London South Bank University
EST 1892

School of Engineering

Fully Funded & Industry Sponsored PhD Scholarship in Ultrasonic Testing and Data Analysis for Nuclear Industry

PhD start date: September 2022

We are offering an **industrial PhD scholarships funded by the National Nuclear Laboratory** and the **Sellafield Ltd**, which manages the nuclear fuel reprocessing, nuclear waste storage and nuclear decommissioning. The industrial partners expect the PhD project to develop into a real world product, where the successful PhD candidate will be able to lead the project beyond the PhD timeline.

This fully funded PhD studentship is only available to UK nationals and EU citizens. Unfortunately, we cannot offer this studentship to non-UK or non-EU applicants.

The successful PhD candidate will benefit from the following:

- Industry sponsored cutting-edge research project
- Mentoring from industry on the application and context of research
- 3-year studentships with £15,000 - £18,000 per annum living stipend (based on teaching support)
- Payment of all tuition fees
- Consumables and travel budget to support additional specialist research training courses, access to specialist equipment and travel to international conferences, seminars and workshops
- Bespoke technical training
- Enterprise and innovation skills training
- Transferable skills development opportunities to increase employability
- State-of-the-art research facilities in the centre of London
- Collaboration with other top UK universities (University of Leeds and University of Warwick)
- Excellent career prospects on completion of the PhD within the UK nuclear sector

About LSBU: The School of Engineering at London South Bank University is an ambitious and progressive centre of research strength, ranked 25th nationally for research power in the last Research Excellence Framework. The division of Electrical and Electronic Engineering is one of the best in the UK. The division is ranked as the number 4 and number 5 on the Guardian best UK universities League Table 2022 and 2021 respectively. The London South Bank University have a fabulous central London location and are looking for talented potential students interested in research to work with our academic faculty in areas of strength.

PhD Scholarship in Ultrasonic Testing and Data Analysis for Nuclear Applications

The aim of this research project is to develop a new **acoustic and ultrasonic analysis technology to detect pressurised containers**. The PhD project will focus on data processing and smart decision making while performing ultrasound measurements.

Project Objectives:

- Construct experimental measurement setup and testing apparatus to perform acoustic and ultrasonic measurements
- Obtain data to develop algorithms for hydrogen detection (signal processing, statistical analysis, machine learning, artificial intelligence or a combination of these methods)
- Develop screening tool to characterise accumulated hydrogen gas (composition and pressure) in sealed containers

Project Impact: This research project will reduce the risk associated with decommissioning and maximise the efficiency of operations whilst ensuring worker safety and protection for the surrounding environment.

PhD Outcomes: The outcomes of this project for the PhD candidate are:

- understand ultrasonic non-destructive testing
- learn existing ultrasound measurement methods
- gain experience in ultrasound signal and data processing techniques
- perform experimental measurements with an ultrasound system
- present the findings of the project in international conferences
- perform high-quality research and publish it as journal articles

This will be a 3-year fully funded studentship for UK/EU applicants who are keen to conduct research in ultrasonic non-destructive testing at LSBU and National Nuclear Laboratory.

Supervisory Team: The successful applicant will be working Dr Sevan Harput (https://scholar.google.co.uk/citations?user=oel2ZHcAAAAJ&hl=en) at the Ultrasound research lab (https://sevanharput.github.io/).

Enquiries should be directed to Dr Harput (harputs@lsbu.ac.uk). Please send a copy of your CV and a cover letter.

Requirements: Applicants must be of outstanding academic merit and should have (or be expected to gain) either a first-class or an upper second-class Honours degree (or equivalent), or an MSc/MRes with distinction. Enthusiastic and self-motivated candidates from all countries with a background in Engineering, Physics or Mathematics are encouraged to apply.

A good knowledge and experience in ultrasound imaging, signal processing, machine learning, programming and/or computational modelling would be advantageous.