UNIVERSITÄT
ZU KÖLN

Prompt Engineering

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INSTITUT FÜR
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Prompt Engineering

- How to formulate your prompt to the LLM, such that it gives you the best results?

1 Interactive Prompting

- Chat-bot scenario à la ChatGPT
- Using prompting to solve a single specific task

2 Automatic Detection with Prompts – 'Batch Prompting'

- Prompts to automatically detect text properties
- Replacement for pre-training/fine-tuning scenarios

1 Interactive Prompting

- Direct use and implicit validation
- Results don't have to be perfect to be useful
- Users make connections and fill holes
- Strategies involve different components (e.g., positive/negative examples, definitions, ...)
- Rarely documented in scientific articles
  - But most of my students do this for all kinds of things
- A lot of "anecdotal evidence"

2 Automatic Detection with Prompting

- 'Batch use' for automatic detection
  (i.e., use LLM-prompting to analyse large quantities of data)
- Builds on top of traditional ML applications and assumptions
- No immediate validation during application, therefore evaluation on test set necessary
- Subsequent applications rely on measured correctness

2 Automatic Detection with Prompting

- 'Batch use' for automatic detection
  (i.e., use LLM-prompting to analyse large quantities of data)
- Builds on top of traditional ML applications and assumptions
- No immediate validation during application, therefore evaluation on test set necessary
- Subsequent applications rely on measured correctness
- No reason to assume that the best prompt is made up of words
  - Soft-Prompting: Induce the best prompt directly in vector form, using training data

Prompting Building Blocks (that have been reported to be helpful)

- Specification of a role: `You are a linguist.`
- Ask model to reason: `Think step by step.` (chain-of-thought-prompting)
- Increase stakes: `This task is very important to me.`
- Promise reward: `For correct responses, I'll give you a tip of €20.`
- Give positive examples: `Example output: the -> DET, dog -> NN, barks -> VBZ`
- Give negative examples: `A negative example would be: the -> NN`
- Specify the output format:

  `Do not generate anything else beside your response. Use JSON as an output format.`
  - Usually needed when you want to post-process the response(s)