



Canon Research Centre France S.A.S.

CANON's Research Center located in RENNES ATALANTE, whose mission consists in developing fundamental technologies in order to contribute to the development of innovating products for the CANON group, request an

## **Internship**

### **Gesture Recognition based on Wireless Channel Sensing**

**Internship:** 3 up to 5 months / Preferable date: early 2016

#### **Mission:**

Gesture recognition could be the next big technical revolution in the coming years. Indeed, many possible applications can be considered; the most important one could be controlling a tactile screen without any touch; a second one could be controlling a TV without a remote control. Classical methods to recognize gestures are based on image processing. Indeed, many image processing algorithms do exist and allow a very accurate recognition of a human gesture; with these methods a camera is needed.

Other original methods are currently studied like for example that proposed by [1]. The idea of [1] is to take benefit from the ambient electromagnetic waves (WiFi, TV, etc) in order to identify the human gesture and hence no camera is needed. This is obtained by measuring/sensing the perturbation of the wireless channel.

The objective of this internship is to identify the gesture recognition methods of the state of the art and to understand the basic concepts behind.

- Study of gesture recognition methods of the state of the art.
- Matlab/C Simulation of at least two methods identified in the state of the art.
- Performance evaluation and comparison of the two identified methods.
- Prototyping and Experimentation (if the duration is 5 months)

[1] : "Bringing Gesture Recognition To All Devices", B. Kellogg & Al., University of Washington

#### **PROFILE:**

Engineering school or University in Signal Processing

#### **Skills:**

Digital communication, Signal processing, Matlab/Simulink, Mathematic.

#### **Contact:**

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