

Post-doctoral or research engineer Position on radio/optical sensor network design

Applications are invited for a post-doctoral (m/f) or research engineer position in the "Integrated and Secure Systems" Chair of Labex Sigma-Lim for a period of 18 months.

The Labex Sigma-Lim "Laboratory of Excellence" emerges from collaboration between XLIM Institute (mathematics, informatics, cryptography, electronics, microwave and photonics Institute) and SPCTS Laboratory (Science of Ceramic Processes and Surface Treatments).

More than 600 investigators (PhD. students, post-docs, technicians and researchers) work in a dynamical environment with modern equipment. The Labex Sigma-Lim main objective is to find "specific ceramics, materials and components for integrated, secure and intelligent communication systems".

The "Integrated and Secure Systems Chair" promotes multidisciplinary research projects for which an overall system optimization is sought between the satisfaction of user needs and energy costs. **Two projects are currently underway: Sensor network and RF front-end.**

The Sensor network project proposes to realize and test a heterogeneous platform for wireless sensor networks considering transmission technologies based on radio frequencies (RF) and Optical Wireless (OW) including infrared and visible ranges. OW constitutes an attractive solution for short range links in environments where RF communications encounter difficulties because of lack of wireless frequency spectrum or high EM interference. This can be the case in the context of smart cities.

A task of the job position is to integrate into a modular platform, the sensor network demonstrators already realized at XLIM (Poitiers, Limoges and Brive). These include RF fixed and mobile nodes with different standards (short and long range) and OW mobile nodes for indoor environments. The objective is to develop MAC mechanisms to deal with the platform heterogeneity in order to manage the tradeoffs between Quality of Service (QoS) and energy consumption. A goal is also to insure the demonstrator performance by an optimal choice of the transmission technology (RF and OW) in indoor or outdoor environment.

The chosen candidate will participate in the deployment of the sensor network platform on the Sense-City Equipex V1 and V2. The Sense-City Equipex provides a realistic urban test space in climatic conditions devoted to urban instrumentation. For example, it will permit evaluating the humidity impact on RF node reliability or the robustness of optical wireless as a function of solar luminosity.

The candidate must have a PhD or an engineering diploma in digital communication embedded systems. An experience on sensor networks is welcome. The candidate must master English (spoken, read and written).

The successful candidate will participate in the Labex Sigma-Lim sensor network project and He/she will participate to the dissemination of research through publications and communications.

This work will be done in collaboration with the Chair holder, his assistant, project manager and research teams in the Labex Sigma-Lim laboratories.

Candidates are invited to submit a CV, a cover letter and a list of references to: sigma-lim@unilim.fr before end of November 2016

Location: Limoges, France

Salary: around 2000 euros/month, depending on experience.