UCD Communications and Signal Processing Research Group

2 PhD studentships available in the area of Integrated Sensing and Communication Systems

Two excellent PhD candidates are sought by the Communications and Signal Processing Research Group at University College Dublin, Ireland.

Funding/Stipend: The PhD positions are fully funded for 4 years by the Irish National Science Foundation, Research Ireland (RI). This includes a monthly stipend and a travel budget to present at international conferences, workshops and seminars. The studentship will cover four years of university tuition fees and a stipend of €25,000 per annum (tax free). Funding is also available to fully cover an international research visit to the project collaborators in the third year of the PhD.

Information about the Research Project

The project will involve three central challenges:

- The design of new waveforms and signal processing algorithms to enable high-performance integrated wireless communications and sensing;
- The derivation of new and accurate channel models for advanced antenna technologies, including reconfigurable intelligent surfaces and extremely large antenna arrays;
- The optimization of waveforms and signal processing techniques to fully leverage the gains in communication and sensing performance achievable by these novel antenna technologies.

Note that the three challenges above will be solved jointly in order to target solutions with optimal performance. The research will be conducted under the supervision of Prof. Mark Flanagan in conjunction with international academic collaborators. The successful candidate will be working with a vibrant team of researchers to drive world-class research around the development of advanced signal processing techniques for future wireless communication systems. The successful candidate will be prepared to work with Prof. Flanagan's network of collaborators who are among the leading scholars working on state-of-the-art technologies in the field of telecommunications.

In addition to PhD supervision, the successful candidate, where relevant, will benefit from a wide range of training activities, namely,

i. Summer/winter schools covering technical topics related to communications and signal processing within the scope of the PhD project, as well as a range of transferable skills such as research integrity, research management, entrepreneurship, patents, etc.

ii. An overseas research visit (envisaged to take place during the third year of PhD studies).

Major responsibilities

- Undertake cutting-edge research in the design and implementation of advanced communications and signal processing algorithms
- Develop your own scientific concepts and set your own research agenda
- Attend and participate in all training events and meetings with supervisor and collaborators
- Prepare PhD progress reports
- Publish and present your research results in top-tier IEEE journals and conferences.

Requirements:

- Applicants must hold a first or upper second class honours Bachelors or Masters degree in Electrical/Electronic Engineering, Communications Engineering, Computer Science, or a related discipline.
- Very strong background in mathematics, communication theory, and signal processing.
- High level of proficiency in programming in MATLAB, C/C++ and/or Python.
- Excellent technical writing and oral communication skills.
- Excellent organisational skills, attention to detail and ability to meet deadlines.
- Ability to think logically, create solutions and make informed decisions.
- High level of interpersonal skills and strong commitment to working as part of an international research team.

The positions will remain open until filled. Candidates of any nationality are welcome to apply. Female candidates are also strongly encouraged to apply.

Applications should be sent by email to **Prof. Mark Flanagan** (mark.flanagan@ucd.ie) and should include:

(1) A cover letter explaining the applicant's motivation and interest to undertake a PhD in the project topic. Any relevant background and/or experience needs to be mentioned.
(2) A Curriculum Vitae (summarizing education, academic or industrial work experience, and scientific publications).
(3) Copies of all Transcripts (Bachelors and Masters).
(4) A copy of the Bachelors Thesis or Masters Thesis.
(5) Certification of proficiency in English.
(6) Contact details of at least two Referees (name, relation to candidate, email address and telephone number). It is highly preferable if one Referee is the supervisor of the Bachelors/Masters thesis.