
Open Ph.D. Position on Secure Wireless Localization and Sensing for Digital Health

Host Laboratory: ETIS, UMR 8051, CY Cergy Paris Université, ENSEA, CNRS, France

Contract duration: 36 months fixed-term contract, starting from October 1, 2025.

PhD Supervisors: Prof. Arsenia Chorti, Dr. Luan Chen

Context: The PhD candidate will work on the ANR funded JCJC project **SecLoc**, which is entitled “Secure vital signs and location estimation: A smart health vision via RF sensing”. The project positions itself at the technological forefront, aiming to tackle the challenges of privacy-preserving real-time multi-target joint vital signs and location estimations in the dynamic residential contexts, thus providing clinical-level insights for the early diagnosis and therapeutic intervention given by healthcare professionals. Three main objectives will be covered in this project. Specifically,

- By analyzing sophisticated channel properties, the accurate location determination can be achieved through pervasively available and low-cost Wi-Fi fingerprinting scheme.
- Meanwhile, mmWave MIMO radars will be exploited to carry out motion-robust context-adaptive vital signs estimations (i.e., respiration and heartbeat) by developing beyond state-of-the-art machine learning techniques.
- Moreover, an innovative seamless and secure data fusion strategy along with reconfigurable intelligent surfaces will be investigated, designed and validated in multiple realistic scenarios, boosting capabilities for both localization and sensing.

About the Opportunity: The PhD candidate will join the ETIS Laboratory (UMR 8051) and will work under the supervision of Prof. Arsenia (Ersi) Chorti and Dr. Luan Chen (for informal inquiries please email luan.chen@ensea.fr). The PhD position will be located at the École Nationale Supérieure de l'Électronique et de ses Applications (ENSEA), at Cergy (Grand Paris), France.

- Gross salary per month: 2200 euros in 2025, then **2300 euros** for the rest of the contract.
- Other opportunities: the selected candidate will have multiple opportunities to conduct short-term research exchanges with our international partners from EU funded projects.

About You: Applicants must have a master degree in a relevant area, e.g., signal processing for wireless communications, IoT systems/technologies, machine learning based radio applications. He/She should be familiar with key engineering programming languages (e.g., Python, R, Matlab, etc.). Strong interpersonal and communication skills, and the ability to work effectively in a team will be essential. Advanced level of the English language is required.

How to Apply: Applications should include the following elements:

- 1) one detailed academic CV,
- 2) official transcripts from the 2 last academic year(s),
- 3) two or three academic references/recommendation letters.

All applications must be submitted directly by email to **Dr. Luan Chen** (luan.chen@ensea.fr) with the subject title as “[ANR SecLoc] PhD Application from (your full name)”. This position will be closed once a desired candidate is identified. Early applications are strongly encouraged.

REFERENCES

- [1] F. Adib, et al. “Smart Homes that Monitor Breathing and HeartRate,” in Proceedings of the 33rd annual ACM Conference on Human Factors in Computing Systems, 2015.
- [2] P. Wang, et al. “SlpRof: Improving the Temporal Coverage and Robustness of RF-based Vital Sign Monitoring During Sleep,” IEEE Transactions on Mobile Computing, 2023.
- [3] L. Chen et al. ”AoA-aware Probabilistic Indoor Location Fingerprinting using Channel State Information”, IEEE Internet of Things Journal, 2020.
- [4] Z. Chen, et al. ”MoVi-Fi: Motion-robust Vital Signs Waveform Recovery via Deep Interpreted RF Sensing.” In Proceedings of the 27th annual International Conference on Mobile Computing and Networking, 2021.
- [5] Z. Wang, et al. “From Personalized Medicine to Population Health: A Survey of mHealth Sensing Techniques,” IEEE Internet of Things Journal, 2022.