Proposition for a Research Engineer

Laboratory: Laboratoire de Mécanique et d'Acoustique (CNRS UPR 7051, Marseille, France)
Duration: 12 months with possible extension, available immediately.
Funding: ANR funding

Scientific framework: the ANR project "Physis"

PHYSIS is a research project funded by the French National Agency for Research (ANR), which is centered on the modeling, transformation and synthesis of sounds for interactive virtual worlds (video games, simulations, serious games etc.) and augmented reality. The recent emergence of complex video games and virtual universes has increased the need for new and efficient solutions to generate sounds automatically rather than recording all sounds in advance and playing them back in an almost un-interactive way. Sound in today's video games is still produced through pre-recorded audio when image is purely synthesized in real time. The project focuses on improving our knowledge about how to create interactive real-life sounds and how to interact in real time with them using semantic and physical controls or emergent tangible interfaces.

Moreover, equipment like smartphones, tablets, video game consoles and even computers now integrate new kinds of interfaces, starting a real revolution in the way we access digital information. Sounds are under-exploited within such devices since pre-recorded sounds do not allow correct interaction with such interfaces. Real-time interactive audio synthesis is perfectly suited to those new interfaces and new usages arising from them. Therefore, the project creates a solid scientific and technological ground to respond to all aforementioned new challenges.

Description of the work

The engineer will be responsible for the development and the maintenance of sound synthesis tools and will be in close contact with the project's partners for the concerned applications. He/she will integrate the results from fundamental research related to the intuitive control of sounds in designing optimal algorithms for real-time audio-visual interactive purposes. He/she will also support the dissemination activities, including publications and presentation of the results in conferences.

Qualifications

An expertise on acoustics, non-stationary signal processing and sound synthesis will be requested, with a multidisciplinary opening to the domain of virtual reality, sound design and multimedia. A strong expertise in real-time development in an audiovisual context will also be requested.
Expertise: real-time computing (Max/MSP), audio signal processing, human-computer interface, augmented virtual reality, cognitive knowledge for the control of sounds, science/art interaction.

Application

The CV and a cover letter describing the motivations of the application have to be sent by email to:
- Mitsuko Aramaki: aramaki@lma.cnrs-mrs.fr
- Richard Kronland-Martinet: kronland@lma.cnrs-mrs.fr