

Service ID S00233

Location Italy



Testing of Precision Weed Identification

Provider service

Università degli Studi di Napoli (UNINA)

Link to content

<https://agrifoodtef.eu/catalogue-of-services/testing-precision-weed-identification>

Type of Sector

Arable farming, Horticulture

Accepted type of products

Design / Documentation, Software or AI model, Physical system

Type of service

Provision of datasets, Performance evaluation, Test design, Test execution, Test setup

Description

We offer comprehensive testing services for AI-powered solutions—primarily Convolutional Neural Networks (CNNs)—focused on the identification of weed species using field-acquired images. Our expertise enables us to assess the recognition performance of these models, detect behavioural or data-related shortcomings, and provide targeted recommendations for resolving issues and improving overall system accuracy and robustness. Interested in this service? Contact us at

How can the service help you

This service supports the evaluation of a CNN-based weed identification system tailored to the customer's specific dataset of weed species. By analysing the network's performance on training and unseen data, we identify weaknesses either in the algorithm or within the dataset itself. Our insights lead to concrete suggestions for enhancing model accuracy, improving training quality, and achieving more reliable recognition outcomes.

How the service will be delivered

The service is fully customisable to the customer's needs, including the use of specific datasets and neural network architectures. Customers can also define preferred performance metrics and evaluation indices for the analysis, allowing us to tailor the feedback and optimisation strategies accordingly.

Service customisation

The service begins with an in-depth analysis of the neural network's architecture and the dataset used for training, including class distribution, image resolution and quality, and annotation methods. Next, we test the network on data excluded from the training phase—such as unlabelled but available field images—to assess its generalisation capabilities. An overall performance review follows, highlighting critical issues, minor deficiencies, and optimisation opportunities, along with clear recommendations for improvements.