

SpIN

Space Internship Network

Working to Launch Careers in Space

SpIN

# Summer Placement Opportunities

2<sup>nd</sup> May 2013

**Dear SpIN Student,**

I am delighted to be able to present the opportunities available for SpIN work placements in 2013. Please read through these projects carefully – they are your opportunity to apply for valuable work experience this summer.

Please see below or visit our web pages; <http://sa.catapult.org.uk/careers/space-internship-scheme/> for some FAQ's. Contact your own University Careers Service for any assistance you may need with your CV and a covering letter. Treat this in exactly the same way as you would a job application. Please make a note of the deadlines, in particular

**Candidate Application Deadline: Friday 3rd May 2013**

If you have any further questions then you can always contact me. I wish you all the best in your application.

Kind Regards,

**Kathie Bowden**

Centre Manager, Space@Reading

k.e.bowden@reading.ac.uk

## **FAQ's**

### **How much will I get paid?**

Successful candidates will be paid between **£1,200.00 and £1,500.00 per month** depending on the project.

### **How does the scheme work?**

You will need to register your details before you start applying. You need to do this at:

<https://www.surveymonkey.com/s/PXFNZYM>

You will not be able to take up a placement if you have not registered here first. Please carefully read the project descriptions in this booklet. You could apply to all of them if you wish, however it is better to target your applications to the projects that really interest you and which are appropriate to your subject of study. Prepare your CV and send it with a covering letter, detailing why you believe you have good skills for the placement and what you would like to get out of it, to the supervisor of the project. You should do this by **Friday 3rd May 2013**.

Each company has its own recruitment process; some may invite you to an interview, some may only wish to speak with you over the phone and some may select on the basis of your CV alone. We will advise you by **Friday 24<sup>th</sup> May 2013** if you have been successful or to provide feedback on the status of your application.

### **Who is eligible?**

You are eligible for the scheme if you are interested in working within the Space sector and are studying for a degree appropriate to the placement you are applying for. You will be in year 2 of a 3 year degree or year 2 or 3 of a 4 year degree.

### **I am an international student – am I eligible to take part?**

Yes, however certain companies can only offer places to British Nationals as they are involved with defence and security, the majority of placements are open to all. The project descriptions will clearly state where there are specific requirements.

### **What financial help is available?**

You will be paid during your placement which is intended to cover all your expenses during this time. The funding available ranges from **£1,200.00 and £1,500.00 per month** depending on the project and location.

Regrettably we cannot offer reimbursement for travel to and expenses incurred for interviews (however some host organisations may pay interview expenses). We are also unable to pay for accommodation expenses during interviewing and/or during the placement itself.

### **What are the deadlines?**

You need to complete all your applications by the **3<sup>rd</sup> May 2013**. You may then be called to interview or have a telephone interview. If you have been successful you will be contacted by **24<sup>th</sup> May 2013**.

You will be expected to attend a fully funded Induction Day at the Space Applications Catapult in Harwell on **1<sup>st</sup> July 2013**.

### **Where will I find further information?**

If you have any questions please contact **Kathie Bowden**, Centre Manager of Space@Reading on [k.e.bowden@reading.ac.uk](mailto:k.e.bowden@reading.ac.uk)

Working to Launch Careers in Space

SpIN  
Placement  
Opportunities  
2013

## Working to Launch Careers in Space

**Company/institution**

Inmarsat

**Supervisor**

Mr Carlo Sansone

**Company/institution address**

Inmarsat  
99 City Road  
Old Street  
London  
EC1Y 1AX

**Telephone**

Company: +44 (0)207 728 1986

**Email**

[Joshua.Hyde@Inmarsat.com](mailto:Joshua.Hyde@Inmarsat.com)

**Closing Date for Applications**

3<sup>rd</sup> May 2013

*Project to follow...*

## Working to Launch Careers in Space

**Company/institution**

Stevenson Astrosat

**Supervisor**

Mr Steve Lee

**Company/institution address**

Stevenson Astrosat  
Old assembly hall  
37 Constitution Street  
Leith  
Edinburgh  
Scotland

**Telephone**

Company: +44 (0)7562 791076  
Supervisor: +44 (0) 7562 791076

**Email**

[Steve.lee@astrosat.biz](mailto:Steve.lee@astrosat.biz)

**Brief company description**

Astrosat are an Earth Observation value added company that takes satellite data and builds on the core information by customising it for clients

**Brief Project description**

Astrosat are developing an award winning product, which is in its final stages and the successful applicant will be working on this project. You will have some knowledge of Hydro-ocean modelling, geography and topography/bathymetry, GIS.

