Senior Research Engineer – IoT Device Power Modelling & System Integration

MH-29 Senior Research Engineer – IoT Device Power Modelling & System Integration ICT for Energy Efficiency Programme

Contract Type: Full Time /Fixed Term (18 months)

Job Description

University College Cork, Tyndall National Institute invites applications for a senior research engineer in the area of **IoT (Internet of things) power modelling & system integration**. We seek talented candidates ideally available to start immediately with strong motivation and experimental attitude which will contribute as an integral member of a dynamic and growing successful research team. **The role is ideal for experienced post graduates looking for an opportunity to progress a career on a number of EU 'powering the internet of things' projects** at Tyndall. The minimum academic qualification is an honour's degree (or an equivalent international degree) in electronic engineering, physics, computer science or related relevant discipline and typically 5 year's relevant research or industry experience. The contract is initially for 18 months with a view to positioning the candidate for future opportunities subject to capabilities shown and future funding opportunities.

Tyndall National Institute is Ireland's largest research centre, specialising in defined areas of Information and Communications Technology (ICT). Within Tyndall, the ICT for energy efficiency team is developing solutions for powering the internet of things encompassing energy harvesting, storage, micro power management and system integration for IoT applications.

Key Responsibilities

The senior researcher will support a number of research programs that Tyndall has underway and will be funded by same. This is a hands on, broad role that requires the candidate to research, model, design, implement and deploy sensor networks/IoT devices across a broad range of applications.

As this is a senior level role the candidate will be expected to have some experience in, or, at least exhibit an aptitude for stakeholder management (interactions with project partners).

The nature of the work will depend on project needs at a given point of time but will comprise some combination of the following:

- Undertake retrofit deployments of wired and wireless sensor systems including connectivity from sensor to the cloud using standard wired internet protocols, or standard wireless protocols.
- Good working knowledge of sensors in order to be able to select an optimum solution for a given application.
- Energy harvesting modelling and hardware development
- Development and characterisation of energy harvesting and micro-power management solutions. Characterisation & optimisation of power consumption of IoT devices
- Conduct state of the art reviews (paper &/or bench studies) of energy harvesting devices, circuits and solutions.
- Report to the PI(s) on progress on a monthly basis.

- Generate material for quality publications (journal, posters, conference papers) and/or patents.
- Travel as required to project meetings, project partner sites and any other deployment sites to present technical results and project updates and support installation, troubleshooting and operation of energy harvesting hardware and models and integration with other project system elements.
- Maintain project engineering logs (hard copy and software) of all activities including engineering documents, meetings, reviews, results, IP generated, project correspondence, etc. in accordance to Tyndall's ISO9000 procedures.
- Guide and supervise more junior technical staff and students as required.
- Provide technical support to enquires and new project proposals
- Execute duties in accordance with terms and conditions of the EU project consortia agreements.
- This is a hands on practical role and so the candidate needs to be strong at taking ideas from concept to realisation. In addition the candidate needs to be practical, assertive and achievement orientated. It is also essential that technical and project status reports are delivered in a timely manner in accordance with project terms.
- The successful candidate will be highly self-motivated and will contribute as an integral member of a dynamic and growing research team.
- The need to work flexible hours is required and to be adaptable in good working practice is essential.
- Participate in Education and Public Engagement activities, as required.
- Ensure all activities are compliant with the Tyndall Quality Management system and required Health & Safety standards.
- Carry out any additional duties as may reasonably be required within the general scope and level of the post.

Essential Criteria

- Primary honour's degree or equivalent in engineering, physics, science or a relevant discipline to the role
- Typically 5 years post graduate experience in industry or academia.
- Experience in low power sensing systems, in either design, test or integration.
- Strong experience in low power embedded systems & techniques (micro-controllers, power supplies, actuators and sensors)
- The candidate will need to demonstrate strong analytical and problem solving capabilities.
- A proven ability to work with teams as well as independently take on projects and carry them out from initial requirements to final preproduction prototype.
- Good self-management, report writing skills and communication skills for interaction with project partners.

Desirable Criteria

- MEng in Electronic or Electrical Engineering or related discipline.
- Knowledge of the trade-offs in low power systems is desired.
- The candidate should have specific hardware design experience (development, modelling, integration) incorporating at least some of the following:- Energy Harvesting transducers, sensors, transceivers, microcontrollers, low power interface standards (e.g. I2C, SPI), battery management circuits, low power DC/DC converters and signal conditioning circuits.
- Experience in EU, State research or industry funded projects.
- Familiarity of analytical tools such as Matlab and Simulink would be an advantage.
- Skills in implementing internet protocols, networks and cloud based data storage would be

advantageous.
- System modelling utilising high level scripting languages such as Python and Java would also be an advantage.
- Experience in guiding and supervise more junior technical staff and students is advantageous.

Appointment may be made on the Grade 6 scale (B) €50,042 – €59,746 per annum. Salary placement on appointment will be in accordance with public sector pay policy.

For further queries please email Michael Hayes or Peter Haigh at Michael.hayes@tyndall.ie, Peter.Haigh@tyndall.ie

Application Instructions

Step 1 - Click here to download and complete the application form and indicate Job Reference MH-29.

Step 2 - Return the completed application form, together with your CV and motivation letter to careers@tyndall.ie.

Handwritten forms will not be accepted. No late applications will be accepted.

A full candidate information pack is available to download by clicking here.

Please note that Garda vetting and/or an international police clearance check may form part of the selection process.

The University, at its discretion, may undertake to make an additional appointment(s) from this competition following the conclusion of the process.

At this time, Tyndall National Institute does not require the assistance of recruitment agencies.

Tyndall National Institute at University College, Cork is an Equal Opportunities Employer.