Masters in Analogue Mixed-Signal ICs for Bio-Photonics Data Capture

DOH-01 Masters in Analogue Mixed-Signal ICs for Bio-Photonics Data Capture

Contract : Full Time/Fixed Term

This position is jointly sponsored by Biophotonics at Tyndall National Institute and Microelectronic Circuits Centre Ireland (MCCI).

Biophotonics at Tyndall is a newly established collaborative research programme based at the Tyndall National Institute led by Professor Stefan Andersson-Engels. The Group's focus will be to form close collaborations with clinicians, research centres and companies to accelerate biophotonics technology and rapidly deliver breakthrough technologies into the hands of health-care providers. Using photonics as a driver for the faster development and deployment of more accurate, less invasive diagnostic and treatment methods for cancer and other diseases. The new programme has been formed by the Tyndall National Institute, the Irish Photonic Integration Centre (IPIC) and University College Cork, under a €5M award from Science Foundation Ireland.

Microelectronic Circuits Centre Ireland (MCCI) is an EI / IDA technology centre hosted at Tyndall National Institute. Its mission is to carry out industry-led world-class Analog, Mixed-Signal and RF integrated circuit research and to deliver trained people and IP to industry. MCCI is already collaborating with 35 companies and many of the staff eventually transfer into the thriving microelectronics industry in Ireland. MCCI targets real-life applications with its research and currently has projects in diverse topics such as DNA detection, next generation optical communications, bio-sensing, imaging for security applications and early cancer detection. MCCI is carrying out innovative research in the areas of Radio Frequency, Frequency Synthesis, high speed optical transceivers, high performance data-converters and power management integrated circuits to enable new applications.

Reporting to Dr. Daniel O'Hare Senior Researcher at MCCI the position involves the design of ultra-low noise high precision Analogue circuits to electronically capture Bio-Photonics Data. It will involve working with the Biophotonics team to understand their system requirements and then design an Integrated Circuit chip to meet those specifications.

Please refer to www.mcci.ie or http://www.ipic.ie/team/stefan-andersson-engels/ for more information.

Key Responsibilities

- The candidate is expected to be creative, self-motivated, and should help create an efficiently and friendly atmosphere within the MCCI and Biophotonics teams and beyond to all teams at IPIC and Tyndall.
- Propose innovative circuits to meet the requirements of the Biophotonics team.
- With guidance, implement the solution on an integrated circuit. This involves system level simulation, algorithm development, schematic design, layout and validation of manufactured silicon.
- Engage in the dissemination of the results of the research, as directed by and with the support

of senior Biophotonics/MCCI research staff.

Essential Criteria

- The minimum academic qualification is a first or upper second class honours degree (or an equivalent international degree) in electrical engineering, electronic engineering, physics or related relevant discipline.
- The successful candidate will be highly analytical with good interpersonal and organisational skills
- The successful candidate will be highly innovative with a strong desire to create world-beating integrated circuits research for real-life applications.

Desirable Criteria

- Knowledge of integrated circuit design tools such as Cadence.
- Good mathematical ability and knowledge of statistics.
- Knowledge of Photonics Devices.
- Experience in area of Analogue, Mixed-Signal or RF circuit design.
- Knowledge of mathematical modelling tools such as MATLAB.

Any queries relating to this position can be forwarded to Dr. Daniel O' Hare on email daniel.ohare@mcci.ie

An annual student stipend of €18,500 applies for this successful candidate for this position. Yearly University academic fees will paid by the Tyndall National Institute.

Application Instructions:

Step 1 - Click here to download the Application form and indicate the Job Reference DOH-01

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

Postgraduate applicants whose first language is not English must provide evidence of English language proficiency as per UCC regulations (https://www.ucc.ie/en/study/comparison/english/postgraduate/). Certificates should be valid (usually less than 2 years old) and should be uploaded with their application. In special circumstances the panel may consider a prior degree in English (e.g. Master thesis written in English) as evidence of English language proficiency.

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.