

# Post Doctoral Position - Phonetic analysis of dysarthric speech by speakers of different varieties of Italian

**Project main aim:** Multidisciplinary Research on Speech for Health.

**Location:** Kore University of Enna - Enna (Sicily), Italy

**Funding Programme:** Research Projects of National Relevance - PRIN 2017

Application deadline: To be defined

## Responsibilities

The Laboratory of Speech Technology Language and Machine Learning (STMLab) at the Kore University of Enna has a vacancy for a Researcher Fellowship on the recently funded *Phonetic analysis of dysarthria speech by speakers of different varieties of Italian project*. This project is in the PRIN 2017 programme of the Italian Ministry of Education, University and Research. The PRIN - Research Projects of National Relevance, program is a funding allocation mechanism, based on specific key points: co-financing, group research work and the principle of peer review.

The project focuses on idiopathic Parkinson's disease dysarthric speech, produced by speakers of two varieties of Italian that show different segmental (consonantal, vocalic) and prosodic characteristics. The project as a whole aims at:

- (i) Identifying phonetic features that impact on speech intelligibility and accuracy, separating variability due to dysarthria from features due to sociolinguistic variation;
- (ii) Developing perspectives and tools for clinical practice that take variation into account.

The local unit aims at achieving those goals by:

- a) Collecting the first acoustic and articulatory corpus on dysarthric speech produced by speakers of two varieties of Italian;
- b) Analyzing the phonetic features of two severity levels of dysarthric speech, taking into account b1) both segmental and prosodic characteristics, b2) articulatory information, as well as acoustics, b3) the phonological features of the linguistic systems of the speakers;
- c) Realizing a tool based on both acoustic and articulatory data, aimed to orient and customize rehabilitation;
- d) Implementing a dual purpose software (based on acoustic and articulatory data) for the objective assessment of speech accuracy/intelligibility, with regard to both dysarthria severity and the early diagnosis of dysarthria.

The qualified candidate will combine deep knowledge of speech technology and machine learning for health-related tasks. The research will be documented in scientific publications in appropriate journals and relevant conference proceedings, and in Open Source software tools.

## Work environment

The qualified candidate will be hosted at the Speech Technology and Machine Learning Laboratory (STMLab), Kore University of Enna, Sicily, Italy. However, the project is a joint collaboration between the University of Salento (Prof. Barbara GILI FIVELA) and

University of Bari (Prof. Maria Luisa FIORELLA). The primary work will be conducted at the Kore University of Enna under the supervision of Prof. Siniscalchi, but the candidate will be able to closely interact with the other partners of the project and spend short visiting research periods at the University of Salento and/or University of Bari. Furthermore, STMLab is strongly linked with the Norwegian University of Science and Technology, and the qualified candidate will also be able to interact with researchers from the Signal Processing Department at NTNU, and spend short research period in Trondheim, Norway with Prof. Giampiero Salvi.

### **What we expect from you**

- A PhD in Computer Engineering, Computer Science, Machine Learning, or Signal Processing;
- Experience in speech technology and/or machine learning;
- Experience with PyTorch, Keras, and/or Tensorflow;
- Preferably experience with speech recognition environments, such as Kaldi and/or HTK
- Preferably with C++, Java, Perl and Python;
- Fluency in spoken and written English;

### **What we have to offer**

- Employment: **Temporary Researcher Fellowship (Assegno di Ricerca)**
- A gross yearly salary between **€ 24.000,00 - € 26.000,00**
- Researcher for an initial period of 12 months, after which your performance will be evaluated. If the evaluation is positive, the contract will be extended to the one more year.

### **Would you like to know more?**

Further information contact Prof. Sabato Marco Siniscalchi, E-mail: '[marco.siniscalchi-at-unikore.it](mailto:marco.siniscalchi-at-unikore.it)'

### **Are you interested?**

Send an email to Prof. Sabato Marco Siniscalchi, E-mail: '[marco.siniscalchi-at-unikore.it](mailto:marco.siniscalchi-at-unikore.it)  
Your application should include (and be limited to): Letter of motivation, and CV.  
No commercial propositions please.