DyNaVoiceR project meeting

Saturday, November 9th, 2019

Faculdade de Engenharia da Universidade do Porto

Room I-105, Building I-nascente

(https://sigarra.up.pt/feup/pt/instal_geral.espaco_view?pv_id=74724)

Morning program:

10:30 – 11:30

Speech communication technology research at Aalto University (Finland)

Prof. Paavo Alku, Aalto University, Espoo, Finland

Abstract: This talk gives a short overview of the latest research conducted by the speech communication technology team at the Department of Signal Processing and Acoustics of Aalto University (Espoo, Finland). Topics discussed consist of our recent studies in glottal inverse filtering (GIF), particularly related to evaluation of GIF where we recently launched an open evaluation environment. In addition, the talk describes some of our recent results in multi-channel (speech, EGG, high-speed imaging of the vocal folds) analysis of voice production and in machine-based detection of dysarthric speech.

BIO: Prof. Paavo Alku received the M.Sc., Lic.Tech., and Dr.Sc.(Tech) degrees from Helsinki University of Technology, Espoo, Finland, in 1986, 1988, and 1992, respectively. He was Assistant Professor at the Asian Institute of Technology, Bangkok, Thailand, in 1993, and the University of Turku, Finland, from 1994 to 1999. He is currently Professor of speech communication technology at Aalto University, Espoo, Finland. His research interests include analysis and parameterization of speech production, statistical parametric speech synthesis, spectral modelling of speech, speech-based biomarking of human health, and cerebral processing of speech. He has published more than 200 peer-reviewed journal articles and more than 200 peer-reviewed conference papers.

11:30 – 12:00

DyNaVoiceR project overview (objectives, tasks, team, recent research, afternoon presentations**)**

Prof. Aníbal Ferreira (PI), U.Porto

12:00 – 14:30

Lunch (Galeria comercial Campus S. João, within walking distance**)**

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Afternoon program:

14:30 – 15:00
DyNaVoiceR database and preliminary analysis results
Prof. Luís de Jesus (Co-PI), U.Aveiro

15:00 – 15:30
Accurate detection and segmentation of plosives
João Silva (PhD Student), U.Porto

15:30 – 16:00
Identification of whispered vowels
Marco Oliveira (MSc Student), U.Porto

16:00 – 16:30
High-quality parametric synthesis of voiced sounds
Prof. Aníbal Ferreira (PI), U.Porto

16:30 – 16:45
Meeting wrap-up and closure

Notes:
- each afternoon slot includes a 20-minute presentation and a 10-minute Q&A and discussion
- presentations will include audio demos

Project website (partly under construction):
https://web.fe.up.pt/~voicestudies/

About DyNaVoiceR:

This project proposal focuses on advanced assistive technology helping patients affected by voice dysphonia, notably temporary or permanent aphonia, to communicate effectively and comfortably. Our vision is that the assistive technology captures the dysphonic voice by means of a microphone and reconstructs natural voice in real-time, which is reproduced seamlessly. In this project, we rely on an exceptional multidisciplinary team with proven expertise and experience in the areas of Engineering, Otorhinolaryngology and Speech Therapy in order to carry dedicated R&D leading to the design and realization of an innovative, fully automatic, Dysphonic to Natural Voice Reconstruction (DyNaVoiceR) system. This system will convert whisper-like speech sounds into natural speech by implanting synthetic voicing that is carefully shaped in frequency and time, such as to preserve and enhance the linguistic information, convey idiosyncratic elements of a voice signature, and improve voice projection.