

# BSc/MSc Thesis: Drone-based Solution for Victims Localization

Drones have recently emerged to address emergency scenarios for multiple reasons. One of them is that a drone can be rapidly reaches difficult locations, such as deserts, mountains, or devastated areas. Furthermore, during a natural disaster, a drone could quickly localize missing people and establish a first contact with them. Assuming that the victims are equipped with smart devices, the drone should guarantee two important requirements, low latency communication and high accuracy. For this reason, investigation efforts are underway to incorporate drones in 5G networks.

The goal of this thesis is to implement and conduct experimental tests for an emergency localization system for a 5G-Connected drone. The general scenario consists of a drone flying along different trajectories and a user as victim in a disaster area. While the drone is moving, it collects different information from the mobile phone of the user, in order to keep track of its location. More specifically, Time of Flight (ToF) and Channel State Information (CSI) measurements, extracted using an open-source software [1], should be investigated for estimating the distance and the direction of the victim, respectively.

## Tools

- C or Python
- MATLAB

## Requirements

Students wanting to apply are required to have a notable student record. Moreover, candidates are expected to be:

- Highly motivated and self-sufficient;
- Good background in 4G LTE and 5G NR;
- Willing to learn, pay attention to detail;
- Good programming skills;
- Good level of English is mandatory (Spanish is not required).

## Contact

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## References

- [1] [OAI - THE FASTEST GROWING COMMUNITY AND SOFTWARE ASSETS IN 5G WIRELESS](#)  
[2] Albanese, A., Sciancalepore, V. & Costa-Pérez, X. (2020). "SARDO: An Automated Search-and-Rescue Drone-based Solution for Victims Localization".