PhD in 4D ultrafast ultrasound imaging

A PhD position in Ultrafast 4D Imaging is open at Institut Langevin in Paris (www.institut-langevin.espci.fr) starting in early to mid 2016. An internship is possible before the beginning of the thesis depending on the calendar constraints of the candidate.

Project

Ultrafast4D imaging / 2016

Ultrasound imaging is widely used in clinical practice where it is praised for its high resolution, high frame rate, portability and low cost.

In the last decade, the introduction of ultrafast imaging (>10,000 frames per second) has enabled new acquisition modes such as quantitative shear wave elastography or ultrasensitive Doppler for functional ultrasound imaging.

In the meantime, incremental shifts toward integrated 3D imaging systems have enabled true volume acquisition but at much lower frame rates and higher cost.

It is no doubt that the combination of ultrafast and volumetric imaging is key issue for the future development of new ultrasound diagnostic modalities. As such, we recently have demonstrated in vivo 3D shear wave elastography and 4D ultrasensitive Doppler thanks to a unique ultrafast 4D prototype system featuring full 1024 channels.

The main objective of the project is to allow similar 4D imaging capabilities using available commercial ultrafast scanners (128-256 channels) associated with smarter probe designs and novel imaging sequence schemes.

The PhD student will be involved in the development and testing of such innovative approaches in full collaboration with our industrial partners Vermon and Supersonic Imagine.

Applicant

Successful candidates will have a master degree in Engineering or Science with expertise in biomedical imaging. Candidates with good knowledge in signal processing and computer programming (Matlab/C++) are preferred.

The position is for three years starting between early and mid 2016. An internship prior to the beginning of the thesis might be possible.

Work environment

The PhD student will join the Wave Physics for Medicine and Biology team directed by Dr. Mickael Tanter at Institut Langevin. Located in the heart of Paris, the team brings together physicists with expertise in wave
physics and biomedical imaging to propose novel approaches to imaging and therapy based on optics and ultrasound.

Major contributions of the team include the development of Ultrafast ultrasound imaging, Shear Wave Elastography, and fUltrasound, among others.

Application Process
Applicants should submit a cover letter and a resume as one document to thomas.deffieux@espci.fr. Please also provide the name, email, address, and telephone number for a reference if possible.

Contact
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