
BACHELOR /MASTER THESIS:

Quality Prediction of Transmitted Speech Signals

DESCRIPTION

In a voice service the speech quality is affected by various degradations. These are often caused by properties of the communication channel, such as missing packets or low bitrate codecs. To measure the performance of a voice service, it is important to know how the quality was perceived by the service user. Traditionally, to measure the quality of transmitted speech, subjective experiments with naïve participants are conducted. Since subjective methods require a significant effort to prepare, signal-based models have been established. These models make a prediction of the perceived quality by a comparison of the reference and the degraded speech signal.

At the Q&U Lab, prediction models that allow a more detailed insight in the cause of quality degradations are investigated. On the one hand, the research focuses on diagnostic models that predict different perceptual quality dimensions (e.g. noisiness or discontinuity), and on the other hand on models that can detect technical causes (e.g. packet loss) in a speech signal. This is done by extracting features from the speech signal and apply them to prediction models. Within the context of the research, different thesis topics are available that can focus either on speech signal processing, machine learning, or the auditive impact of transmission distortions on the perceived quality.

The thesis may be written in German or in English.

REQUIREMENTS

- Signal processing and/or machine learning skills
- Experience with MATLAB or Python is helpful
- Interests in auditive/quality perception
- Course of study: electronic engineering, computer engineering, audio communication, computer science, media technology, or related areas

CONTACT

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