

Description

Forecasting is an entry point to applying machine learning across many industries. Whether it's optimizing the supply chain through better product demand forecasts, allocating computing resources more effectively by predicting web server traffic, or saving lives by staffing hospitals to meet patient needs, there are few domains where investments into accurate forecasts don't return their investments quickly. This course teaches you to create and deploy an accurate custom forecasting model using Amazon SageMaker.

Intended Audience

This course is intended for:

- Developers and engineers
- Data scientists

Course Objectives

In this course, you will learn how to:

- Train a neural network-based time series model to forecast demand
- Use Amazon SageMaker to build, train, and deploy highly accurate time-series forecasting model (LSTNet) and deploy it in production
- Use built-in algorithms to apply forecasting to your own data via the DeepAR Amazon algorithm
- Train the state-of-the-art LSTNet forecasting algorithm using MXNet and Gluon frameworks

Prerequisites

We recommend that attendees of this course have the following prerequisites:

- An AWS account and IAM user with full access to the following services: AWS IAM, Amazon S3, Amazon SageMaker, AWS Cloud9, and an Amazon EC2 P2 or P3 GPU limit of at least 1 instance
- Familiarity with AWS services (AWS IAM, Amazon S3, Amazon EC2, etc.), Python, and machine learning concepts

Delivery Method

This course is delivered through a mix of:

- Classroom training
- Hands-on labs

Hands-On Activity

This course allows you to test new skills and apply knowledge to your working environment through a variety of practical exercises.

Duration

1 day

Course Outline

This course covers the following concepts:

- Module 1: Introduction to Amazon SageMaker and deep learning libraries

- Introduction to Amazon SageMaker
 - Introduction to the MXNet and Gluon deep learning libraries
- **Module 2: Using Amazon algorithms for time series forecasting**
 - Introduction to DeepAR Forecasting
 - Forecasting multivariate time series data using the Amazon SageMaker built-in algorithms (DeepAR)
 - DeepAR hyperparameter challenge
- **Module 3: Using the Gluon deep learning API to implement a state-of-the-art framework**
 - Introduction to modeling long- and short-term temporal patterns with deep neural networks (LSTNet)
 - Implementing LSTNet via the Gluon API
 - Gluon coding challenge
- **Module 4: Deploying your algorithm to production**
 - Deploy your LSTNet model using Amazon SageMaker for inference at scale