

# Applied Machine Learning

## Preliminary Meeting (IN2106, IN4192)

---

Lecturer: Dr. Leo Schwinn

Summer Term 25

- Dr. Leo Schwinn
- Eike Eberhard, Niklas Kemper, Marten Lienen & Jonas Dornbusch

This is a practical course (Praktikum) for **Master's** students!  
*Name of module: Applied Machine Learning (IN2106, IN4192)*

All important information (including these slides) is also **available on our website:**

<https://www.cs.cit.tum.de/daml/lehre/sommersemester-2025/applied-machine-learning/>

## Why attend our ML lab course?

1. Opportunity to **implement and apply** state-of-the-art ML algorithms
2. Gain **hands-on experience** working on **real-world data**, solving **real-world tasks** by working on projects offered by our **industry partners** as well as **academic projects**
3. Work on **large-scale problems** with the support of our **GPU computing resources**



# Organization – Structure

- Groups of 3 students
- We offer 4 different projects
- Students get access to our GPU servers, each with
  - 4x NVIDIA GPU with 11GB RAM
  - 10-core CPU
  - 256 GB RAM→ Scale up your models and data!

- Alternating weekly meetings
  - Course meetings
    - in person, roughly 2 hours
    - 2/4 groups present their work
    - Each group should briefly report their progress and next steps
  - Group meetings
    - with advisors and industry partners
    - analyze results, plan next steps
- Where, when, what, how?
  - Every Thursday from 14:30 to 16:30 (24.04 - 24.07)
  - **Course Meetings** bi-weekly (starting 24.04) in room: 00.13.036, Seminarraum (5613.EG.036)
  - Regular documentation of your work on wiki
  - Code on git ([gitlab.lrz.de](https://gitlab.lrz.de))

## TUM-DAML topics

**Long-Range Machine Learned  
Force-Fields**

**Understanding the Practical  
Capabilities of GNNs**

**Improving Robustness of Vision  
Transformers**

**Image Generation with Latent  
Diffusion**

**Applied Reinforcement Learning**

Industry topics (possibly with Recursive AI Japan)

**TODO: TBD**

**TODO: TBD**

# Application Procedure

You have to register via the **matching system**  
**and** fill out our **application form** to apply for a spot!