Service ID S00260

Location Remote

Design of AI algorithm test scenario

Provider service

Gradiant Technologies

Link to content

https://www.agrifoodtef.eu/services/design-ai-algorithm-test-scenario

Type of Sector

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

Accepted type of products

Data, Software or AI model

Type of service

Test design

Description

This service helps organisations evaluate and validate their AI solutions and datasets in a systematic way. We work with you to design comprehensive test scenarios that match your specific needs and objectives. Whether you want to test your existing AI model's performance, validate a dataset's quality, or compare different machine learning approaches, we follow standard ML development practices to create a structured testing process. This includes designing the testing environment, defining test protocols, establishing evaluation metrics, and setting key parameters. Using TEF's infrastructure, we implement these elements to create test conditions that reflect real-world usage. We can work with both your own AI solutions and datasets or help you select appropriate ones from TEF's resources. This systematic approach ensures you get clear, actionable insights about your AI solution's performance, reliability, and potential areas for improvement. The testing scenarios are designed to be transparent, repeatable, and aligned with industry best practices.

How can the service help you

This service addresses a critical challenge many organisations face: how to properly evaluate AI solutions and datasets before deploying them in real-world applications.

Before using our service, you might be uncertain about your AI model's actual performance, unsure if your dataset is suitable for your needs, or wondering how to systematically test these components. After going through our test scenario design service, you'll have a clear, structured testing framework that helps you know how to test your AI solution to find out how well it performs under specific conditions.

We have the knowledge necessary in AI testing to determine the conditions under which the system should be tested, taking into account the environment in which it will be used.For instance, if you're developing an AI model for crop disease detection, we'll design tests that evaluate its accuracy across different lighting conditions or different growth stages.Then, you will be able to execute these tests and get insights about your solution's strengths and limitations, helping you make informed decisions about deployment readiness or necessary improvements. In addition, this systematic approach eliminates guesswork and provides documented evidence of your AI solution's capabilities, which is particularly valuable for

How the service will be delivered

The test scenario design service can be customised in several ways to match your specific needs. The test protocols can be adapted for different types of AI algorithms, from basic machine learning models to complex deep learning systems. We can design scenarios for various evaluation objectives, such as accuracy assessment, robustness testing, bias detection, or performance benchmarking against existing solutions.

The scope of testing can be adjusted based on your requirements, ranging from focused testing of specific functionality to comprehensive evaluation of the entire AI system. We can incorporate domain-specific testing requirements, such as testing under particular environmental conditions or with specific data distributions relevant to your use case.

However, there is an important limitation to consider: very large-scale testing scenarios might need to be broken down into smaller components that should have their own tests.It's also important to note that while we can design test scenarios for any AI solution, the actual execution of these tests should be performed on another available service (see related services), which would need to be arranged separately.

Service customisation

The service begins with an initial consultation meeting where we discuss your specific needs and objectives. The test scenario design process typically takes between 2-4 weeks, depending on the complexity of your AI solution and testing requirements. The service can be delivered year-round as it primarily involves analytical and design work. Since this is primarily a design service, it can be conducted remotely through virtual meetings and collaborative online sessions, though in-person meetings at our facilities can be arranged if preferred.

As output, you will receive a detailed test scenario documentation package that includes the complete test protocol, evaluation metrics, data requirements, testing environment specifications, and expected outcomes.

This documentation will also outline any specific infrastructure requirements needed for executing the tests. We also provide a feasibility assessment that indicates whether the designed tests can be executed using TEF's infrastructure or if additional resources would be needed. To begin the service, customers need to provide a clear description of their AI solution or dataset, intended use cases, any existing evaluation metrics they're using, and specific aspects they want to test.

If planning to use their own AI model or dataset, customers should also provide technical documentation about these components, including format specifications and any known limitations.