3 Year LISEO Funded Studentship available for September 2018

**Department:** School of Archaeology and Ancient History  
Department of Physics  

**Supervisors:**  
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**Eligibility:** This project and funding is available for UK/EU applicants only  

**Project Title:** Innovative use of Earth Observation for archaeological discovery from space  

**Project Description:**  
Archaeology is increasingly drawing on innovative applications of satellite imagery and space technologies to locate and map unknown archaeological features for a region. Earth Observation (EO) can provide unique evidence of human transformation to the Earth’s landscape that can be identified by detecting variations in surface features. EO also benefits archaeological research in terms of cost, time and risks associated with on-the-ground activities such as field survey and excavation.  

In this studentship, we will focus on the area around modern Hillah in the Babil Governate of Iraq and surrounding regions. Hillah is the location of the ancient city of Babylon, which flourished between c.1800 - c.400 BCE. Despite being one of the most iconic archaeological sites in the world, very little is known about Babylon outside descriptions in classical sources and sporadic excavations in the central palace area. The full extent of Babylon itself is not known, and there has been no attempt to understand the place and role of the city within its hinterland.  

We will deploy satellite imagery methods to identify sites and features with different sizes and functions. Such EO data provides a wealth of information that can lead to the discovery of new archaeological sites. For example, un-excavated buried archaeological features can result in spatial patterns that are often identified in satellite imagery as soil, shadow or crop marks. These marks are distinguishable due to variations in colour, texture, topographic relief and crop appearance that are under stress due to lack of water or nutrient deficiencies. Together with on the ground work through on-going projects and established relationship of the School of Archaeology and Ancient History with the University of Babylon (note that Iraq is an area of research interest for University of Leicester), this will allow the development of an extraordinary archaeological and heritage resource.
We will develop and apply innovate methods for analysis and interpreting satellite information and exploit new high-resolution satellite data from the Sentinels (S1 (SAR) with 5-100m resolution, S2 (visible) with 10-60 m resolution, S3 (infrared) with 500-1000m resolution) and from commercial satellites (Digital Global (visible) with sub-meter resolution). We will also use historical satellite datasets to evaluate surface features before cultural features of urbanization became prominent. The analysis will be extended to other study areas including South Asia and Syria.

Archaeological features across the Babylon Province observed by the Sentinel 2 satellite.

This studentship offers an exciting opportunity to work in a novel, cutting-edge inter-disciplinary research area. There is also the chance for the student to be involved in field work (not mandatory) to get first-hand experience of the study area.

Funding details:

The LISEO studentship will provide a 3 year tuition fee waiver at UK/EU rates (£4260 for 2018/9) and stipend at RCUK rates (£14,777 for 2018/9) and Research Training Grant of £1,200.

Entry requirements:

Applicants are required to hold/or expect to obtain a UK Bachelor Degree 2:1 or better in a relevant subject. The University of Leicester English language requirements apply where applicable.

Some prior knowledge in programming (python, IDL, java or similar) will be an advantage.
How to apply:

You should submit your application using our online application system.

Apply for Archaeology Research /September 2018

- In the proposal section please provide the name of the supervisor and project title
- Include personal statement that explains why you want to be considered for this project and describes relevant research experience e.g. as part of a previous degree. If relevant include a list of academic work you have published or which is awaiting publication.
- In the funding section of the application please indicate you wish to be considered for the LISEO studentship

Project Enquiries: Dr Ruth Young  rly3@le.ac.uk (Archaeology)

Application enquiries: prgadmissions@le.ac.uk