Post Specification

Post Title:	Ph.D. Researcher in Speech Synthesis
Post Status:	3 years
Department/Faculty:	Centre for Language and Communication Studies (CLCS)
Location:	Phonetics and Speech Laboratory
Salary:	€16,000 per annum (plus fees paid)
Closing Date:	31st January 2013

Post Summary
A Ph.D. Researcher is required to work in the area of speech synthesis at the Phonetics and Speech Laboratory, School of Linguistic, Speech and Communication Sciences. The position will involve carrying out research on the topic of Hidden Markov Model (HMM)-based speech synthesis. Specifically, we are looking for a researcher to work on developing a source-filter based acoustic modelling for HMM-based speech synthesis which is closely related to the human speech production process and which can facilitate modification of voice source and vocal tract filter components at synthesis time.

Background to the Post
Much of the research carried out to date in the Phonetics and Speech Laboratory has been concerned with the role of the voice source in speech. This research involves the development of accurate voice source processing both as a window on human speech production and for exploitation in voice-sensitive technology, particularly synthesis. The laboratory team is inter-disciplinary and includes engineers, linguists, phoneticians and technologists.

This post will the main be funded by the on-going Abair project which has developed the first speech synthesisers for Irish (*www.abair.ie*), and the researcher will exploit the current Abair synthesis platform. In this project the aim is to deliver multi-dialect synthesis with multiple personages and voices that can be made appropriate to different contexts of use. The post will also be linked to the FastNet project which aims at voice-sensitive speech technologies. A specific goal of our laboratory team is to leverage our expertise on the voice by improving the naturalness of parametric speech synthesis, as well as making more flexible synthesis platforms which can allow modifications of voice characteristics (e.g., for creating different personalities/characters, different forms of expression etc).

Standard duties of the Post

Initially the researcher will be required to attend some lectures as part of the Masters programme on Speech and Language Processing. This and a supervised reading programme will provide a background in the area of voice production, analysis and synthesis.

- In the very early stages the researcher will be required to develop synthetic voices, using the Irish corpora, with the standard HMM-based synthesis platform (i.e. HTS). Note that to work with the Irish corpora does not require a background in the Irish language, as there will be collaboration with experts in this field.

- The researcher will be required to familiarise themselves with existing speech synthesis platforms which provide explicit modelling of the voice source (e.g., Cabral *et al.* 2011, Raitio *et al.* 2011, Anumanchipalli *et al.* 2010).

- The researcher will then need to first implement similar versions of these systems and then work towards developing novel vocoding methods which would allow full parametric flexibility of both voice source and vocal tract filter components at synthesis time.

Person Specification

Qualifications
- Bachelors degree in Electrical Engineering, Computer Science with specialisation in speech signal processing, or related areas.

Knowledge & Experience (Essential & Desirable)
- Strong digital signal processing skills (Essential)

- Good knowledge of HTS including previous experience developing synthetic voices (Essential)

- Knowledge of speech production and perception (Desirable)

- Experience in speech recognition (Desirable)

Skills & Competencies
- Good knowledge of written and spoken English.

Benefits
- Opportunity to work with a world-class inter-disciplinary speech research group.

To apply, please email a brief cover letter and CV, including the names and addresses of two academic referees, to: kanejo@tcd.ie and to cegobl@tcd.ie