Speech and Hearing Science Lab

Division of Phoniatrics-Logopedics, Dept. Otorhinolaryngology

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Verbal communication is one of the most important achievements of human beings. A pivotal component of speech is the voice generated by the vibrating vocal folds located in the voice box, also known as the larynx. The vocal tract shapes the timbre of the voice to reflect diverse vowels, and also adds non-vowel sounds.

Figure 1: The human vocal folds

The Speech and Hearing Science Lab (www.shs-lab.at) conducts research on disorders affecting the vocal folds, in particular, the characterization of voice quality for clinical purposes. The group makes use of a few types of data, i.e., high-speed videos of the vibrating vocal folds that are recorded at 4000 frames per second, audio recordings of the speech sound, but also written clinical reports and patient reported questionnaires.

Available topics:

- Detection of diplophonia in audio recordings of spoken language
- Prediction of treatment effects on the speech sound in voice disorders
- Vocal fold kinematic parameters and their effect on voice quality
- Inference of larynx images from speech sound recordings

Your profile:

- Profound background in engineering, informatics, or similar.
- Very good skills in MATLAB and/or Python
- Interest and motivation to work with imaging and audio signal processing, as well as data science and artificial intelligence
- Knowledge of Linux and Slurm is a plus

Your tasks:

- Curation of available data (formatting, annotation, etc.)
- Experimentation in MATLAB and/or Python
- Documentation and dissemination of your results