**Closing Date for Applications**

3<sup>rd</sup> May 2013

## Working to Launch Careers in Space

**Company/institution**

RAL Space

**Supervisor**

Prof Richard Holdaway

**Company/institution address**

RAL Space  
Rutherford Appleton Lab  
Harwell Science & Innovation Campus  
Harwell  
OX11 0QX

**Telephone**

+44 (0)1235 445527

**Email**

[richard.holdaway@stfc.ac.uk](mailto:richard.holdaway@stfc.ac.uk)

**Brief company description**

RAL Space works on behalf of the wider UK Space community to provide support to space science, EO, technology, data

**Brief project description**

RAL Space are interested in taking on a number of interns from a wide field of areas – from Solar Physics to Space weather – to new and innovative technologies for space instrumentation including disruptive technologies.

**Closing Date for Applications**

3<sup>rd</sup> May 2013

## Working to Launch Careers in Space

**Company/institution**

University of Reading

**Supervisor**

Dr Melody Sandells

**Company/institution address**

University of Reading  
NCEO, Harry Pitt Building, 3 Earley Gate  
Whiteknights, University of Reading  
Reading  
RG6 6AL

**Telephone**

Company: +44 (0)118 378 8741  
Supervisor: +44 (0)118 378 5214

**Email**

[m.j.sandells@reading.ac.uk](mailto:m.j.sandells@reading.ac.uk)

**Brief company description**

At the National Centre for Earth Observation (University of Reading) we are investigating new techniques in retrieval of land surface properties from satellite data. One particular aspect is the retrieval of snow mass and soil moisture from passive microwave radiation (naturally emitted). We are developing a data assimilation framework to combine physically-based models with the satellite data.

**Placement project or role title & brief description**

This project involves the development of an on-line training tool as part of a project with the European Space Agency. The training tool will allow the input or possibly automatically obtain microwave brightness temperatures and perform snow mass retrievals using an existing algorithm. The tool will also incorporate a snow microwave emission model to allow users to examine the sensitivity of the model to snow properties. The student will gain real-world experience of the development of an educational tool, and develop their skills in python or C programming, and html interfacing.

**Student specification**

Ideally computer science, but some computational background and willingness to learn

**Closing Date for Applications**

3<sup>rd</sup> May 2013



## Working to Launch Careers in Space

**Company/institution**

Space Applications Catapult

**Supervisor**

Dr Wyn Cudlip

**Company/institution address**

The Electron Building  
Fermi Avenue, Harwell  
Oxford  
Didcot  
OX11 0QR

**Telephone**

Company: +44 (0)1235 567961  
Supervisor: +44 (0)7762 768765

**Email**

[wyn.cudlip@sa.catapult.org.uk](mailto:wyn.cudlip@sa.catapult.org.uk)

**Brief company description**

The Satellite Applications Catapult is one of a network of seven UK technology and innovation centres which aim to drive economic growth through commercialisation of research. It provides a focal point where small and medium enterprises, large industry and end-users can work together with researchers to challenge barriers, explore and develop new ideas, and bring these to commercial reality.

**Placement project or role title & brief description**

Technical support to a number of possible projects, covering either, satellite communications, Satellite Navigation (Galileo) or Earth Observation

**Student specification**

Any courses relevant to the three topics mentioned above (SatCom, SatNav, EO)

**Closing Date for Applications**

3<sup>rd</sup> May 2013

**Working to Launch Careers in Space****Company/institution**

Infoterra Ltd.

**Supervisor**

Dr Thomas Lankester

**Company/institution address**

Europa House  
The Crescent  
Farnborough  
GU14 0NL

**Email**[thomas.lankester@astrium.eads.net](mailto:thomas.lankester@astrium.eads.net)**Telephone**

Company: +44 (0)1252 362000  
Supervisor: +44 (0)1252 362068

**Brief company description**

Infoterra Ltd, trading as Astrium GEO-Information Services is a wholly-owned subsidiary of Astrium, Europe's biggest space company. Infoterra Ltd. has over 25 years experience in commercial Earth Observation and geospatial data analysis. The company operates across a comprehensive range of markets including land administration & mapping, environment & agriculture, oil & gas exploration, and defence & security. As well as data sales we offer a range of data hosting, processing and dissemination services, along with applications development and geospatial consultancy.

