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# Giskard AI training: boost your ML models

3 days (21 hours)

## Presentation

Our Giskard AI training course will teach you how to improve your artificial intelligence models. Giskard is a French open-source solution for improving the quality of artificial intelligence models. By mastering this tool, you'll be able to create and deploy superior AI models.

Our program will enable you to master the functionalities needed to automatically detect performance, bias and safety problems in AI models.

You'll learn how to carry out automatic tests and write appropriate evaluation reports. You'll also be able to ensure that your models comply with [European directives](#).

Our training will enable you to put your knowledge to the test with practical exercises. You'll be able to carry out your own tests on real-life reports, enabling you to write and interpret accurate reports. This will enable you to correct systemic errors and evaluate the performance of your models.

Like all our training courses, it will run on the latest version of the tool: [Giskard 2.8](#).

## Objectives

- Understanding the challenges of AI model testing
- Create tests for your models following a methodology
- Perform tests and draw up reports
- Interpreting reports

## Target audience

- **Data Engineers**
- AI Engineers

## Prerequisites

- Basic programming skills
- Knowledge of AI and machine learning

## OUR GISKARD AI TRAINING PROGRAM

### INTRODUCTION TO GISKARD AI AND IA TESTING

- Introducing Giskard AI
- The challenges of testing and validating AI models
- Overview of AI error types and their systemicity
- Introduction to feedback loops and interactions between components
- Case study on self-amplifying errors in AI

### BEHAVIORAL TESTING METHODS

- Behavioral testing and its relevance in AI
- Metamorphic testing
- Heuristic testing for AI models
- Study of metamorphic relationships such as invariance and monotonicity
- Practical workshop: implementing metamorphic tests on concrete examples

### DRIFT AND PERFORMANCE TESTING

- Conceptual drift and its impact on AI models
- Drift test methods :
  - Kullback-Leibler divergence
  - Kolmogorov-Smirnov test
  - Distance from Wasserstein
- Using the Population Stability Index (PSI) and Trust score
- Performance testing: evaluate model error and calibration score
- Performance comparison between simple and complex models

### EFFICIENCY TESTS AND METRICS FOR DIGITAL FEATURES

- Assessment of carbon footprint and energy consumption
- Inference time analysis as a measure of model efficiency
- Use of metrics for numerical features, such as the Wasserstein distance and the Kolmogorov-Smirnov test

- Practical workshop: implementation of effectiveness tests on real cases
- Interpretation of results

## PRACTICAL USE OF GISKARD AI

- Presentation of open-source resources
- Test methods in the AI model development process
- Practical workshop: using Giskard AI for automatic data generation and metamorphic testing
- Case study: using Giskard AI to identify and correct systemic errors

## CRITICAL TEST INTERPRETATION AND ROBUST TEST STRATEGIES

- Test results and limitations
- Selection of the most appropriate test method according to application requirements
- Practical workshop: writing and understanding specific test scripts in Python
- Discussion on implementing robust test strategies and reducing the risk of error
- Assessing the reliability and performance of AI models under real-life conditions

## Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

## Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

## Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

## Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

## Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

## Sanction

A certificate will be issued to each trainee who completes the course.