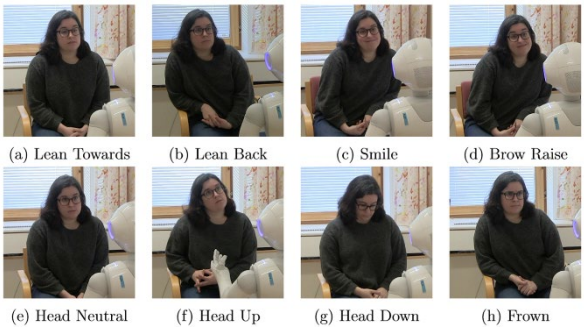
FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG
TECHNISCHE FAKULTÄT

Masterarbeit

Backchanneling in Human-Robot Interaction

Backchanneling in Mensch-Robot Interaktionen

Backchanneling feedback is the verbal or non-verbal information that is given by the listener during a conversation. It is a key aspect of human conversation and is used for a variety of reasons, e.g. showing attention or contributing to a more fluent conversation. In recent years, the effect of a robot's backchanneling while listening to a human has been investigated. But the effect of backchanneling by a human when listening to a robot has been studied poorly.



Backchannling behaviors while listening to a Pepper robot (Bliek, 2020)

A first study about human backchanneling while listening to a humanoid robot has been conducted (Bliek et al., 2020) looking at the backchanneling cues gaze, gestures and pause. The study found that pauses a significant influence on the backchanneling behavior of the human listener and that backchanneling behavior differs significantly when listening to a robot or a human.

Nao robot

To further investigate the backchanneling behavior when listening to a robot and to investigate the influence of the humanoid robot, we suggest repeating the experiment with another humanoid robot, in this case, the Nao robot.

Task

Your task would be to adjust the experiment given the obtained results in the earlier conducted study (Bliek, 2020) and adjust the implementation to the Nao robot. You will also carry out experiments to verify your hypothesis in human-robot experiments.

Requirements

- Studies in Mechatronics, Medical-, Electrical-, or Computational Engineering
- Basic knowledge of programming in python
- Knowledge of human-robot interaction
- Basic knowledge of statistics and conducting experiments

References

Bliek, A. (2020). *Backchanneling in Human-Robot Interaction*. University of Groningen.

Bliek, A., Bensch, S., & Hellstrom, T. (2020). How Can a Robot Trigger Human Backchanneling? *29th IEEE International Conference on Robot and Human Interactive Communication, RO-MAN 2020*, 96–103. https://doi.org/10.1109/RO-MAN47096.2020.9223559

Beginn: ab sofort

Betreuung: M.Sc. Adna Bliek Email: adna.bliek@fau.de

Prüfer: Prof. Dr.-Ing. Philipp Beckerle