

**Technische Universität Berlin**

Technische Universität Berlin offers an open position:

## Research Assistant - salary grade E13 TV-L Berliner Hochschulen

part-time employment may be possible

The majority of systems and services that are provided by computer science, electrical engineering and information technology finally are oriented towards the needs of their human users. To successfully build such systems and services it is essential to investigate and understand users and their behavior when interacting with technology. On the one hand, this understanding allows to derive design principles for human-machine-interfaces and to define requirements concerning the system and its underlying technologies. On the other hand, new available technologies do offer new possibilities regarding the design of such interfaces and the development of new kinds of interaction.

The Quality and Usability Lab is part of TU Berlin's Faculty IV for Electrical Engineering and Computer Science and deals with the design and evaluation of human-machine interaction. Here, the main subjects of our research are human perception, aspects of technical system that are related to the interaction as well as interaction design.

### Faculty IV - Institute of Software Engineering and Theoretical Computer Science / Quality and Usability Lab

**Reference number:** IV-265/20 (starting at the earliest possible / for a period of 34 months / closing date for applications 14/08/20)

**Working field:** The research tasks of the position are linked to the assessment of the quality of speech services using a crowdsourcing approach. The position is funded by the Deutsche Forschungsgemeinschaft, DFG. The aim of the research is to analyze how crowdsourcing-based speech quality evaluation experiments can be set up in order to provide valid and reliable results, and how the characteristics of the test participants, the test environment and the playback system can be assessed in online tests. It will be assessed which differences are to be expected between crowdsourcing and laboratory -based speech quality evaluation, and how these differences influence the development of instrumental speech quality prediction models. The results are expected to influence methods for speech quality assessment in crowdsourcing, as they are summarized in ITU-T Recommendation P.808.

Concrete tasks of the position include, among other things:

- Design and implementation of a web platform for conducting and managing experiments with the necessary functionalities like audio playback, audio recording, logging user answers, and their interaction. Collected data should be stored in a back-end structure.
- Recording of source speech signals in both laboratory and large scale crowdsourcing and preparing speech dataset. Developing an answering machine to record speech signals transmitted through different networks.
- Developing different test methods for screening the participants' ability, environment and set-up suitability for speech quality assessment tasks.
- Design, run and statistical analysis of empirical laboratory-based as well as crowdsourcing tests with human participants to test the effect of user, environment and system influence factors on participants' ratings and assess reliability of screening methods.
- Processing speech signals collected in a crowdsourcing approach, and applying relevant artificial network degradation conditions (e.g. background noise, clipping, etc.).
- Benchmarking state-of-the-art instrumental models for predicting speech quality based on their performance on the collected crowdsourcing dataset.
- Project communication and reporting.
- Publication and presentation of project and research results in scientific journals, at conferences, at workshops and ITU-T Study Group 12 expert's meetings.

### Requirements:

- Successfully completed university degree (Master, Diplom or equivalent) in computer engineering/science, informatics, media informatics, digital media, or information systems (or an equivalent technical background)
- Deep knowledge, and hands-on experience in one or more general purpose programming languages (Java, C/C++, Python, etc)
- Profound programming skills in front-end (HTML5/CSS3, JS, jQuery, JSON), AND one scripting language for data processing (either MATLAB or Python), and ideally backend development skills
- Knowledge about digital signal processing, beneficial: speech signal processing respectively audio signal processing and acoustics
- Knowledge about empirical subjective tests and statistical data analysis is appreciated
- Language skills: English fluent in writing and speaking (B2 level); good command of German required; willingness to learn German is expected
- Joy of working in an interdisciplinary and international environment

Please send your application with the **reference number** and the usual documents (in particular letter of application, curriculum vitae, certificates, job references) **only via email (combined in one pdf-file) to [bewerbung@qu.tu-berlin.de](mailto:bewerbung@qu.tu-berlin.de)**.

By submitting your application via email you consent to having your data electronically processed and saved. Please note that we do not provide a guaranty for the protection of your personal data when submitted as unprotected file. Please find our data protection notice acc. DSGVO (General Data Protection Regulation) at the TU staff department homepage: [https://www.abt2-t.tu-berlin.de/menue/themen\\_a\\_z/datenschutzerklaerung/](https://www.abt2-t.tu-berlin.de/menue/themen_a_z/datenschutzerklaerung/) or quick access 21404.

To ensure equal opportunities between women and men, applications by women with the required qualifications are explicitly desired. Qualified individuals with disabilities will be favored. The TU Berlin values the diversity of its members and is committed to the goals of equal opportunities.

Technische Universität Berlin - Der Präsident - Fakultät IV, Institut für Softwaretechnik und Theoretische  
Quality and Usability Lab, Prof. Dr. Möller, Sekr. TEL 18, Ernst-Reuter-Platz 7, 10587 Berlin

The vacancy is also available on the internet at  
<http://www.personalabteilung.tu-berlin.de/menue/jobs/>

