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## **Faculty of Engineering and Computing Dublin City University**

Faculty of Engineering and Computing at Dublin City University (DCU) is looking to host an experienced researcher via funding through Marie Skłodowska-Curie Individual Fellowships. In order to secure funding, the experienced researcher must develop a proposal with the host for the September 9<sup>th</sup>, 2020 deadline.

### **Organisation Description**

The Faculty of Engineering and Computing at Dublin City University (DCU) is home to the Schools of Computing, Electronic Engineering and Mechanical and Manufacturing Engineering and hosts or participates in a number of large scale research centres, including: INSIGHT (Data Analytics), ADAPT, Entwine and IForm. In the sphere of research, we aim to achieve exceptionalism, and maximise our social impact, by taking a lead in the innovation instrumental to the future digital transformation of society, healthcare and industry.

We offer degree programmes at Bachelors, Masters and PhD levels, while online Level 9 courses are now enabling those in employment to upskill in sought after areas such as Artificial Intelligence and the Internet of Things. Our graduates continue to be highly sought after by industry, and their continued employability is assured through the Faculty's ever deepening links with industry partners and an evolving curriculum that allows real-world work experience, industry-led team challenges and global engagement in line with DCU's internationalisation strategy.

### **Project idea and researcher opportunities**

Research Field: Today we live in a globalized and highly connected world. This constant and highly reliable connectivity is enabled by the global telecommunication network (GTN), which is a truly global and ongoing collaboration. It consists of satellite networks, submarine networks, computer networks, and also wireless networks. Among all these constituent networks, the icing on the cake is wireless networks. They give people a sense of connectivity, and keep people connected on the go and in emergencies. The current state-of-the-art for PHY layer wireless communication is 5<sup>th</sup> generation (5G). 5G is a cellular and broadband communication network with highly dense network topology. Despite its promise, 5G systems create a myriad of new (or intensifies exiting) challenges such as co-channel interference.

Exploiting/manipulating fundamental physical properties of electromagnetic wave propagation, the research activities proposed in this project will develop, model and analyse novel and radical wireless access technologies, for instance, Doppler assisted wireless



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communication and multi-user communication techniques in difficult interference for hyper dense beyond-5G wireless communication. In particular, the research will include, but not limited to, studying unconventional antenna sub-systems, reconfigurable intelligent surfaces, and novel signal processing schemes for wireless communication, and lies at the intersection of Electrical and Electronics Engineering, Applied Physics, and Digital Signal Processing. Its long term goal is to add new layer of intelligence to future wireless communication systems.

### Researcher Requirements

- The researcher must fulfil the MSCA-IF mobility and experienced researcher requirements.<sup>1</sup>
- Applicants should have a PhD (or more than 4 years of research experience) in Electrical Engineering, Applied Physics (major in Electromagnetism) or related areas and demonstrate a promising track record of early research achievements.

### Application procedure

The applicant should send:

1. A short CV
2. A one-page letter of motivation along with a short statement with indication of why DCU and the relevant faculty/school/research centre would be the best host institution for your research project

### Contact information

If you are interested in applying for a MSCA-IF with DCU, please email Prof. Dushyantha A Basnayaka ([d.basnayaka@dcu.ie](mailto:d.basnayaka@dcu.ie)) and Dr Ines Peric ([Ines.peric@dcu.ie](mailto:Ines.peric@dcu.ie)) as early as possible.

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<sup>1</sup> **MSCA-IF mobility:** The researcher must not have resided or carried out the main activity (work, studies, etc.) in the country of the beneficiary for more than 12 months in the 3 years immediately before the call September 9<sup>th</sup> deadline (flexible 36 months in the 5 previous years if eligible for career restart or reintegration fellowship <https://www.iaa.ie/irish-marie-curie-office/funding-calls/individual-fellowships/> )

**Experienced researcher requirements:** The researcher must have at least 4-years full time research experience or hold a doctorate before the September 9<sup>th</sup> deadline.