**Placement project or role title & brief description (Please include mention of what the student should expect to gain from the placement)**

Inter-comparison of Essential Climate Variables The student would be involved in sub-setting and reformatting image chips covering EO calibration - validation sites. This would give experience in script batch processing and the GDAL image handling tools. The prepared time series of images would then be uploaded and compared using the on-line Olive calibration validation tool, giving the student experience in time series statistical characterisation and analysis. A second part of the project would involve adapting and expanding an on-line tool (Web client) for the analysis and smoothing of time series data. This would involve gaining practical experience in Java object oriented programming, time series interpolation, smoothing and analysis techniques and algorithms. A student more confident / experienced in programming could expand their role to gain experience in object/service oriented analysis and design. Overall, the student would also gain domain knowledge in Earth Observation and specifically biophysical monitoring of seasonal change.

**Student specification**

Required skill set would be good numeracy, computer literacy, EO and/or programming background. Students on physical, life or earth science courses with a good mathematical background, or students on computer science courses.

**Closing Date for Applications**

3rd May 2013

**Working to Launch Careers in Space****Company/institution**

Magellium Ltd.

**Supervisor**

Mr Vincent Saleh

**Company/institution address**

Electron Building  
Fermi Avenue  
Harwell, Oxford  
OX11 0QR

**Telephone**

Company: +44 (0)1235 567231  
Supervisor: +44 (0)1235 567173

**Email**

[michael.lawrence@magellium.co.uk](mailto:michael.lawrence@magellium.co.uk)

**Brief company description**

Magellium Ltd is an SME with 9 staff specialising in image processing, geomatics, advanced IT and computer vision. It is the UK subsidiary of Magellium SAS, a French SME with 160 staff and offices in Toulouse and Paris. Magellium Ltd has a number of R&D projects with UK partners exploring new remote sensing / GIS applications and new approaches to data processing / visualisation.

**Placement project or role title & brief description (Please include mention of what the student should expect to gain from the placement)**

SAR imagery benefits for agriculture and maritime applications. We are looking for a student who has a background in signal/image and artificial intelligence processing. The placement will be split into 3 parts. The first part will be to write documentation about SAR imagery in order to highlight the techniques for potential agriculture and maritime applications. The second part will focus on two detection types (crop classification and vessel detection) and find the best approach to achieve these detections by feature extraction. Finally, the student will develop a learning machine system allowing the extraction of any features in the image.

**Student Specification**

Preferred area of study: • Remote Sensing • Mathematics/Learning Machine • Computer Science, student also needs knowledge of C++ or Java.

**Closing Date for Applications**

3<sup>rd</sup> May 2013

## Working to Launch Careers in Space

**Company/institution**

University of Surrey

**Supervisor**

Mrs Melanie Cliff

**Company/institution address**

Senate House

Stag Hill

Guildford

GU2 7XH

**Telephone**

Company: +44 (0) 1483 682685

Supervisor: +44 (0) 7905 523567

**Email**

[m.cliff@surrey.ac.uk](mailto:m.cliff@surrey.ac.uk)

**Brief company description**

The University of Surrey is home to Surrey Space Centre a Space Engineering centre within the Electronic Engineering department. Together with its spinout company Surrey Satellite Technology Limited, the University has been at the forefront of the development of small satellite technology for decades.

**Placement project or role title & brief description**

Overview of the global satellite market.

**Student Specification**

A commercially minded student of any academic background able to produce a summary of an extremely complicated market. The ideal candidate would be someone with an understanding of business / economics as well as technical Space expertise. This opportunity would be ideal for someone wanting to work in the Space sector after graduation as they would have the opportunity to develop an unparalleled understanding of the global satellite market.

