Training: Google Cloud
Machine Learning on Google Cloud

Google Cloud

TRANING TERMS

2026-05-11 | 5 days | Kraków / Virtual Classroom
2026-05-18 | 5 days | Warszawa / Virtual Classroom
2026-06-15 | 5 days | Kraków / Virtual Classroom

TRAINING GOALS:

This course introduces the artificial intelligence (AI) and machine learning (ML) offerings on Google Cloud that support the data-to-AI lifecycle through AI foundations, AI development, and AI solutions. It explores the technologies, products, and tools available to build an ML model, an ML pipeline, and a generative AI project. You learn how to build AutoML models without writing a single line of code; build BigQuery ML models using SQL, and build Vertex AI custom training jobs by using Keras and TensorFlow. You also explore data preprocessing techniques and feature engineering.

Course objectives

- Describe the technologies, products, and tools to build an ML model, an ML pipeline, and a Generative AI project.
- Understand when to use AutoML and BigQuery ML.
- Create Vertex AI-managed datasets.
- Add features to the Vertex AI Feature Store.
- Describe Analytics Hub, Dataplex, and Data Catalog.
- Describe how to improve model performance.
- Create Vertex AI Workbench user-managed notebook, build a custom training job, and deploy it by using a Docker container.
- Describe batch and online predictions and model monitoring.
- Describe how to improve data quality and explore your data.
- Build and train supervised learning models.
- Optimize and evaluate models by using loss functions and performance metrics.
- Create repeatable and scalable train, eval, and test datasets.
- Implement ML models by using TensorFlow or Keras.
- Understand the benefits of using feature engineering.
- Explain Vertex AI Model Monitoring and Vertex AI Pipelines.

Audience

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This class is primarily intended for the following participants:

- Aspiring machine learning data analysts, data scientists, and data engineers
- Learners who want exposure to ML and use Vertex AI, AutoML, BigQuery ML, Vertex AI Feature Store, Vertex AI Workbench, Dataflow, Vertex AI Vizier for hyperparameter tuning, and TensorFlow/Keras

CONSPECT:

- Introduction to AI and Machine Learning on Google Cloud
  - Recognize the AI/ML framework on Google Cloud.
  - Identify the major components of Google Cloud infrastructure.
  - Define the data and ML products on Google Cloud and how they support the data-to-AI lifecycle.
  - Build an ML model with BigQueryML to bring data to AI.
  - Define different options to build an ML model on Google Cloud.
  - Recognize the primary features and applicable situations of pre-trained APIs, AutoML, and custom training.
  - Use the Natural Language API to analyze text.
  - Define the workflow of building an ML model.
  - Describe MLOps and workflow automation on Google Cloud.
  - Build an ML model from end-to-end by using AutoML on Vertex AI.
  - Define generative AI and large language models.
  - Use generative AI capabilities in AI development.
  - Recognize the AI solutions and the embedded generative AI features.
- Launching into Machine Learning
  - Describe how to improve data quality.
  - Perform exploratory data analysis.
  - Build and train supervised learning models.
  - Describe AutoML and how to build, train, and deploy an ML model without writing a single line of code.
  - Describe BigQuery ML and its benefits.
  - Optimize and evaluate models by using loss functions and performance metrics.
  - Mitigate common problems that arise in machine learning.
  - Create repeatable and scalable training, evaluation, and test datasets.
- TensorFlow on Google Cloud
  - Create TensorFlow and Keras machine learning models.
  - Describe the TensorFlow main components.

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- Use the tf.data library to manipulate data and large datasets.
- Build a ML model that uses tf.keras preprocessing layers.
- Use the Keras Sequential and Functional APIs for simple and advanced model creation.
- Train, deploy, and productionalize ML models at scale with the Vertex AI Training Service.

- Feature Engineering
  - Describe Vertex AI Feature Store.
  - Compare the key required aspects of a good feature.
  - Use tf.keras.preprocessing utilities for working with image data, text data, and sequence data.
  - Perform feature engineering by using BigQuery ML, Keras, and TensorFlow.
- Machine Learning in the Enterprise
  - Understand the tools required for data management and governance.
  - Describe the best approach for data preprocessing: From providing an overview of
  - Dataflow and Dataprep to using SQL for preprocessing tasks.
  - Explain how AutoML, BigQuery ML, and custom training differ and when to use a particular framework.
  - Describe hyperparameter tuning by using Vertex AI Vizier to improve model performance.
  - Explain prediction and model monitoring and how Vertex AI can be used to manage ML models.
  - Describe the benefits of Vertex AI Pipelines.
  - Describe best practices for model deployment and serving, model monitoring, Vertex AI Pipelines, and artifact organization.

REQUIREMENTS:

To get the most out of this course, participants should have:

- Some familiarity with basic machine learning concepts
- Basic proficiency with a scripting language, preferably Python

Difficulty level

CERTIFICATE:

The participants will obtain certificates signed by Google Cloud.

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TRAINER:

Authorized Google Cloud Trainer.

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