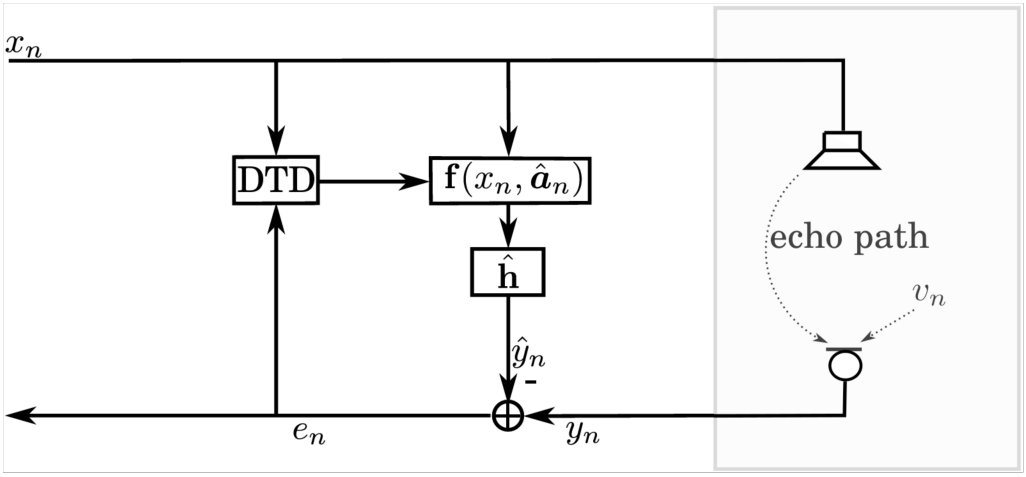
**Lehrstuhl für Multimediakommunikation und Signalverarbeitung**
Universität Erlangen-Nürnberg

# Research Internship Proposal

**Topic:** **Effects of Nonlinear Distortions on the Coherence-based DTD**

**Description:** In an Acoustic Echo Cancellation (AEC) problem, the performance of an acoustic echo canceler is usually impaired by the presence of a near-end interferer. This double-talk situation is often addressed using Double-Talk Detectors (DTD). Coherence and cross-correlation are the most often used features to detect double-talk. However, in the presence of nonlinear distortions, such features might be challenged and the performance of the overall DTD could be compromised.

In this intenship, coherence-based and cross-correlation-based DTD [1,2] are evaluated in the presence of nonlinear distortions. This is highly relevant for miniaturized devices, such as mobile phones, where nonlinear distortions are typically present. Implementation and evaluation are expected to be done in MATLAB.




**Prerequists:** Course 'Digital Signal Processing', Matlab experience.

**Supervisor:** M.Sc. MHD Modar Halimeh
(Cauerstr. 7, room 5.13, mhd.m.halimeh@fau.de)

**Professor:** Prof. Dr.-Ing. Walter Kellermann

**Available:** Immediately

[1] J. Benesty, *et al.,* "A new class of double-talk detectors based on cross-correlation", *IEEE Trans. on Speech and Audio Process.* pp. 168-172, Mar., 2000.
[2] T. Gansler, *et al.,* "A double-talk detector based on coherence", *IEEE Transactions on Communications.* pp. 1421-1427. Nov., 1996.