PhD Project Advertisement

Project title: Applying AI and Deep-Learning approaches to support sustainable crop production through optimised crop pollination

Project No: FBS2023-19-Garratt-rc

Lead supervisor: Michael Garratt, School of Agriculture, Policy and Development, University of Reading

Email: m.p.garratt@reading.ac.uk

Co-supervisors:

Maria Anastasiadi, Cranfield University; Robbie Girling, University of Reading; Heather Sanders, AgriSound

Project description:

Insect pollinators, including bees and flies, provide critical pollination services to crops by improving yield and quality. UK growers invest significant amounts of money each year providing pollination to their crops by using honeybees and commercial bumblebees. However, they may not be getting the best from their pollinators and sustainable solutions are needed to optimize pollination for the benefit of growers and consumers. New and effective ways of assessing pollinator activity are needed to understand if production is limited and allow growers to make real-time management decisions to promote efficient and sustainable crop production.

The aim of this project is to explore the potential of novel technology to provide real-time data on pollinator activity in crops. Including understanding what data such devices need to provide and how they can best be integrated into crop production systems. It will also test image-based pollinator survey technology as a tool to rapidly measure pollinators in the field. The project is a collaboration between the University of Reading, Cranfield University, and industry partners. This study will take place across a network of fruit farms and will involve pollinator surveys, crop assessments, development of AI based image analysis and industry engagement to help develop tools to support sustainable crop production.

The project will provide the opportunity to work in a leading agro-ecology research group studying sustainable food production as well as industry partners giving excellent academic and industrial experience.

Training opportunities:

The student will receive training and hands on experience in pollinators surveys, insect taxonomy, agronomy, and use of AI and novel technologies. The PhD will also involve research placements with Cranfield University and time spent working closely with industry partners.

Student profile:

The student will have a relevant degree in biological sciences (with experience in ecology), agriculture or environmental science. They will have entomological experience and/or an understanding of agronomy or food production systems. Previous work with pollinators or experience of bioinformatics and data analysis will be an advantage. They will have experience doing fieldwork and previous experience working on farms or in agricultural landscapes is desirable.

Stipend (Salary):

FoodBioSystems DTP students receive an annual tax free stipend (salary) that is paid in instalments throughout the year. For 2022/23 this will be £17,668 and this will increase slightly each year at rate set by UKRI.

Equality Diversity and Inclusion:

The FoodBioSystems DTP is committed to equality, diversity and inclusion (EDI), to building a doctoral researcher(DR) and staff body that reflects the diversity of society, and to encourage applications from under-represented and disadvantaged groups. Our actions to promote diversity and inclusion are detailed on the FoodBioSystems DTP website.

In accordance with UKRI guidelines, our studentships are offered on a part time basis in addition to full time registration. The minimum registration is 50% FT and the studentship end date will be extended to reflect the part-time registration.

For up to date information on funding eligibility, studentship rates and part time registration, please visit the FoodBioSystems website.