Industrial Year Placement - National Plant Phenomics Centre (NPPC), Gogerddan, Aberystwyth

About the NPPC

The NPPC is part of Aberystwyth University, based within IBERS at Gogerddan. It is a unique National Capability running collaboration research projects with UK and international partners.

The NPPC is home to two robotic greenhouse systems in which plants are grown in controlled environments and monitored by being moved on a conveyor system to imaging units. This allows for repeated high-throughput non-destructive measurements of plants to be made over time. Different treatments and environmental conditions can be compared on different groups of plants, which are individually RFID/QR code tagged. This produces vast amounts of images and data to be analysed and managed.

High-throughput plant phenotyping is an exciting area of research which allows characteristics of plants to be analysed and related to the plants genetic makeup. Experiments such as assessing which types of crops are most tolerant to drought can be investigated - giving important insight into the crops which can give us the best yields to feed growing populations in ever changing climates.

Responsibilities

You will work alongside a team of plant biologists, programmers and computer vision experts. The role is flexible to allowing you to develop a range of useful programming related skills to including:

- Developing a custom built Raspberry Pi based plant weighing and watering system.
- Developing Arduino/Moteino based embedded sensors for recording greenhouse environmental conditions.
- Developing image analysis software using OpenCV and/or Matlab/Octave and to document the algorithms you produce.
- Developing a customer facing web portal for presenting data to external users of the NPPC.
- Analysing and processing data from 3D laser scanning/imaging systems.
- Working with the rest of the NPPC team to ensure the smooth running of the various experiments in the greenhouse, from the initial project setup meetings to the final delivery and presentation of results from the experiments.
- Being involved in processing and management of the large data sets

Essential Criteria

- Work well as part of a team
- Programming experience with **at least one** of the following languages:
  - C, C++, Java, Matlab, Octave, R, PHP, Python, Perl and BASH.
- Understanding of scientific method
- Understanding of project management
- Understanding of software development life cycle and software engineering best practices
- Understanding of SQL relational databases. Experience with MySQL and/or PostgreSQL.
- Knowledge of Linux and familiarity with working at the command line

Desirable Criteria

- Programming experience with:
  - C, C++, Java, Matlab, Octave, R, PHP, Python, Perl and BASH.
- Experience with the Arduino and Raspberry Pi platforms
- Understanding of digital photography principles (focal lengths, shutter speeds, apertures, ISO speeds, image compression formats).
- Experience of electronic circuit design and PCB production.
- Ability to solder and diagnose simple faults with electronic equipment.
- Web development experience with HTML/CSS
- Experience with the Git version control system.
- Experience of unit testing and behaviour-driven testing.

Salary and Holidays

£15,632/annum pro rata for length of placement
27 days annual leave per annum pro rata for length of placement
4 closed days (December 23rd and 28th-30th) that don't count against your annual leave

Duration

Start date: June 1st 2016 or as soon as possible after that

End date: March 2017 due to end of grant funding this post. It is very likely (but not guaranteed) that the post will be extended beyond this date.

Application

Email a CV and covering letter to Colin Sauze (cos@aber.ac.uk), NPPC Data Manager by 5pm on Friday February 12th.

If you would like to informally ask the current industrial year student about the job then please email Katie Awty-Carroll (klh5@aber.ac.uk).