**Closing Date for Applications**

3<sup>rd</sup> May 2013

*Project to follow...*

**Working to Launch Careers in Space****Company/institution**

Rezatec Limited

**Supervisor**

Mr Tim Vallings

**Company/institution address**

Electron Building  
Fermi Avenue  
Harwell, Didcot  
OX11 0QR

**Telephone**

Company: +44 (0)1235 567231  
Supervisor: +44 (0)1235 567173

**Email**[tim.vallings@rezatec.com](mailto:tim.vallings@rezatec.com)**Brief company description**

Rezatec has developed a unique software platform that is able to consolidate and process global satellite imagery to deliver independently verified Earth Information products and Earth Analytics services. The Rezatec platform is designed to:

- Collect and assimilate EO data from a wide range of sources with different formats, scales and granularity.
- Combine EO data with other data – including data collected on the ground – for enrichment, enhancement and calibration purposes.
- Process and convert EO data into business data for customer value, using a wide range of data modelling techniques.
- Calculate confidence levels and uncertainty in each data source and modelling step, and report the combined uncertainty as metadata along with each Earth Information product.
- Reduce substantially the costs of data analysis and processing required to resolve challenging and complex global business issues.

**Placement project or role title & brief description (Please include mention of what the student should expect to gain from the placement)**

Assistance with Data Capture, Cataloguing and Visualisation:

1. Establishment of library of input EO and ancillary data a. MODIS reflectance/NDVI/EVI/Land Cover/Vegetation Continuous Fields b. SAR and LIDAR data c. Ground-based reference data - understanding, classifying and geo-referencing carbon reference data d. WorldClim datasets (and derivatives) e. Contributory datasets to TOPMODEL topographic Wetness Index (evapotranspiration, runoff etc.) f. Other data as may be required;
2. Ecosystems modelling prototypes – carbon flux and peat prediction - identifying and running some simple prototypes.
3. Application of SAR and LIDAR data to forest carbon and forest health: identification of published science describing methods and algorithms in this area.
4. A detailed assessment of open source software (GIS and other tools) in terms of their suitability for the handling and visualisation of the data sources. This would also include understanding compatibility between these tools – to what degree can they be used together etc. We would hope and expect that the chance to sit down for the summer working on GIS and image analysis work, compiling a geo-referenced library of EO and other data might appeal.

**Student Specification**

Probably Geography Students, with an understanding of Earth Observation. We would be open to suggestion to have a student who is experienced in other areas but it would be important for us that their interest is towards, data capture, analysis work and visualisation tools so that they themselves can get to work quickly and will enjoy working on some fairly complicated and interesting areas.

**Closing Date for Applications**3<sup>rd</sup> May 2013

## Working to Launch Careers in Space

**Company/institution**

Magellium Ltd.

**Supervisor**

Mr David Petit

**Company/institution address**

Electron Building  
Fermi Avenue  
Harwell, Oxford  
OX11 0QR

**Telephone**

Company: +44 (0)1235 567231  
Supervisor: +44 (0)1235 567173

**Email**

[michael.lawrence@magellium.co.uk](mailto:michael.lawrence@magellium.co.uk)

**Brief company description**

Magellium Limited was established in 2009 as the UK subsidiary of Magellium SAS to springboard their international growth. Magellium Limited has 9 staff specializing in digital geography, imaging and information technologies. Located in the Satellite Applications Catapult Centre, on the Harwell Oxford Campus, Magellium Limited is delivering a major EO ground segment contract for the European Space Agency and a feasibility study for a civil resilience information system. The firm has also completed research and development projects with UK partners to explore new opportunities in automatic image registration systems, hosted processing for large datasets and horticultural crop identification. Our teams in the UK and France deliver technical studies, system specifications and development, system integration and maintenance across a broad range of domains including satellite ground segments, cartographic data production and geospatial applications.

**Placement project or role title & brief description**

Satellite Image Quality assessment tool for orthorectification web service. Magellium has developed an application to perform geometric correction for high resolution Satellite imagery. This application requires a tool to provide quality information about the image loaded by the end user. Quality information will include the average geometric error of the input image by comparing it against orthorectified reference image provided by third party. It will be based on an existing image matching module and the project will involve developing a metric to analyse the confidence in the matching. The interns will adapt an existing quality assessment algorithm and add a new processing module for the existing application. The project will cover the following:

1. A requirements analysis, generation of a specification for the quality assessment tool and finally the implementation and validation of the tool
2. Development of another module to mosaic a list of image tiles to generate the full reference image provided by third party.

**Student Specification**

We are looking for a student who wants to learn about and implement the following technologies: • Image processing (Image similarity analysis for the collection of pixels (disparity grid)) • GPU computing (to understand dense image matching algorithm) • Basic knowledge of GIS • Knowledge of OGC compliant web services will be an advantage A particular emphasis will be put on code implementation, optimization and reusability. Student specification Preferred area of study: • C++ skills • Remote Sensing • Computer vision/Computer Science • Mathematics

**Closing Date for Applications**

3<sup>rd</sup> May 2013

**Working to Launch Careers in Space****Company/institution**

Magellium Ltd.

