Generation & Dialogue

Natural Language Generation and Dialogue Systems

Otto-Friedrich-University of Bamberg
Gutenbergstraße 13
96050 Bamberg

www.uni-bamberg.de/ds/en

# Master Thesis

## Enhancing Controllability in Large Language Models through Dialogue Management

**DESCRIPTION:**

Large Language Models (LLMs) have emerged as powerful tools for generating natural language, demonstrating remarkable capabilities in creating coherent and grammatically consistent text. However, concerns regarding the controllability and potential biases of these models have become increasingly salient. As LLMs generate text based on statistical patterns learned from datasets, ensuring user control over the generated output remains a significant challenge.

In response to this, researchers aim to apply dialogue management as a mechanism to enhance the controllability of Dialogue Systems relying on LLMs. By integrating dialogue management techniques, which are responsible for controlling interactions between users and machines, research aims to empower these systems to influence and guide the output generated by LLMs. This approach holds promise to provide users with more accurate and contextually appropriate responses.

Consequently, this thesis aims to gain insights on the impact of dialogue management on the shaping of interactions by varying the level of information that is used for text generation. Here, it needs to be investigated how the perceived naturalness differs compared to a baseline system using an End-to-End approach. The goal is to first test the resulting dialogue management concepts in a local environment and subsequently evaluate the system by conducting a user study employing crowdsourcing methods.

The thesis comprises the following tasks:

1. Implementation of a front-end for the Dialogue System microservice framework
2. Integration of connectors to crowdsourcing platforms
3. Development of dialogue management concepts
4. Evaluation of a use-case based on a publicly available dataset

**PREREQUISITES:**

- Solid programming skills
- Profound interest in Dialogue Systems

**CONTACT:** Nicolas Wagner, M.Sc.
Natural Language Generation and Dialogue Systems
room: GU13/02.23
email: nicolas.wagner@uni-bamberg.de