Fully funded 1 year Industrial MPhil opportunity from University of Leicester

Please note these positions are only available to UK and EU students

One year fully funded industrial MPhil available from the University of Leicester - School of Geography, Geology and the Environment - to undertake applied research and development on behalf of a Small and Medium Enterprise (SME) in Leicester & Leicestershire. The MPhil research will help the development of a large scale mapping of the Tree Canopy. The industrial MPhil is funded by the Leicester Innovation Hub (through European Regional Development Fund monies), and the sponsoring SME.

Project Ref: LIH060

Title: Large Scale Mapping of the Tree Canopy

Background
In this exciting project, the partners propose to design a system for developing of a large scale mapping of tree canopies. 2Excel geo has developed a number of case studies on the classification of tree species and the assessment of tree health. However, efficient implementation of these and other tree-related services initially requires the mapping of individual trees. This includes non-woodland trees, e.g. roadside trees, since these often pose an increased risk to people and infrastructure. A complete knowledge of tree canopy, including woodland and non-woodland trees, will enable the targeting of ground and remote sensing resources to obtain additional information.

The Project
Satellite sources and airborne Synthetic Aperture Radar (SAR) potentially offer a cost-effective and readily updatable means of mapping tree canopy at large scale. This project will assess tree canopies using both optical and SAR sensors using the most suitable platforms. The performance of these techniques will be assessed both using statistical accuracy metrics (e.g. commission and omission errors) and the future cost of deployment of the technique. 2Excel geo will support the project via:

- The collection of airborne SAR imagery and high-resolution photography (for validation): end-user engagement to understand output formats and delivery mechanisms;
- Assistance in the development of a delivery/demonstration platform.

Key deliverables will include a validated methodology with options to licence executable software/source code as well a tree canopy map of a significant area(s) of England with associated performance metrics.

Your input over the duration of the project can be divided in 5 different stages:

- Literature review
- Collation of data
- Algorithm development
- Operational evaluation
- Reporting

You will work closely with the sponsoring Leicester based SME and University of Leicester.
**Supervision will be provided by Professor Heiko Balzter and Dr Kirsten Barrett**

**Qualifications:**

- Bachelor Degree with at least a UK 2.1 in Physical Geography, Environmental Science or a related discipline
- Demonstrable experience in remote sensing and image processing, ideally including SAR data
- University English language requirements

**Skills:**

- Research and network development, testing and data analysis skills.
- Programming skills, ideally in Python or R.
- Ability to build strong working relationships with core stakeholders (academics, sponsoring SME).
- Business engagement/development skills and aptitude.
- Effective English oral and written skills in order to communicate effectively.
- A self-starter who is able to work as part of a team.

**How to apply**

Please apply using the online application system.

Apply for: Campus Based Full Time/Geography Research

- In the funding section of the application, please select Studentship and in the dropdown menu, select ERDF MPhil project.
- In the Personal Statement section - please indicate clearly why you are interested in undertaking this research project and why you are the best candidate to help deliver the project objectives.
- In the Research Proposal Section please state: Applying for MPhil Project Ref: LIH060, no proposal required.

Shortlisted applicants will be invited to an interview with the academics and the sponsoring SME. Interviews are expected to be held within 14 days of the application deadline.

Open until filled

**Application Deadline**

The Leicester Innovation Hub is part-funded by European Regional Development Fund (ERDF).

To qualify for fully funded support the SME, MPhil student and University of Leicester academics must fulfil all ERDF and University MPhil degree eligibility criteria which include:

- The MPhil student: **must be a UK or EU (European Union) national**; have graduated within the last 3 years in a related discipline; adhere to project confidentiality; at the start of the project assign any arising IP from the project; base their MPhil degree thesis on the research outcomes of the project; work closely with the SME company to undertake the research project; deliver monthly progress reports and a comprehensive project report to the University and sponsoring SME in addition to the MPhil thesis. Please note that University of Leicester requires at Bachelor Degree with at least a UK 2:1 or equivalent.

- Each SME project will be delivered by one full-time MPhil student over one year; the MPhil project will have a research focus and will be supervised by two University of Leicester
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| • The University of Leicester pays a monthly stipend of £1,166.67 (total Stipend £14,000) in arrears to the student. The funding will be strictly limited to 12 months.  
• The SME pays the University’s 1 year full-time MPhil fees (upfront before project start). |

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| • This one year MPhil project will start as soon as possible aligned with University start dates.  
• The MPhil projects will last a minimum of one year full-time. |

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<td>For informal enquiries about technical aspects of this Industrial MPhil please contact Professor Heiko Balzter: <a href="mailto:hb91@leicester.ac.uk">hb91@leicester.ac.uk</a>. Please contact Jenny Hollis (<a href="mailto:jlh74@leicester.ac.uk">jlh74@leicester.ac.uk</a>) for more information about the Leicester Innovation Hub.</td>
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