Signal Processing and Speech Communication Laboratory &
Institute of Interactive Systems and Data Science
Technische Universität Graz

Computational Conversation Analysis

Master thesis

Supervisors: Ass.-Prof. Dr. Barbara Schuppler, Assoc.-Prof. Dr. Viktoria Pammer-Schindler

Studies: Information and Computer Engineering, Electrical Engineering and Audio Engineering, Software Engineering and Management, Computer Science, Computer Science Teach Education, Computational Social Systems

When analysing human-2-human interaction and collaboration in physical spaces, digital systems are challenged to understand this interaction. Similarly, researchers who analyse (many) human-2-human interactions are challenged to do this manually.

In this master thesis, the goal is to test and adapt existing approaches for computational conversation analysis for the specific case of audio recordings of conversations led between two individuals while doing an Alternative Uses Test with or without the help of ChatGPT. The tasks for the master thesis are

- Speech-to-text conversion
- Automatic identification of turns (who is speaking)
- Temporal analysis of turn taking (who speaks for how long, pauses)
- Option 1: Do individuals who work together well adapt their speaking towards each other too? This requires a computational estimation of the degree of adaptation of the speakers towards each other (i.e., entrainment) and an analysis of its relationship to task-performance measures.
- Option 2: Is the fluency of the spoken turn-taking an indicator for the collaborative task performance? This requires a computational identification of the communication flow and an analysis of its relationship to task performance measures..

Required skills or interest in acquiring these:

- Python, Machine Learning, principles of human speech communication

Interested? Contact b.schuppler@tugraz.at or viktoria.pammer-schindler@tugraz.at