Social Robotics Practical Assignment 1

Starting Date: February 2nd 2026
Submission deadline: February 13th 2026
Lecturer: Paul Vogt

General guidelines:

- The assignment is to be done in groups of 2.
- Please take advantage of the tutorial sessions to ask questions about the tasks.
- Submit the report as a PDF file, and your video, readme-file and code in a separate zip file (only video, readme-file and code in the zip file) through Brightspace.
- Please keep the video under 300MB!
- The report should contain the answers to the questions (± 250 words/question).

Implementation of WOW game using LLMs

Implement a verbal interaction that implements the **With Other Words** (aka *Taboo*) game where the robot can take both the director and matcher roles. To this aim, you should create an interface with a Large Language Model of your choice, such as ChatGPT (an API-key incurring a small cost is required), Gemini (a free API-key can be obtained) or any other LLM that offers a chat API.

You should use the robot's speech-to-text (STT) (or use Google's or Whisper's STT) and text-to-speech (TTS) modules to facilitate spoken interactions. You can find examples of implementing STT in the Alpha Mini programming manual. Note that you will need to make sure the robot does not start recognising its own speech or start a conversation with itself.

To implement the game, you should define one (or more) prompt(s) to instruct the LLM how to play the game, and how to format the response. The article by Esteban-Lozano et al. (2024) provides good guidelines on designing prompts for social robots (you find this article in the course literature list). In addition to designing the prompt, you create an engine that implements the turn-taking of the dialogue.

Consider creating a few fixed utterances to provide game instructions to the user and to finish a round of the game. Once a game-round is finished (e.g., when the word is guessed correctly or when time is up), the robot should ask if the user wants to play another game or finish the game.

When only implementing a speech interface on the robot, the robot looks very inanimate. Add some small (random) movements to make the robot seem alive, e.g., a breathing

movement. The robot should move more-or-less continuously. WARNING: Don't spend too much time on this; try to keep it simple.

Report

Title page:

- Add your names and student numbers
- Provide a statement on LLM use (see below)

Content: just answer the following questions (± 250 words per answer):

1. Explain how you prevented the robot to catch its own speech?
2. What prompt(s) did you use to instruct the LLM to play the WOW game? Justify your choices. (**Note**: The prompt itself does not count towards the word limit.)
3. Write a brief report, critically reflecting on how you have experienced playing the WOW game with your robot? What went well? What can be improved?

Code & readme

Structure your code well using proper remarks. Provide instructions how to run the code in the readme file.

Video demo

After you finished the implementation, create a short video (max 5 mins) to demonstrate the working of the game. The lab has facilities (camera and tripod) to support video recording.

Assessment criteria

Report [4.5pt]: Quality of the answers to the questions.

Code & readme [4.5pt]: The structure and clarity of the code, the quality of the implementation of the game, and the quality of the remarks and instructions.

Demonstration [1pt]: The demonstrated working of the implementation.

Potential deductions:

- Incorrect formatting of title page: max -1pt
- Too many words used: max -2pt
- Late submissions: -1pt per day late

LLM use

We recommend not to use an LLM for doing the assignment and writing the report, because active, critical thinking by yourself will be more instructive and allows you to learn more. In case you decide to use an LLM, please explain on the title page how you used this (provide prompts) and how you made sure the answers provided are correct.

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