Applied Machine Learning
Preliminary Meeting (IN2106, IN4192)

Lecturer: Prof. Dr. Stephan Günnemann

Summer Term 24

Team

- Prof. Dr. Stephan Günnemann

- Dr. Leo Schwinn, Aman Saxena, Dominik Fuchsgruber

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

Website: https://www.cs.cit.tum.de/daml/lehre/sommersemester-2024/applied-machine-learning/

Data Analytics
and 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**

Requirements

- Requirements for the lab course

  - **Advanced programming skills**: Python, PyTorch, etc.

  - Strong foundations in data mining/machine learning

  - You should have passed relevant courses (the more, the better)
    $\rightarrow$ Machine Learning,
    $\rightarrow$ Machine Learning for Graphs and Sequential Data,
    $\rightarrow$ ...
    $\rightarrow$ see the application form

  - Motivation

- Additional selection criteria

  - Other **relevant** experience (projects in companies, experience as a HiWi)

  - You can send an overview of your experience to us (see end of slides)

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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!

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Organization – Course

- Bi-weekly course meetings (around 2 hours)
  - in person
  - All groups present their work
  - Each group should briefly report their progress and next steps

- Bi-weekly group meetings
  - with advisor and industry partner
  - analyze results, plan next steps

- Regular documentation of your work on wiki

- Code on git (gitlab.lrz.de)

Projects – Industrial and Academic

TUM-DAML (Topics may change slightly)

Trajectory prediction on Graphs

Robustness through Input Sparsity in Computer Vision

Interrogating Unlearned LLMs

Efficient Large Scale Data Pruning

Registration via the matching system!
`https://matching.in.tum.de`

Applied Machine Learning (IN2106, IN4192)

+ Fill out the application form!
`https://forms.gle/qRBJmm6iZbnAzvk59`

Deadline 14.02.2024

- Which lab / seminar are you applying for?
- List of ML-related lectures you have attended
- A **concise** overview of your resume (bullet list, not a complete CV)
- Any additional relevant experience (research, HiWi positions etc.)