Week 1: Introduction

Generative AI
Saarland University – Winter Semester 2024/25

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MAX PLANCK INSTITUTE
FOR SOFTWARE SYSTEMS

MAX-PLANCK-GESELLSCHAFT

Outline of the Lecture

- Course participants

- Course structure

- Weekly content

- Grading scheme

- Week 1 assignment

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Course Participants: Lecturers and Teaching Assistants
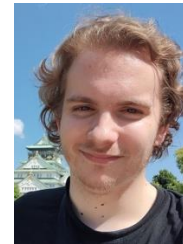
Goran
Radanovic

Adish
Singla

George
Tzannetos

Victor A.
Padurean

Stelios
Triantafyllou

Jonathan
Nöther

Nachiket
Kotalwar

Course Participants: Registered Students

Distribution w.r.t. study program

- Master students: 81%
- Bachelor students: 17%
- PhD students: 2%

Distribution w.r.t. department or specialization

- Computer Science: 42%
- Data Science and AI: 37%
- Language Science and Technology: 6%
- Visual Computing: 4%
- Educational Technology: 3%
- Bioinformatics: 3%
- Remaining 5% students from Embeddings Systems, Media Informatics, Digital Transformation Technology and Management, Entrepreneurial Cybersecurity

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Course Structure

- Provided on the webpage
  https://generative-ai.mpi-sws.org/course-genai-w24/index.html

- Course is structured into three main modules
  - Fundamentals of foundation models
  - Trustworthiness aspects of generative AI
  - Generative AI-powered programming education

- Weekly schedule involves the following:
  - Lectures on Tuesdays
  - Assignments comprising reading material, exercises, and implementation
  - Office hours on Tuesdays and Wednesdays

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Weekly Content: Tentative Plan

[15 Oct] Week 1: Introduction

[22 Oct] Week 2: Background on Language Models and Transformers

[29 Oct] Week 3: Large Language Models and In-context Learning

[05 Nov] Week 4: Pre-training and Supervised Fine-tuning

[12 Nov] Week 5: Preference-based Fine-tuning for Alignment

[26 Nov] Week 6: Multi-modal Foundation Models

[03 Dec] Week 7: Trustworthiness Aspects I

[17 Dec] Week 8: Trustworthiness Aspects II

[07 Jan] Week 9: GenAI-powered Programming Education I

[14 Jan] Week 10: GenAI-powered Programming Education II

[28 Jan] Week 11: Project Discussion

[04 Feb] Week 12: Examination Preparation

Weekly Content: Links to Access Content

Global link to view/download course content

- Password is required to access this link

Personal link to upload your submission files

- We will use upload timestamps to check for deadlines
- Multiple submissions are possible but discouraged

Personal link to view/download your submission files

- Primarily for you to confirm your upload

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Grading Scheme: Split of Points

30 points for assignments (until 22 Dec 2024)

- About 8 assignments in total
- Each assignment corresponds to specific points mentioned in the PDF

20 points for project (from 7 Jan 2025 until 10 Feb 2025)

- Project will be more open-ended than assignments
- Total amount of work would correspond to roughly 5 assignments

50 points for examination (sometime in Feb/Mar 2025)

- Written exam based on the entire course material
- There will be a possibility for re-examination

Grading Scheme: Assignment Points

Points for a given assignment

- Each question involving a submission carries equal weight (unless specified)
  - Some questions marked as optional do not involve submission
  - Questions with reading material do not involve submission
- Full points on a question with reasonable attempt even if not fully correct
- We will not release weekly grades; come to office hours to get feedback
- Deadlines are strict
  - Any extensions because of sick leave should be requested beforehand

Grading Scheme: Collaboration Policy

- Assignments and project will be done individually, i.e., no teams
- Your submissions should be entirely yours
- Provide detailed acknowledgements (see sample latex)

Acknowledgements: *Use this section to acknowledge and provide details about any resources used in preparation of your submission files (e.g., online tutorials, generative AI tools, or any peers who helped you).*

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Week 1 Assignment

https://owncloud.mpi-sws.org/index.php/s/9YYZkDAeb58qiT2