



HNO-Klinik Abteilung Phoniatrie und Pädaudiologie
Waldstrasse 1 91054 Erlangen

Research Assistant (PhD Student - Dr.-Ing.)

or

Postdoctoral Researcher

(TV-L E13 -100%)

Hals-Nasen-Ohren-Klinik
Kopf- und Halschirurgie
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Segmentation and Classification of Endoscopic Video in a Software for Voice Quality Evaluation in Clinical Practice

Your tasks: The goal of the project is the development of a clinically usable software tool to judge voice quality based on endoscopic imaging data. Research on methods for segmentation of endoscopic videos and the classification of voice quality will provide the methodical basis for the software. Images will stem from clinical high-speed video recordings (4000fps), which allow capturing the rapid movement of the vocal folds, which oscillate with 100 – 400 Hz. The project has the **following goals:**

1. **Developing a software tool with GUI for clinical use** – this will be based on an existing software tool (C#) used in research by internationally renowned experts
2. Developing and incorporating a **robust segmentation** of the vocal folds into the software tool to process the imaging data
3. Developing and implementing a **classification to judge severity of a voice disorder** from the imaging data
4. Incorporating additional clinically relevant analysis features in the software such as real-time evaluation of loudness or voice frequency

Supervision is enabled by the membership of Prof. Döllinger (supervisor) at the Technische Fakultät. Our team is highly interdisciplinary. Our division has several collaborations with technical and natural science chairs (Dept. CS 5, Dept. CS 9, Chair of Sensor Technology, and Chair for Applied Mathematics II).

What we expect:

- M. Sc. in medical engineering, computer science, computational engineering, mathematics
- Requirement 1: Knowledge in image processing, pattern recognition or deep learning
- Requirement 2: Programming skills in an object-oriented language (preferably C#/.NET)
- Structured and independent working practice, good communication and English skills

Additional information:

- **Time frame:** as soon as possible
- **Duration:** 3 years
- **Funding:** Grant by the BMWi (Federal Ministry of Economic Affairs and Energy)

Please send your application (CV, certificates, skills) to

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