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Professional Machine Learning Engineer

Course#:ML-PE
Duration:5 Days
Price:0.00

Course Description

We are excited to announce the launch of the Professional Machine Learning Engineer certification. This certification is for experienced professionals who want to demonstrate their expertise designing and creating scalable ML solutions through an understanding of training, retraining, deploying, scheduling, monitoring, and improving ML models using Google Cloud technologies. This individual is expected to be technically proficient in all aspects of model architecture, data pipeline interaction, and metrics interpretation, and is familiar with application development, infrastructure management, data engineering, and security.

Objectives

Frame a business use case as a machine learning problem.
Describe how to improve data quality.
Perform exploratory data analysis.
Build and train supervised learning models.
Optimize and evaluate models using loss functions and performance metrics.
Create repeatable and scalable training, evaluation, and test datasets.
Implement machine learning models using Keras and TensorFlow 2.x.
Understand the impact of gradient descent parameters on accuracy, training speed, sparsity, and generalization.
Represent and transform features.
Train models at scale with AI Platform.

Audience

Aspiring machine learning data scientists and engineers.
Machine learning scientists, data scientists, and data analysts who want exposure to machine learning in the cloud using TensorFlow 2.x and Keras.

Data engineers.

Prerequisites

Some familiarity with basic machine learning concepts.
Basic proficiency with a scripting language - Python preferred.

Content

The course includes presentations, demonstrations, and hands-on labs.

Module 1: How Google Does Machine Learning

Develop a data strategy around machine learning.
Examine use cases that are then reimagined through an ML lens.
Recognize biases that ML can amplify.
Leverage Google Cloud Platform tools and environment to do ML.
Learn from Googles experience to avoid common pitfalls.
Carry out data science tasks in online collaborative notebooks.
Invoke pre-trained ML models from Cloud AI Platform.

Module 2: Launching into Machine Learning

Describe how to improve data quality.
Perform exploratory data analysis.
Build and train supervised learning models.
Optimize and evaluate models using loss functions and performance metrics.
Mitigate common problems that arise in machine learning.
Create repeatable and scalable training, evaluation, and test datasets.

Module 3: Introduction to TensorFlow 2.x

Create TensorFlow 2.x and Keras machine learning models.
Describe Tensorflow 2.x key components.
Use the tf.data library to manipulate data and large datasets.
Use the Keras Sequential and Functional APIs for simple and advanced model creation.
Train, deploy, and productionalize ML models at scale with Cloud AI Platform.

Module 4: Feature Engineering

Compare the key required aspects of a good feature.
Combine and create new feature combinations through feature crosses.
Perform feature engineering using BQML, Keras, and TensorFlow 2.x.
Understand how to preprocess and explore features with Cloud Dataflow and Cloud Dataprep.
Understand and apply how TensorFlow transforms features.

Module 5: Art and Science of Machine Learning

Optimize model performance with hyperparameter tuning.
Experiment with neural networks and fine-tune performance.
Enhance ML model features with embedding layers.