

# Natural Language Processing

## 01 – Introduction

# Organization

## ■ Lectures

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## ■ Practical Labs

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## ■ Building 50.20, Room 148

## ■ Institute: AI4LT

- <http://ai4lt.anthropomatik.kit.edu>



# Organization WS2024/2025

- Lectures in English
  - Translated to German
  - <https://lecture-translator.kit.edu/>
- Ilias Q&A forum in German and English
- Lecture Translation Archive
  - Lecture Recording
  - English Transcript
  - Translation into German, ...
  - AI Assistant



# Tentative Schedule

Date	No.	Topic
22. Oct	1	Introduction
24. Oct	2	Words
29. Oct	3	Sentence Structure
31. Oct	4	Semantics
05. Nov	5	Word Representation & Informational Retrieval
07. Nov	6	Topic Models
12. Nov	7	Neural Word Representation
14. Nov	P1	Practical Session - Word Representation
19. Nov	8	Sentiment Analysis
21. Nov	9	Traditional Sequence Labeling & Part-of-Speech Tagging
26. Nov	10	Neural Sequence Labling
28. Nov	P2	Practical Session - Sequence Classification & Labeling
03. Dec	11	Automatic Speech Recognition
05. Dec	12	Pretrained Encoder Models
10. Dec	P3	Practical Session – Sequence-to-sequence Models
12. Dec	13	Traditional Approaches for Natural Language Generation
17. Dec	14	Sequence-to-Sequence Models
19. Dec	15	Large Language Models (LLMs)

07. Jan	16	Instruction Following
09. Jan	17	Specialized Models
14. Jan	P4	Practical Session – LLMs and In-Context Learning
16. Jan	18	Decoding
21. Jan	19	Retrieval Augmented Generation
23. Jan	20	Multilingual NLP
28. Jan	21	Multimodal NLP
30. Jan	P5	Practical Session – Multilingual and Multimodal
04. Feb	22	Neural Dialog
06. Feb	23	Guest Lecture
11. Feb	24	Hallucinations & Quality Estimation
13. Feb	25	Recap

# Practical Labs

- Idea
  - Directly apply knowledge
  - Python
- Structure
  - Short introduction
  - Build and analyze models
- Bring your own laptop

