Testing and Validation of AI-based Agri-tech Technologies with Drones

Provider service

Danish Technological Institute (DTI)

Link to content

https://www.agrifoodtef.eu/services/testing-and-validation-ai-based-agri-tech-technologies-drones

Type of Sector

Arable farming, Greenhouse, Horticulture, Livestock farming, Tree Crops

Accepted type of products

Design / Documentation, Physical system

Type of service

Data analysis, Desk assessment, Performance evaluation, Test design, Test execution, Test setup

Description

The service focuses on testing and validating AI-based agri-tech technologies using drones. Drones equipped with advanced RGB and spectral cameras provide detailed area overviews and precise measurements of plant and tree growth and stress levels. This can include biomass determination, growth model development, yield potential assessment, plant cover evaluation, individual plant counting, damage assessments, and disease stress symptom identification. Our expertise lies in leveraging high-precision multi- and hyperspectral cameras in field trials to obtain "ground truth" data, essential for model validation. We transform drone data into actionable insights through AI analysis, agronomic expertise, web programming, and mathematical modelling.

How can the service help you

This service fulfils the need for accurate testing and validation of AI models in agriculture. Before using the service, customers may have AI models lacking validation in real farming conditions. After engaging with our service, they receive validated AI models with comprehensive data insights to improve agricultural productivity and decision-making.

How the service will be delivered

Options for customisation are available, including specific AI model testing configurations and field trial setups. Customers should inform us of any specific requirements or limitations in advance.

Service customisation

The service will perform the following steps:

- Conduct drone flights in field trials with RGB, multispectral, or hyperspectral cameras to test AI models.

- Extract plot values from drone data and perform statistical calculations for AI validation.

- Use AI for statistical modelling of growth during repeated flights throughout the growing season.

- Test and validate AI methods for crop analysis from drone data. It is also possible to customise the steps, based on the needs of the company.A report will be delivered, documenting the results of the test and validation of the agri-tech solution.