
ENGLISH VERSION

Job offer: 2 non permanent researchers (1 PostDoc/ 1 PhD - W/M) working on singing voice signal processing

In the context of the french national research project ARS – Analysis and tRansformation of Singing style – IRCAM is searching to fill two non-permanent researcher positions performing research on analysis and transformation of singing style. The successful candidates will be working in collaboration with specialists in speech and signal processing and deep learning as well as musicologists on singing style characterization, modeling and transformation.

Availability:

PhD position: as soon as possible
PostDoc position: early 2020.

Duration:

PhD position: 36 months
PostDoc position: 12 months (an extension of up to 6 months according to performance)

Introduction to IRCAM

IRCAM is a non-profit organization that is associated to the Centre Pompidou (Centre national d'art et de culture Georges Pompidou). Its missions comprise research, production, and education related to contemporary music and its relation to science and technology. Within the STMS laboratory hosted at IRCAM specialized teams are conducting research and development in the areas of acoustics, sound signal processing, interaction, computer music and musicology. The present position is available in the analysis/synthesis team that conducts research on advanced signal processing algorithms and machine learning techniques for speech and music signal processing. IRCAM is located in the centre of Paris near the Centre Pompidou, at 1, Place Igor Stravinsky 75004 Paris.

The ARS project

The 42 month french national project ARS aims to establish a mutually beneficial collaboration between musicologists working on singing performance and specialists in signal processing, with the following objectives: 1) to exploit advances in voice signal processing and deep learning for musicological research on singing style and 2) to develop new algorithms for high quality expressive singing voice transformation that diversify and enrich the palette of artistic expressions in popular music. Musicologists will contribute to the development of singing effects with their expertise about musically and artistically relevant singing style features, while signal-processing specialist will establish robust analysis algorithms for musicologists to study singing style in real music performances, and innovative singing voice transformation algorithms that allow modification of singing style in music productions.

Role of IRCAM in the ARS project

The analsyis/synthesis team of IRCAM will develop innovative algorithms to establish singing signal analysis, representation and transformation. This includes methods for analysis of singing style in music performances, the parametric representation of the singing signals with DNN, and based on these representations the design and evaluation of innovative effects for singing style transformation. The algorithms will integrating recent machine learning techniques (deep learning) with advanced signal processing methods.

Position description

The two researchers will contribute to the project by means of research into singing signal processing with deep neural networks. They will collaborate with musicologists and signal processing researchers working on different aspects of the analysis/transformation techniques. They will participate in all activities related to the project (specifications, meetings, evaluation, reporting).

Required Experiences and Skills

PostDoc Researcher

- PhD with excellent knowledge of and experience in voice or music signal processing (f0, spectral envelope estimation, parametric speech synthesis, sound transformation).
- Experience with deep learning based signal processing.

PhD Researcher

- Master degree covering sound signal processing and machine learning/deep learning.

Both

- Excellent knowledge of and experience in signal models and time/frequency representations of sound signals.
- Very proficient in Python (NumPY/SciPY).
- Experience in programming with C/C++.
- Good knowledge of Linux, and/or Mac OS X.
- High productivity, capacity for methodical and autonomous work, creativity, good communication skills, rigor, and excellent programming style.

Salary

According to background and experience

Applications

Please send an application letter together with your resume and any suitable information addressing the above elements preferably by email to: roebel_at_ircam_dot_fr

Deadline

November, 3rd, 2019.