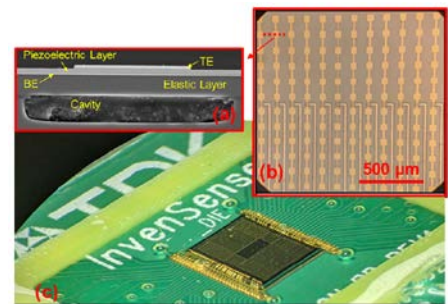

PhD project (CIFRE convention) Miniaturized ultrasonic transducer imaging

Company / Laboratory :

This PhD project is conducted between TDK InvenSense and Creatis

Description

Recently, TDK InvenSense developed a new detector based on ultrasonic sensors. Such sensors are designed with Piezoelectric Micro-machined Ultrasonic Transducer (PMUT), which is based on the wafer manufacturing and offer a high flexibility in their design. Initially, this sensor have been developed for fingerprint and the objectives of the project is to extend their utilization in medical ultrasound (US) imaging. To summarize, the apparition of this novel PMUT sensor, showing impressive capacity in terms of element number, design flexibility and market impact, have to be further developed, tested and exposed to new application. The current array has to be optimized depending on the targeting application, the acquisition pipeline must be improved to save temporal US signal for each acquisition and at various moment.



The main objective of the PhD project is to evaluate feasibilities of the new applications based on the miniaturized ultrasonic transducer technology. The PhD candidate will conduct literature review, work with MEMS transducers, and develop optimal ultrasound imaging strategy. During the program, the PhD candidate will be in a multidisciplinary research and development environment with exposure to industrial perspectives.

Research Profile

Student specialized in signal/image processing, ultrasound imaging competences is a plus, experimentation are planned during the project

Application

To apply, send CV, Master grades, and motivation letter to François Varray:

francois.varray@creatis.insa-lyon.fr

The PhD will start as soon as possible.