

PhD-position @ MUV, Austria: Speech signal processing for voice quality characterisation

The Medical University of Vienna (MUV), Austria, seeks to fill a position of a PhD-student within the project “Objective differentiation of dysphonic voice quality types”. The candidate must hold a master’s degree, preferably in (one of) the fields of sound engineering, acoustical engineering, audio signal processing, or similar. The work will be conducted at the Division of Phoniatics-Logopedics within the Department of Otorhinolaryngology of the MUV.

The workgroup hosting the project is interested in the assessment of voice parameters relevant to the medical diagnosis and clinical care of voice disorders. A focus is given to functional assessment of voice, especially to the objective description of voice quality. The levels of description include kinematics of voice production, voice acoustics, and auditory perception of voice. Clinical studies are conducted with a laryngeal high-speed camera that records vocal fold vibration at 4000 frames per second. Microphone signals of the voice are recorded in parallel. Vibratory patterns of the vocal folds are analysed visually and computationally via modelling. Trajectories of vocal fold edges, spatial arrangements thereof, and glottal area waveforms are analysed. Regarding acoustics, analysis of audio recordings involves the implementation, testing, and training of specialized synthesizers for pathological voices. On the level of auditory perception, listening experiments are conducted, especially experiments involving discrimination tasks.

Mandatory skills of the candidate are MATLAB programming, speech signal processing, psychoacoustics, good knowledge of English, good communication skills, and excellent analytical thinking. Optional skills of the candidate are knowledge of German, experience in a health care profession, image and video processing, Python, PureData, object-oriented programming, software engineering, version control (Subversion, Git, or similar), SQL, and XML.

The project duration is 4-5 years. The Austrian Science Fund (FWF) budgets for doctoral candidates a gross salary of 2.112,40 Euro per month. Application documents can be submitted to philipp.aichinger@meduniwien.ac.at by October 31st, 2018. Interviews are planned for November 2018. The project is planned to start in December 2018.

Information regarding the beautiful city of Vienna can be found at <https://www.meduniwien.ac.at/web/en/international-affairs/living-in-vienna/>. More guidance to living and working in Austria can be found at <https://www.euraxess.at>.