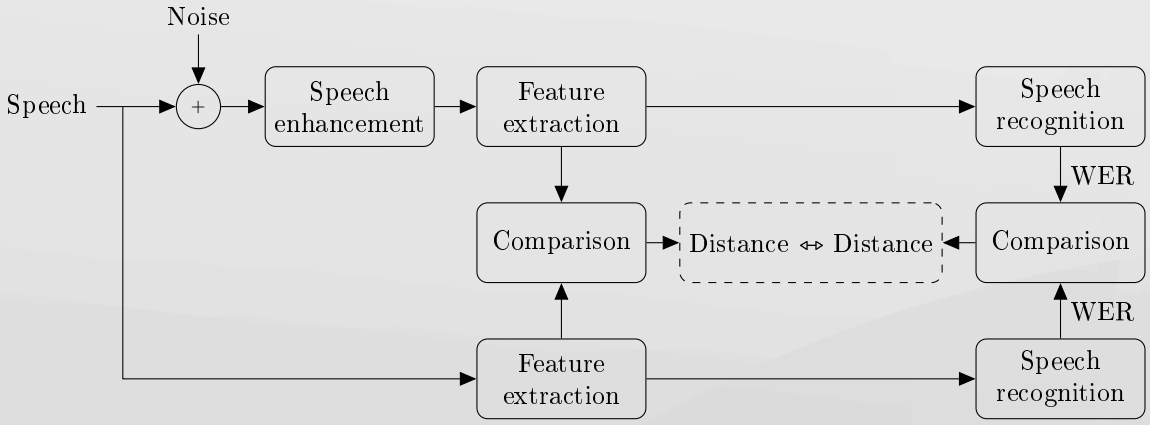
Signal Processing and Speech Communication Laboratory

JOANNEUM RESEARCH DIGITAL

TU Graz Graz University of Technology

Diploma/Master's Thesis

The Impact of Single Channel Speech Enhancement on Features for Automatic Speech Recognition



Short Description

In machine-aided working environments automatic speech recognition (ASR) becomes of more and more importance. ASR is implemented as an additional modality in human-machine interaction such as in industry. However, industrial environments are often very noisy and standard ASR leads to poor results. Therefore, speech enhancement is applied in a pre-processing step to improve the recognition performance. The objective of this thesis is to investigate the effects of different speech enhancement algorithms on the features and on the word error rate (WER) of a speech recognizer.

Your Tasks

- Application of speech enhancement on noisy utterances
- Comparison of ASR features of noisy and clean utterances, e.g., Mel frequency cepstral coefficients
- Evaluation by an out-of-the box automatic speech recognizer

Your Profile

- Good MATLAB knowledge
- Knowledge in speech signal processing
- Beneficial: Speech Communication 1 or 2 VO, Speech Communication Lab

Additional Information

A financial remuneration of approximately 2000 € is possible for this thesis.

Contact

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References

[1] J. Li, L. Deng, Y. Gong, and R. Haeb-Umbach, "An overview of noise-robust automatic speech recognition," *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 2014.