# Stagii de practică în cercetare – Laboratorul SpeeD

Laboratorul de cercetare Speech and Dialogue (SpeeD - speed.pub.ro), condus de prof. Corneliu Burileanu, propune studenţilor din anul III un stagiu de practică în cercetare pentru vara anului 2015. Stagiile de practică presupun lucrul la o temă de cercetare, timp de 12 săptămâni (iunie-august 2015), în regim part-time (6 ore pe zi), în Laboratorul SpeeD. Proiectele de practică se vor realiza sub îndrumarea domnilor Horia Cucu şi Andi Buzo şi se vor finaliza prin realizarea unei aplicaţii software şi scrierea unui raport de cercetare (referat de practică).

Participarea la un stagiu de practică în cadrul Laboratorului SpeeD vă va oferi oportunitatea de a contribui la un proiect de cercetare-dezvoltare real, în domenii precum procesarea digitală a semnalelor, tehnologia limbajului vorbit, procesarea limbajului natural, etc., sub îndrumarea unui grup de specialişti. De asemenea, proiectul de practică va putea fi utilizat (sau extins) pentru lucrarea de licenţă.

Marti, 3 martie, ora 17:45, în Sala de Calculatoare nr. 3, le propunem studenţilor interesaţi o întâlnire, cu scopul a discuta despre aceste stagii de practică şi a le răspunde la eventualele întrebări.

Înscrierea la stagiile de practică se va face în perioada 1 – 14 martie, trimiţând prin email la adresa horia.cucu@upb.ro un Curriculum Vitae şi specificând:

- numele şi grupa din care faceţi parte,
- motivul pentru care doriţi să participaţi la stagiile de practică SpeeD,
- proiectele de care aţi fi interesaţi.

Laboratorul SpeeD poate coordona un număr de 5 stagii de practică. Selecţia studenţilor interesaţi va fi făcută în perioada 15 – 31 martie pe baza aplicaţiilor primite şi (eventual) în urma unor scurte interviuri.

# R&D projects currently ongoing in SpeeD Research Laboratory

## 1. Natural-language, Voice-controlled Assistive System for Intelligent Buildings

The goal of this project is to create a Natural-language, Voice-controlled Assistive System for Intelligent Buildings. The resulting prototype from this project will be the starting point for the implementation of voice-enabled assistive systems in homes, schools, hospitals or others.

The envisaged end-products of this project are (i) a voice-controlled smart room prototype, (ii) multilingual Automatic Speech Recognition (ASR) for spoken command detection and (iii) multilingual Text-to-Speech Synthesizer (TTS).

More details here: http://speed.pub.ro/anvsib

## 2. Phonetic Analysis of the Romanian Language: study and software applications

The project will integrate the results of previous work (existing linguistic knowledge bases, linguistic tools and applications for exploiting linguistic data, etc.) in order to develop various products with scientific and commercial value: (1) Phonetic Study for Romanian Language starting from the already existing linguistic data written in GRAALAN, (2) Romanian Morphological and Phonetic Dictionary, (3) The Phonetic Dictionary of Romanian Syllables, (4) Application of Speech Recognition for Romanian Language.

More details here: http://www.softwinresearch.ro/index.php/ro/proiecte/aflr

## 3. Automatic Baby-Language Recognition System

This project aims to design and develop an automatic infant crying recognition system, linking neonatal knowledge with signal processing and pattern recognition methods. The goal is to obtain technologies, legally protected by patents, with a high degree of future applicability in health, child care and computer science, with real chances of being successfully exploited on the market.

More details here: http://www.softwinresearch.ro/index.php/ro/proiecte/splann

## 4. Spoken Term Detection (STD) for under-resourced languages

Spoken Term Detection is a relatively new research direction (introduced in 2006) that aims at finding spoken content within a speech database by using a spoken query. STD systems are useful especially for under-resourced languages for which no phonetic dictionaries are available. In 2012 SpeeD participated at the Spoken Web Search competition (part of the MediaEval Benchmarking Initiative) and created its first STD system. Since then, we co-organized this yearly competition and continued the research in this direction with the goal of improving the current performance of our STD system.

More details here: http://www.multimediaeval.org/mediaeval2015

### 5. eWall

The project will carry out high-risk and multi-disciplinary research and will have a large-scale demonstrator exercise for validating the concept with solid clinical evidence. This will include both technical-, user- and legal-evaluation, to measure with advanced tools and methodologies the impact on the QoL. The eWALL system will extend the state-of-the-art of Assistive Platforms and will significantly increase the independent living of seniors. The project will also perform socio-economic studies to deliver recommendations for the health sector that will result in mid- and long-term benefits for the sustainability of national health systems.

More details here: http://ewallproject.eu

### 6. Rich Speech Transcription web service

The goal of this project is to develop a Rich Speech Transcription (RST) service for audio documents. The final outcome of the project is a web-service that enables individuals to access the textual content of an audio document (news bulletin, interview, lecture, meeting recording, etc.) without listening it. This feature is of critical importance in many applications such as multimedia databases indexing and retrieval, real-time radio/TV monitoring, transcription of self-recorded documents, etc.

More details here: http://speed.pub.ro/lvcsr-rom, http://speed.pub.ro/live-transcriber

### 7. Multilingual Speech and Language Processing for Open Data Analysis, Integration and Accessibility

In the last decade governments around the world started to open-up large amounts of public sector information. Today the number of governmental open datasets exceeds all expectations: >130k datasets published by the US government, >20k datasets published by the UK, etc.

This project is part of a larger initiative (led by University of Trento) aiming at analyzing, understanding and integrating heterogeneous, multilingual open data. The main objectives of this project are (i) to approach natural language processing (analysis and understanding) for open data in a scalable, multilingual fashion and (ii) to facilitate the access to integrated open data through multilingual speech recognition. In particular, special attention will be given to the processing and integration of open datasets published by the Romanian government.

More details here: http://disi.unitn.it/~knowdive

### 8. Various projects using NAO robots

NAO is a fully-programmable, 58-cm tall humanoid robot. He is intended to be a friendly companion around the house. He moves, recognizes you, hears you and even talks to you! NAO is a little character with a unique combination of hardware and software: he consists of sensors, motors and software driven by NAOqi, a dedicated operating system.

More details here: https://www.aldebaran.com/en/humanoid-robot/nao-robot