

Service ID S00258

Location Remote



Model training of AI agrifood-related algorithms

Provider service

GRADIANT

Link to content

<https://www.agrifoodtef.eu/services/model-training-ai-agrifood-related-algorithms>

Type of Sector

Arable farming, Food processing, Greenhouse, Horticulture, Livestock farming, Tree Crops, Viticulture

Accepted type of products

Software or AI model

Type of service

AI model training

Description

The AI model training service in TEF infrastructure offers a powerful platform for developing cutting-edge artificial intelligence solutions in the agrifood sector. Leveraging high-performance computing resources, this service enables innovators to train AI models using diverse tabular data types. These include sensor readings (such as soil moisture, temperature, and nutrient levels), machine-generated data (from agricultural equipment and IoT devices), crop yield statistics, weather patterns, and supply chain metrics. Users can either provide their own datasets or utilise existing data within the TEF infrastructure (see Related Services). The service supports a wide range of AI frameworks and model architectures, allowing for flexible experimentation and rapid iteration. From predictive maintenance of farming equipment to optimising crop management practices, this platform accelerates the development of AI-driven solutions that address critical challenges in agriculture and food science, fostering innovation and efficiency in the industry.

How can the service help you

The AI model training service in TEF infrastructure addresses critical needs in the agrifood sector: it enables the improvement of existing AI models and provides the computational power to run existing algorithms at scale. Before using this service, customers may have developed algorithms but lack the computational capacity to train or run them effectively on large datasets. After utilising this service, they can overcome these limitations.

How the service will be delivered

As a generic example, a company that has developed a predictive system to assist farmers in some agrifood process can improve the system with new data using TEF infrastructure. The customer should provide the data to train the model.

In case the customer provides a model prototype, it should be trained with one of the main machine learning development technologies in the Python language, like scikit-learn, CatBoost, XGBoost, LightGBM, PyTorch, Keras, TensorFlow, etc.

As a more specific example, the company VineGuard Analytics has developed a predictive system that helps wine producers optimise their grape harvesting schedule by forecasting the optimal harvest window 2 weeks in advance.

The system analyses data from:

- Soil moisture sensors.

Service customisation

The AI model training service in TEF infrastructure is already available to execute. Customer requirements are initially captured in an interview (online or face to face) between the service provider and the customer. Then, we can set the time needed to execute it (from approximately one month to several weeks). The service is executed remotely in digital infrastructure located in Vigo (Spain), so the customers could access the service remotely regardless of their location. As a result, the customer will receive documentation about the training process, the AI model itself, and a user manual to know how to use it. The customer should provide the data to train the AI model and, optionally, a model prototype that the customer has already trained. If the customer lacks the data needed, the TEF could provide it through a dataset provision service, like these ones (see Related Services).