THE UNIVERSITY OF NOTTINGHAM
Recruitment Role Profile

Job Title:	Research Associate/Fellow
School/Department:	Computer Science
Job Family and Level:	Research & Teaching Level 4 Training Grade/Level 4
Contract Status:	Fixed-term for a period of 3 years
Hours of Work:	Full-time (36.25 hours per week)
Location:	Jubilee Campus / Syngenta Jealott's Hill International research Centre, Bracknell
Reporting to:	Dr Andrew French, Prof Tony Pridmore, Dr Michael Pound, Dr Rob Lind (Syngenta)

Purpose of the New Role:
This 3-year project will develop, adapt and apply deep-learning techniques to a range of plant-phenotyping derived datasets. These will span from lab-based plate assays, through to glasshouse and field-derived images. We will work closely with the project partner Syngenta (www.syngenta.com), a plant science company who will provide the image sets.

The candidate should have a PhD (or be close to completion) in image analysis or a deep learning-related subject. The ability to work in an interdisciplinary team will be essential. The ability to develop new CNN models/architectures, as well as use existing architectures, will be required. The candidate will be based in the School of Computer Science, Jubilee Campus at the University of Nottingham, but will be required to spend some time at Syngenta's international research centre in Berkshire.

	Main Responsibilities	**% time per year**
1.	Review current approaches to the project tasks, with a particular focus on deep learning methods, and assess their suitability for use within Syngenta. Scope recent deep-learned innovations within plant phenotyping.	10 %
	Develop potentially new CNN-based deep learning architectures and approaches, using the image sets supplied by Syngenta. Implement those architectures using standard CNN programming environments, to produce models suitable for use within Syngenta.	25 %
2.	Design and execute evaluative studies, using appropriate statistical and data analysis tools and comparing to appropriate benchmarks.	20 %
3.	Work with Syngenta to optimise imaging hardware and image capture approaches to maximise the benefit obtained from deep learning.	20 %
4.	Build the user interfaces needed to enable trial of tools within a research environment, liaising with Syngenta staff to ensure usability, and that any and all software tools produced are consistent with normal Syngenta workflows.	10%
5.	Create and curate the image and data sets arising from the project, ensuring that all relevant meta-data is captured and logged.	5%

6.	Attend project meetings, conferences etc. at both the University and Syngenta as required by the role. Prepare summary documents and presentations in support of these events. Contribute to final report.	10%

Knowledge, Skills, Qualifications & Experience

	Essential	Desirable
Qualifications/ Education	• PhD (or close to completion) in image analysis, deep learning, or related field • BSc in Computer Science or related discipline	
Skills/Training	• Strong programming skills • Strong verbal and written communication skills	• Familiarity with plant phenotyping as a research area • Keenness to work with plant biologists to help develop the required techniques
Experience	• Experience of experimental evaluation of research results • Experience of building software tools for use by scientists • Practical experience of machine learning methods	• Developing image analysis approaches • Experience with using deep learning approaches • Familiarity with software tools such as Torch, TensorFlow, Caffe • Experience of interdisciplinary work

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