Thorvald Saga Robot at
University of Lincoln

Lincoln Institute for AgriFood Technology (LIAT)

CASE STUDY

The Lincoln Institute for Agri-Food Technology (LIAT) based at the University's Riseholme Campus is home to a working farm with specialist research facilities. LIAT's multi-disciplinary team brings together sector-leading expertise in a diverse range of areas such as: artificial intelligence, robotics, engineering, crop science, environmental sustainability, food manufacturing, product development and supply chains.

LIAT supports and enhances the future of food and agriculture productivity, efficiency, and sustainability through research, education, and technology.

With a clear focus on improving productivity, efficiency, and sustainability through innovation, LIAT's researchers are engaged in internationally, impactful research designed to make a difference across the food chain. Encapsulating an inter-disciplinary approach, LIAT research brings together crop science, computer science, engineering, robotics, AI, and data management applications.

The application of technological innovation is crucial to help solve some of the big challenges facing agriculture and food production. LIAT works closely with industry partners to apply research in a real-life setting, supporting industry needs.

Major projects include:

Lincoln Agri-Robotics (LAR)

LAR is 'the world's first global centre of excellence in agricultural robotics' (UK Innovation Strategy, July 2021), funded by UKRI's Research England as part of their Expanding Excellence in England (E3) fund. This exciting centre bridges and expands the strong collaborations that exist between two leading research groups at the University of Lincoln: the Lincoln Institute for Agri-Food Technology (LIAT) and the Lincoln Centre for Autonomous Systems (L-CAS).

SUSTAIN CDT

The University of Lincoln in collaboration with leading partner institutions – University of Aberdeen, Queen's University Belfast and University of Strathclyde – has successfully secured £10.6M in funding from UK Research and Innovation (UKRI) to establish SUSTAIN, a transformative Centre for Doctoral Training (CDT). SUSTAIN provides a cross-disciplinary, multi-institution doctoral training program to support innovative research in the application of Artificial Intelligence (AI) to sustainable agri-food. It will cover technical and social science aspects of AI, alongside training in plant, animal and/or biosciences, tailored to individual students' needs and interests.

Centre for Doctoral Training in Agri-Food Robotics: AgriFoRwArdS

AgriFoRwArdS is a collaboration between the Universities of Lincoln, Cambridge and East Anglia, and focuses on robotics within the agricultural sector. The Centre provides fully funded opportunities for students to undertake MSc and PhD study, to become the next leaders in the agri-food robotics community.

LINCAM

The Universities of Lincoln and Cambridge have been awarded a £4.9 million grant from the Engineering and Physical Sciences Research Council (EPSRC) to help fund their drive to make the Lincolnshire and north Cambridgeshire (LINCAM) region a global innovation centre for agricultural technology (agri-tech). The LINCAM region is already a major UK production centre for crop-based agriculture and the associated supply chain. Its significance and sheer scale has led to the establishment of a nationally renowned agri-tech cluster – centred on the Universities of Lincoln and Cambridge, where interdisciplinary agri-food innovation is focused on digital technologies, including robotics and artificial intelligence, to boost productivity.

Agri Opencore

This project was just one of three chosen for a share of £9m funding from the Department of Environment Food and Rural Affairs' Farming Innovation Programme. There is currently no robotic harvesting system that can match the speed of human picking. Agri-OpenCore aims to make progress in this area by cutting the time and cost of developing a robotic harvesting system that achieves parity with human picking.

From Nitrogen Use Efficiency to Farm Profitability project

This project aims to improve farm sustainability and profitability by helping wheat farmers to use nitrogen judiciously and in an environmentally-friendly manner. It will make the use of nitrogen as efficient as possible for farms by equipping farmers with a management system which will use data from in-field sensors and weather stations to provide advice on the most optimal application of nitrogen. The University of Lincoln team will work on developing affordable technology for in-field measurements, validating it within field experiments and assuring knowledge exchange with the stakeholders.

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