RESEARCH UNIT:	**SCHOOL OF ELECTRONIC ENGINEERING**
RESEARCH LAB:	**ENTWINE CENTRE**
POST TITLE:	**POSTDOCTORAL RESEARCHER**
LEVEL ON FRAMEWORK:	**LEVEL 1**
DURATION:	**UP TO 18 MONTHS FIXED TERM CONTRACT**

Background

Dublin City University (DCU) is one of the largest universities in Ireland. Its student population is approximately 13,000, including 500 research postgraduates and over 1,800 taught postgraduate students, plus around 3,000 distance education students. DCU is a research-led university which has developed its own research specialists, established internationally recognized centres of excellence that have substantive collaborative links with leading universities and industrial partners.

The Entwine Centre is a research centre located at Dublin City University. Its mission is to design a scalable infrastructure to support the *Internet of Things* and its applications. Existing solutions for machine-to-machine communication and for intermediation between sensors, actuators and other devices, and the associated data analysis and control algorithms, do not scale to the size needed by, for example, a *smart city*. Centre researchers are designing the necessary framework to deliver solutions of this scale. This framework supports autonomous operation, so that the Internet of Things can be managed *by the Things themselves*. The framework provides such facilities as resource discovery, authenticated data delivery, intra-network processing such as data aggregation, and data confidentiality and security, delivered via a consistent interface that hides the heterogeneity of the underlying hardware in, say, a million-node network of embedded devices. This interface also supports *Sensing as a Service*, so that the naïve expectation that sensor data can simply be collected by 'The Cloud' will be met, hiding the underlying complexity behind the developed framework. Associated activities in *Actuation as a Service* and *Networking as a Service* will close the loop to allow the full realization of the Internet of Things as futurists imagine it might be, but as current practitioners in the field have shown doesn't scale from present or immediately envisaged technology. This Centre is fully synergistic with educational developments within the Faculty of

Engineering & Computing in DCU at undergraduate and taught postgraduate levels. It also builds on strong industry relationships that members of the Centre have with major industrial players who would be the technology suppliers for the hard, soft and smart 'fabric' of the Internet of Things.

The Project

Pathfinder is an 18-month commercialisation project fully funded by Enterprise Ireland. The project involves the development of a wireless-enabled IoT system that can be deployed by first responders in emergency situations. The system will use wireless communications and sensor technology to aid responders' navigation, perform environmental modelling and other tasks. The role will involve system development, field-testing, documentation, and liaising with our national and international fire-department partners.

Principal Duties and Responsibilities

The primary focus of the Postdoctoral Researcher (PDR) will be performing research on the EI- funded project Pathfinder; However the PDR's activity will be broader and the PDR is expected to:

- Conduct a specified programme of research under the supervision and direction of the Principal Investigators
- Engage in appropriate training and professional development opportunities as required by the Principal Investigators, School or University in order to develop research skills and competencies
- Gain experience and contribute to grant writing with the support of, and under the supervision of, the Principal Investigators
- Engage in the dissemination of the results of the research in which they are engaged, as directed by, with the support of and under the supervision of the Principal Investigators.
- Acquire generic and transferable skills (including project management, business skills and postgraduate mentoring/supervision)
- Engage in the wider research and scholarly activities of the research group, School or University
- Interact closely with postgraduate research students associated with the same research group and possibly have an agreed role in supporting these students in their day to day research in conjunction with an academic supervisor
- Take leadership and contribute to generation of papers, reports and funding proposals.
- Actively publish research findings in high impact journals and at key conferences as part of the research group effort to disseminate research outputs
- Carry out administrative work to support the programme of research where required,

including regular funding agency reports and internal reports etc.

- Carry out additional duties as may reasonably be required within the general scope and level of the post
- Contribute to costing research grant proposals and assist in the financial management of a research project
- Support collaboration with industry in areas relevant to the research group
- Liaise with different DCU units such as STEP, RIS, Finance, Registry in aspects related to the research activities performed
- Contribute to broader outreach and engagement activities such as organising technical meetings, outreach to schools and other interested parties etc.

Research Career Framework

As part of this role the researcher will be required to participate in the DCU Research Career Framework http://dcu.ie/hr/ResearchersFramework/index.shtml . This framework is designed to provide significant professional development opportunities to researchers and offer the best opportunities in terms of a wider career path.

Criteria

- PhD qualification is normally required, preferably in the area of wireless networks and/or embedded systems. In the absence of a PhD qualification appropriate equivalent industrial experience will be considered.
- Appropriate technical competence and research experience in areas related to wireless networks / embedded systems such as:
    - 802.15.4 wireless communications
    - Embedded system design for low-power Internet of Things applications
    - C/C++ and Embedded Programming
    - 6LoWPAN
    - Radio propagation and electromagnetics
- Evidence of accomplishment in research and development in the area of wireless networks or embedded systems
- A capability of working within a project team to achieve group-oriented results in parallel to individual productivity and top quality publications
- Good communication, organisation and interpersonal skills are required
- Experience in presentations to international conferences are preferable
- A commitment to gaining practical experience working on a commercialisation research project

Salary Scales:

***Postdoctoral Researcher:** €36,854 - €45,090 per annum

** Appointments will be commensurate with qualifications and experience, and will be made on the appropriate point of the salary scales, in line with current Government pay policy*

Closing Date: 31st March 2018

Candidates will be assessed on the following competencies:

Discipline knowledge and Research skills – Demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline.

Understanding the Research Environment – Demonstrates an awareness of the research environment (for example funding bodies) and the ability to contribute to grant applications.

Communicating Research – Demonstrates the ability to communicate their research with their peers and the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students.

Managing & Leadership skills - Demonstrates the potential to manage a research project including the supervision of undergraduate/postgraduate students.

Informal Enquiries to:

Dr Conor Brennan, School of Electronic Engineering, Dublin City University, Dublin 9, Ireland
E-mail: conor.brennan@dcu.ie Tel: +353 (0)1 700 7649
Please do not send applications to this email address, instead apply as described below.

Application Procedure:

Application forms are available from the DCU Current Vacancies (Open Competitions) website at http://www4.dcu.ie/hr/vacancies/current.shtml and also from the Human Resources Department, Dublin City University, Dublin 9. Tel: +353 (0)1 700 5149.

Please clearly state the role that you are applying for in your application and email subject line: Job Ref: #832 Postdoctoral Researcher, Entwine Research Centre

Applications should be submitted by email to hr.applications@dcu.ie or by Fax: +353 (0) 1 7005500 or by post to the Human Resources Department, Dublin City University, Dublin 9.

Dublin City University is an equal opportunities employer