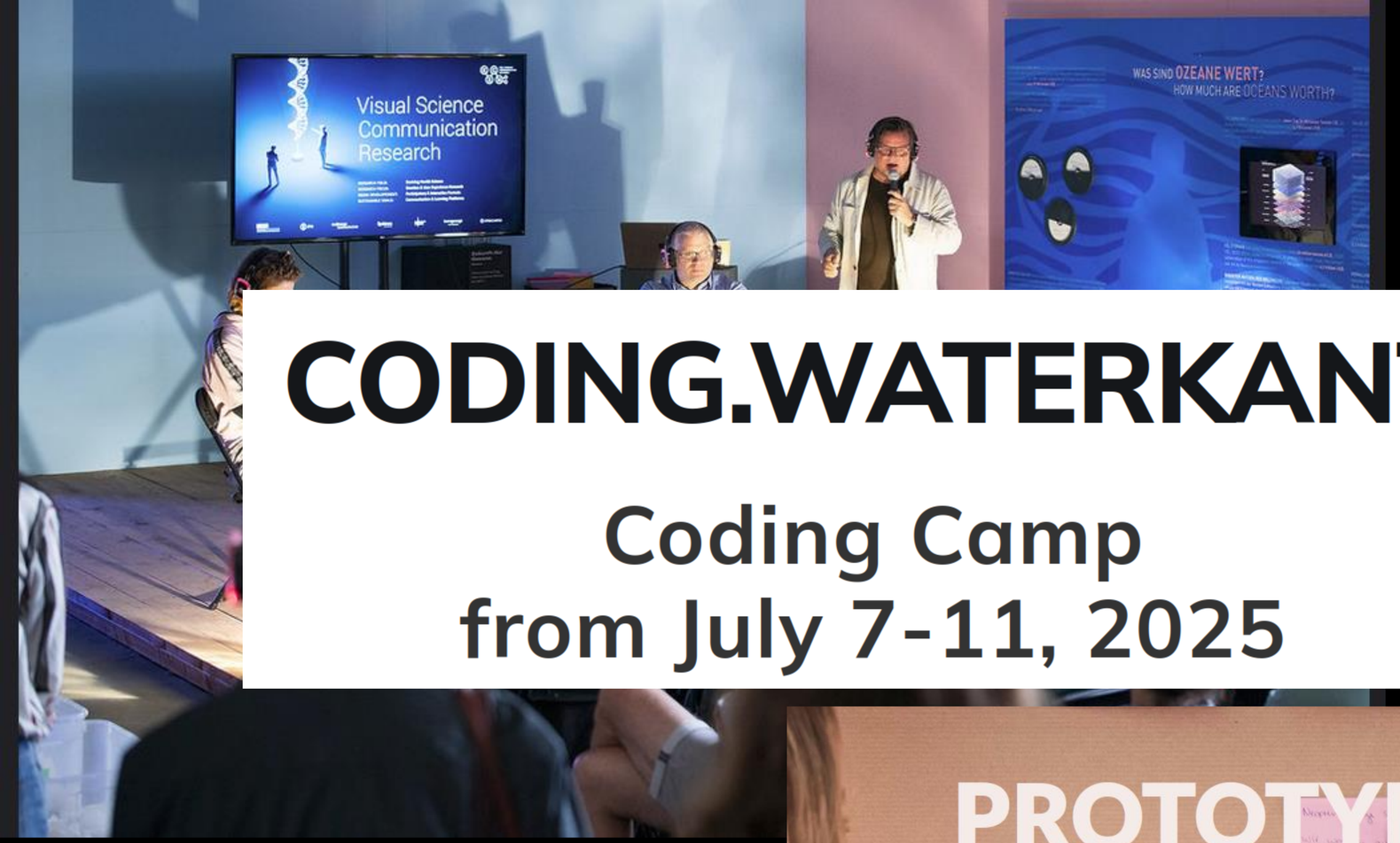
MACHINE LEARNING **DEGREE**

WORLD CLASS ONLINE COURSES COMBINED WITH LOCAL EXPERTS



CODING.WATERKANT

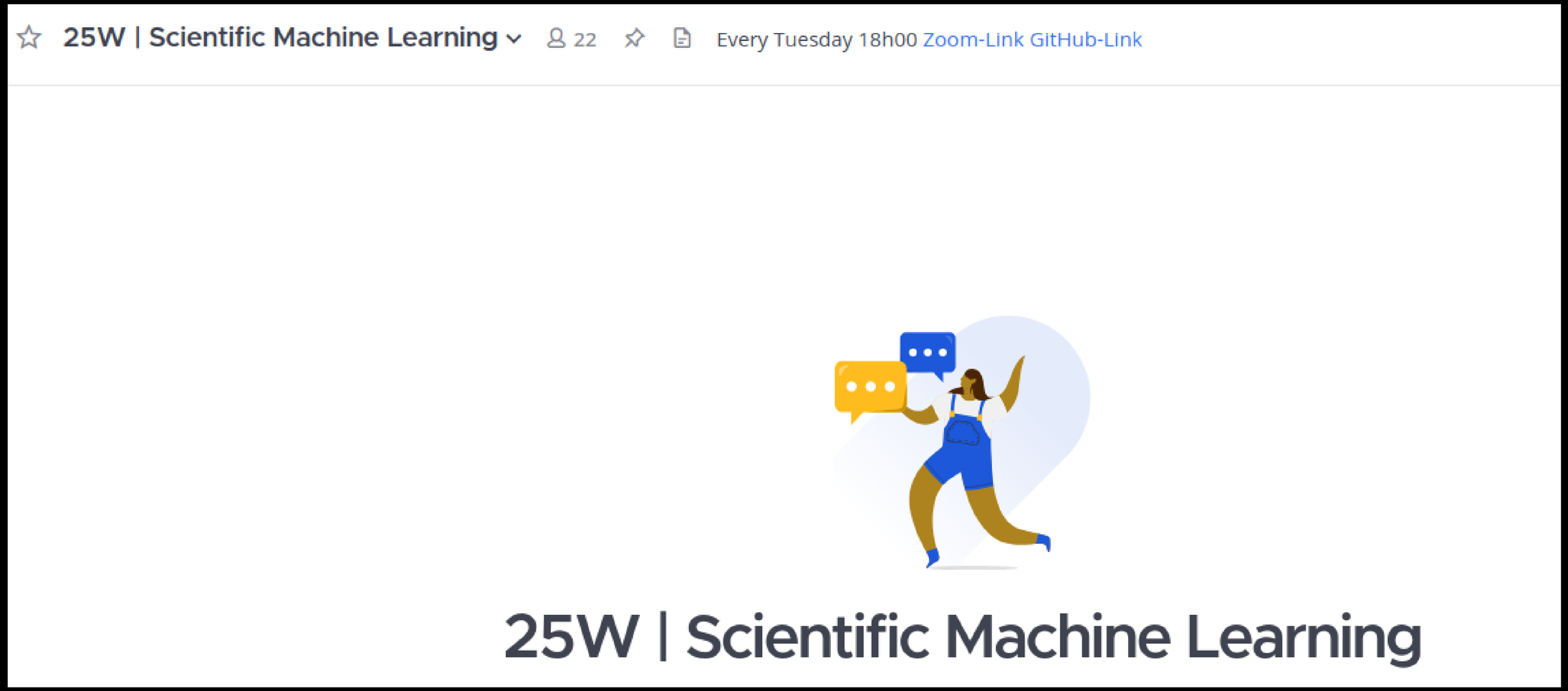
Coding Camp
