# Study and modeling of the interaction between several distracting sources in an auditory scene

**Description**

Orange Labs (France Télécom R&D) is looking for an intern student to take part into a study concerning multichannel audio coding, as part of an ongoing doctoral work dealing with a psychoacoustical model for spatial sound masking. Previous results brought to light a degradation of space perception of the auditory scene in presence of a distracting sound. It is now intended to investigate how the masking curves of several simultaneous distracters interact with each other.

To do so, the first step will be a bibliographic study concerning the known psychoacoustical phenomena. The student's task will thereafter deal with the design of the psychoacoustical experiment (choice of the parameters to study, setup of the sound system, time estimation). He/she will participate in the data collection (participants welcoming and experiment monitoring) and carry on the statistical analysis of the data. The last part will consist in the interpretation of the results in order to model the interaction between several distracting sources in the auditory scene.

This work will be done in collaboration with a PhD candidate, and might lead to the writing of an article.

**Keywords:** psychoacoustics, sound spatialization, spatial masking, multichannel audio coding

**Expected work:**

- bibliographical study
- design of a psychoacoustical study
- data collection
- statistical analysis of the data
- data modeling

**Available means:**

Orange Labs owns all the needed software for the collection, the statistical analysis, and the modeling of the data. An anechoic room and a speaker array are also ready to run the experiment.

**Date:** can start from March

**Duration:** 5 months

**Location:** Orange Labs, Lannion (France)

**Salary:** 1209,39 € gross monthly

**Required skills:**

Psychoacoustics and signal processing basis. Knowledge in Matlab.

**Appreciated skill:**

Max/MSP / PureData. Statistical analysis.

**Contact:**

Supervisor in charge: Rozenn NICOL (rozenn.nicol@orange-ftgroup.com)
PhD candidate / Supervisor: Adrien DANIEL (adrien.daniel@orange-ftgroup.com)