



EINLADUNG

zum Vortrag im Rahmen des Seminars des SFB/TRR 31

Freitag, 27. November 2009, 14 Uhr c.t.

im Raum G26.1 – 010
Rechenzentrum der Universität Magdeburg
und
im Raum W2 1-143, Universität Oldenburg
(per Videoübertragung)

**“Human speech recognition:
From sensory thalamus to voice-sensitive cortex”**

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The most effective speech recognition device available is the human brain. We understand speech with ease whereas artificial speech recognition struggles with this task. It is unclear how the brain achieves its robustness in speech processing. Traditionally it is assumed that (i) specialisation for processing of speech signals occurs beyond the primary sensory cortices and that (ii) speech message recognition and speaker identification are two separate functions. In this talk I will present evidence challenging these two assumptions and argue that the brain works differently to obtain its robustness in auditory-only communication. In the first part of the talk I will present findings that modulation of subcortical sensory structures (i.e. auditory thalamus) serves the processing of specific features of speech sounds and is behaviourally relevant for speech recognition [1]. In the second part I will present results which suggest that the processing of the speech message and the speaker's voice is coupled when solving the difficult task of understanding speech from different speakers [2]. The two parts of the talk will be unified in a predictive coding account for the robust online perception of auditory communication signals.

- [1] von Kriegstein, K., R.D. Patterson, and T.D. Griffiths (2008): Task-dependent modulation of medial geniculate body is behaviorally relevant for speech recognition. *Curr Biol* 18: p. 1855-1859.
- [2] von Kriegstein K, Smith DR, Patterson RD, Kiebel SJ, Griffiths TD (in press): How the human brain recognises speech in the context of changing speakers. *J Neurosci*.