from July 7-11, 2025



CHAT

Zoom-Link

GitHub



- Please, ask questions to us in the chat

CHAT

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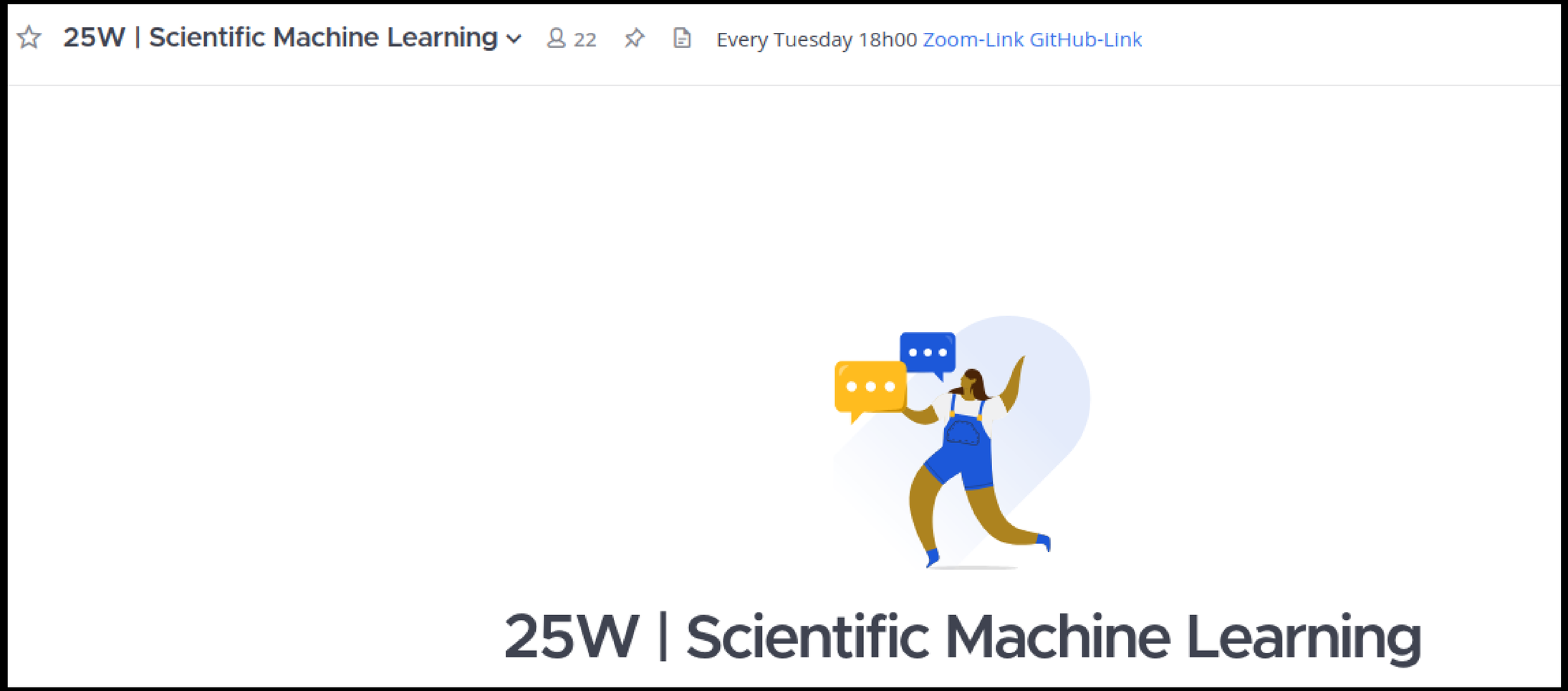