**Supervisor**

Mr Toby Reinicke

**Company/institution address**

Electron Building  
Fermi Avenue  
Harwell, Oxford  
OX11 0QR

**Telephone**

Company: +44 (0)1235 567231  
Supervisor: +44 (0)1235 567348

**Email**[michael.lawrence@magellium.co.uk](mailto:michael.lawrence@magellium.co.uk)**Brief company description**

Magellium Limited was established in 2009 as the UK subsidiary of Magellium SAS to springboard their international growth. Magellium Limited has 9 staff specializing in digital geography, imaging and information technologies. Located in the Satellite Applications Catapult Centre, on the Harwell Oxford Campus, Magellium Limited is delivering a major EO ground segment contract for the European Space Agency and a feasibility study for a civil resilience information system. The firm has also completed research and development projects with UK partners to explore new opportunities in automatic image registration systems, hosted processing for large datasets and horticultural crop identification. Our teams in the UK and France deliver technical studies, system specifications and development, system integration and maintenance across a broad range of domains including satellite ground segments, cartographic data production and geospatial applications.

**Placement project or role title & brief description**

Web Map Viewer in Java Application. We have a requirement to add a 2d / 3d map viewer to our ORTHOWEB product (a web service providing automatic orthorectification of satellite images). This map viewer will be able to show the input image that the user has specified (or at minimum the bounding box of that image) and then also the output location of the processed image. To do this the map viewer will have to take the data produced by our GEOLOC software and draw items on a web map.

**Student Specification**

Students may be studying Geomatics, GIS, Built Environment Courses (surveying, town planning etc). The map viewer needs to be written in JAVA, and experience with Java web mapping platforms will be of benefit (geotools, geomajas, GWT-openlayers, google earth api etc. ). Web development experience will also be beneficial, including HTML/5, JAVASCRIPT, CSS/3, php, python. Additionally, the candidate will do some commercial data research specializing in data that may be used for the Orthoweb process – concentrating on Google / Bing / OSM etc. This research will cover both the technical and the commercial details.

**Closing Date for Applications**3<sup>rd</sup> May 2013

## Working to Launch Careers in Space

**Company/institution**

University of Leicester

**Supervisor**

Dr Ian Hutchinson

**Company/institution address**

Space Research Centre, Department of Physics & Astronomy  
University Road  
Leicester  
LE1 7RH

**Telephone**

Company: +44 (0) 116 252 3492  
Supervisor: +44 (0) 116 223 1455

**Email**

[mab@leicester.ac.uk](mailto:mab@leicester.ac.uk)

**Brief company description**

The University of Leicester is a top 20 University and is in the top 10 for research impact. One of its leading departments is Physics & Astronomy, which host University's purpose built Space Research Centre. Approximately 180 academic, research and technical staff work across range of areas of space science

**Closing Date for Applications**

3<sup>rd</sup> May 2013

*Project to follow...*



## Working to Launch Careers in Space

**Company/institution**

Mullard Space Science Laboratory - University College London

**Supervisor**

Dr Dhiren Kataria

**Company/institution address**

Mullard Space Science Laboratory  
Holmbury St. Mary  
Dorking, Surrey  
RH5 6NT

**Telephone**

Company: +44 (0) 1483 204100

Supervisor: +44 (0) 1483 204105

**Email**

[d.kataria@ucl.ac.uk](mailto:d.kataria@ucl.ac.uk)

**Brief company description**

MSSL is the Department of Space & Climate Physics at University College London.

**Placement project or role title & brief description**

CubeSat Scientist. There are 3 options available, depending on student's interests: 1. Orbital dynamics and extension of lifetime of a CubeSat at QB50 altitudes (<350km) using pulsed ion-thrusters. 2. CubeSat attitude control using an in-situ sensor system. 3. Development of an electron source using nano-structures. Whichever project is chosen, the student will have the opportunity to gain a general understanding of the operation and application of cubesats for scientific research.

**Student Specification**

The student would ideally be from a physics or relevant engineering discipline.

**Closing Date for Applications**

17<sup>th</sup> May 2013