



ERS POSITIONS AND INDIVIDUAL RESEARCH PROJECTS (IRP)

Fellow <i>ESR8</i>	Host institution IT-Aveiro	PhD enrolment Y	Duration <i>36 months</i>
Project Title: Waveforms and separation algorithms for joint use in radar and communications.			
Objectives: The topic of this ESR fits in a novel research area called RADCOM (Radar and Communications) which aims devices with dual functionalities sensing through reflectometry principles and communications. The work plan aims at developing the technology that will allow for a tight integration of the two functionalities and is organized along two main trends: Definition of waveforms that are adequate for both communication and reflectometry; Algorithms for separation in the frequency and/or code dimension. The ESR plans to target multicarrier (OFDM based type) technology for radar, to achieve quasi-orthogonal waveforms and to provide easy integration with the air interfaces currently under research for 5G. For the waveform discrimination the ESR will investigate separation in the frequency and code domain, that will allow coexistence of multiple devices using the same spectrum.			
Expected Results: Novel waveforms suitable for joint use in radar and communications and compatible with the future 5G and beyond. Cost and performance efficient discrimination algorithms for the separation of services based on frequency and / or code separation. Prototype based on FPGA to demonstrate the technological feasibility of the proposed algorithms. This will contribute for 5G and beyond namely for the integration of a reflectometry sensing based component in the future IoT supported by 5G and beyond.			
Enrolment in Doctoral degree(s): University of Aveiro			
Main (host) supervisor/Contact: Dr. Atilio Gameiro (IT- Aveiro)			