Machine Learning Lab Course

Preliminary Meeting (IN2106, IN4192)

Lecturer: Prof. Dr. Stephan Günnemann

Winter Term 23

Team

- Prof. Dr. Stephan Günnemann
- Bertrand Charpentier, Marten Lienen, Tom Wollschläger

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

Website: www.cs.cit.tum.de/daml/lehre/wintersemester-2022-23/large-scale-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)
    → Machine Learning,
    → Machine Learning for Graphs and Sequential Data,
    → ...
    → 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)

Organization – Structure

- Groups of 3 students
- This term 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

  $\rightarrow$ Scale up your models and data!

Organization – Course

- Bi-weekly course meetings (around 2 hours)
  - in person
  - Thursdays 10-12
  - 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

Molecular Charges

Biodiversity in the Jungle

Green & Cheap ML Models

Continental

TBD

SIEMENS

TBD

Ippen Digital

PageRank Optimization

ENLYZE

Anomaly Detection in Machine Data

Registration

Registration via the matching system!

`https://matching.in.tum.de`

Large-Scale Machine Learning (IN2106, IN4192)

+ Fill out the application form!

`https://forms.gle/C5ys9iwL9B2WBvSJ8`

Deadline 27.07.2022

- 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)
- A brief motivational statement
- Any additional relevant experience (research, HiWi positions etc.)