- Please, ask questions to us in the chat

ORGANIZATIONAL MATTERS

- **Use your full names in the zoom meetings!**
- **Complete your profile in the Mattermost chat with your full name and a "photo".**
- **Please write me/us if you will not go on with the course!**

Kurstermine

21.10.2025 18:00 - 20:00	Introduction	ONLINE
28.10.2025 18:00 - 20:00	Deep Learning + Discrete Computer Worlds	ONLINE
04.11.2025 18:00 - 20:00	PDEs + Finite Differences in 1D and 2D	ONLINE
11.11.2025 18:00 - 20:00	PINNs Basics+ Pseudospectral Methods	ONLINE
18.11.2025 18:00 - 20:00	PINNs Theory + Finite Elements - Static & Dynamic	ONLINE
25.11.2025 18:00 - 20:00	Operator Learning + Spectral Element Methods	ONLINE
02.12.2025 18:00 - 20:00	Guest Lecture by COMSOL	ONLINE

Christmas Break – New Year

09.12.2025 18:00 - 20:00	Operator Learning + Basics Uncertainty Quantification	ONLINE
16.12.2025 18:00 - 20:00	Large-Scale Operators + Uncertainty Propagation	ONLINE
23.12.2025 18:00 - 20:00	Attention Operators + Realiability and Sensitivity	ONLINE
06.01.2026 18:00 - 20:00	Guest Lecture by COMSOL + Hybrid Workflows	ONLINE
13.01.2026 18:00 - 20:00	Neural Diffenrential Equations + JAX	ONLINE
20.01.2026 18:00 - 20:00	Applications in Life Science	ONLINE
27.01.2026 18:00 - 20:00	Final Presentations	ONLINE

EXERCISES

- Each week every group/person will present exercises/notebooks
- We will split the tasks
- Volunteering is highly appreciated
- Each of you presents at least once

PROJECTS

CFD:

Electrodynamics:

Mechanical Engineering:

Climate:

Other:

RELEVANCE OF THE PROJECTS

- Most important for a career in ML will be work experience and your GitHub/GitLab profile
- Focus on building a noteworthy project repository
- Use the template repository
- Outstanding projects will be nominated for the VDE prize

PROJECTS

How to Start, Complete, and Submit Your Project

In all Machine Learning courses you have:

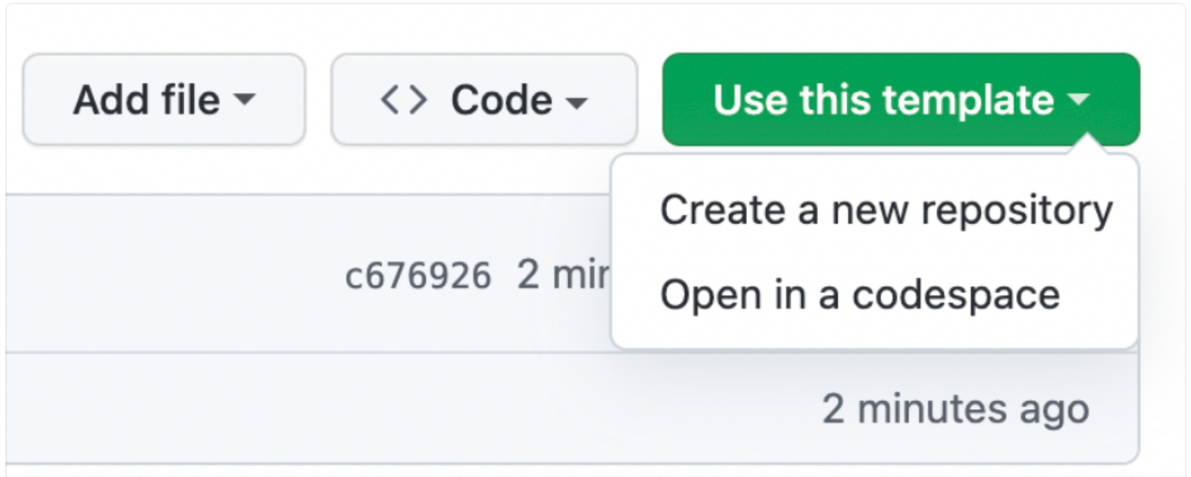
- to complete a machine learning project in a team of up to 4 participants,
- attend at least all but 2 sessions of the course, and
- use the provided project template repository for documentation (unless otherwise instructed).

Was this helpful?

Export as PDF

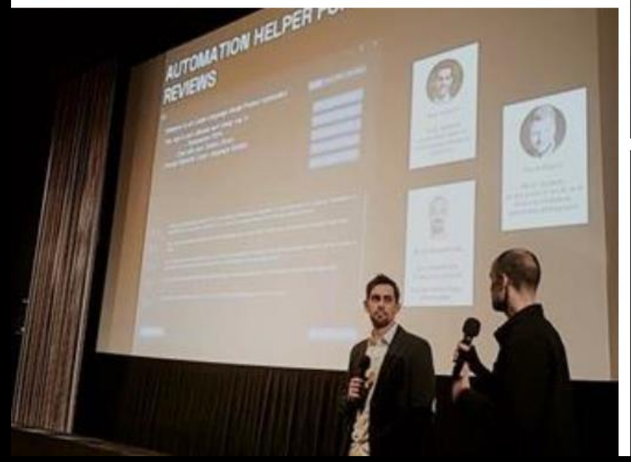
Starting Your Project

1. **Navigate to the** Template Repository
2. **Use this Template**: Above the file list, click the "Use this template" button.



VDE

SPECIAL PRIZE MACHINE LEARNING

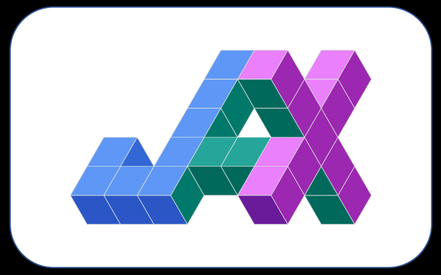


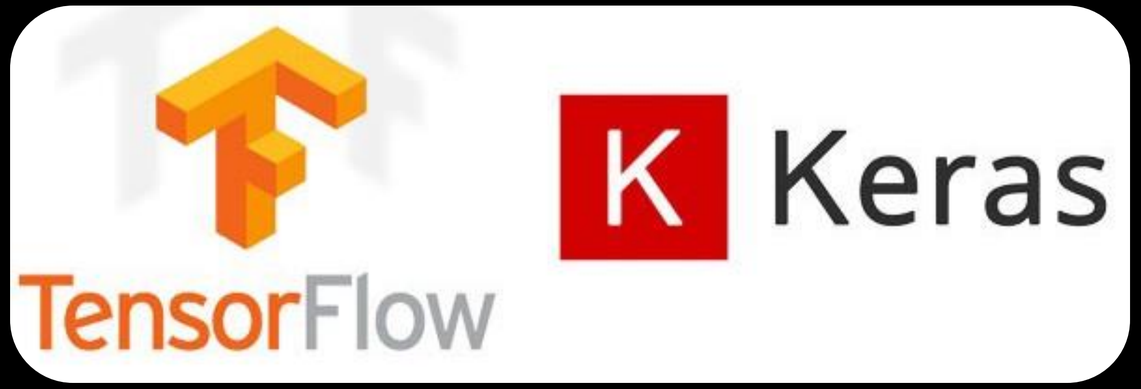
PROJECT TOOLS

DEVELOPMENT ENVIRONMENTS


PYTORCH


scikit
learn




TensorFlow
K
Keras

TASKS UNTIL NEXT WEEK

- **ETH Zürich Course:**
  - **AI in Science and Engineering**
  - **….**

- Short Course on *Computational Methods in Geophysics*
- ….