

MACHINE LEARNING: CREATING PREDICTIVE MODELS WITH NO CODE

Juwonlo Siyanbade ¹, Ayooluwa Bolaji ²

¹ Data Science and Machine Learning Department, Red River College, Winnipeg, MB R3N 1K9, Canada; jsiyabade@rrc.ca

²

INTRODUCTION

The preparation of data, training of a model, and deployment of a predictive service can be difficult. Azure Machine Learning (ML) is a cloud-based solution that can simplify these time-consuming and sometimes complicated tasks. This solution helps data scientists to use scalable cloud-based computing resources to handle big data while only incurring costs when used.

This post will provide foundational insight into tools that you can use to create ML models without Python or R. Before we dive in, there are a few things we need to get to have an effective learning experience.

These include:

Basic knowledge of machine learning.

Access and ability to navigate Microsoft Azure Portal.

AZURE MACHINE LEARNING STUDIO

Azure Machine Learning Studio is the web portal for machine learning solutions in Azure. (Figure 1.1). It has a wide range of features and functionalities that include data preparation, model training, publication of predictive services, and usage monitoring for data scientists. You must assign the workspace you created in the Azure portal to Azure Machine Learning studio before using the web portal.

The tools/ functionalities this article will be focusing on are Automated ML, and Designer under the Author section of Azure studio.

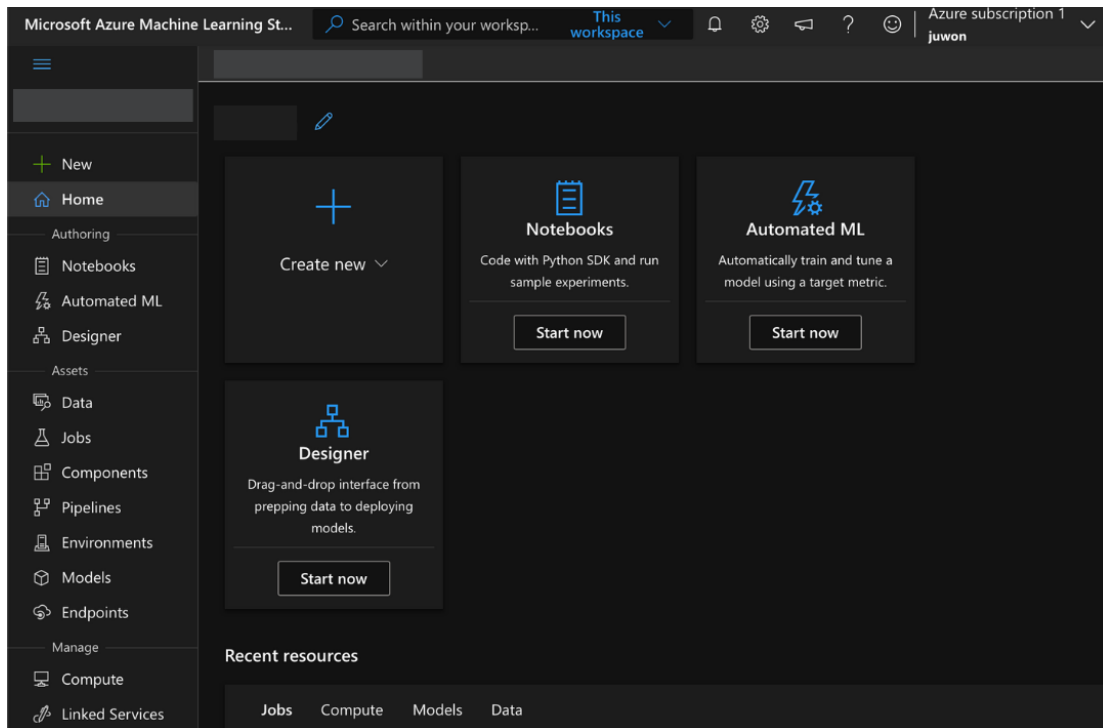


Figure 1.1 Azure Machine Learning Studio Interface

AUTOMATED MACHINE LEARNING (AUTO ML)

Auto ML includes features that automatically test various pre-processing methods and model-training algorithms concurrently. These automated tools use the computing power of the cloud to search for the top-performing supervised machine-learning model peculiar to your data (Figure 1.2).

Without having a strong background in programming or data science, a user can train models using auto ML. Additionally, Auto ML provides a way to save time and resources for those with a background in data science and programming by automating algorithm selection and hyperparameter tuning.

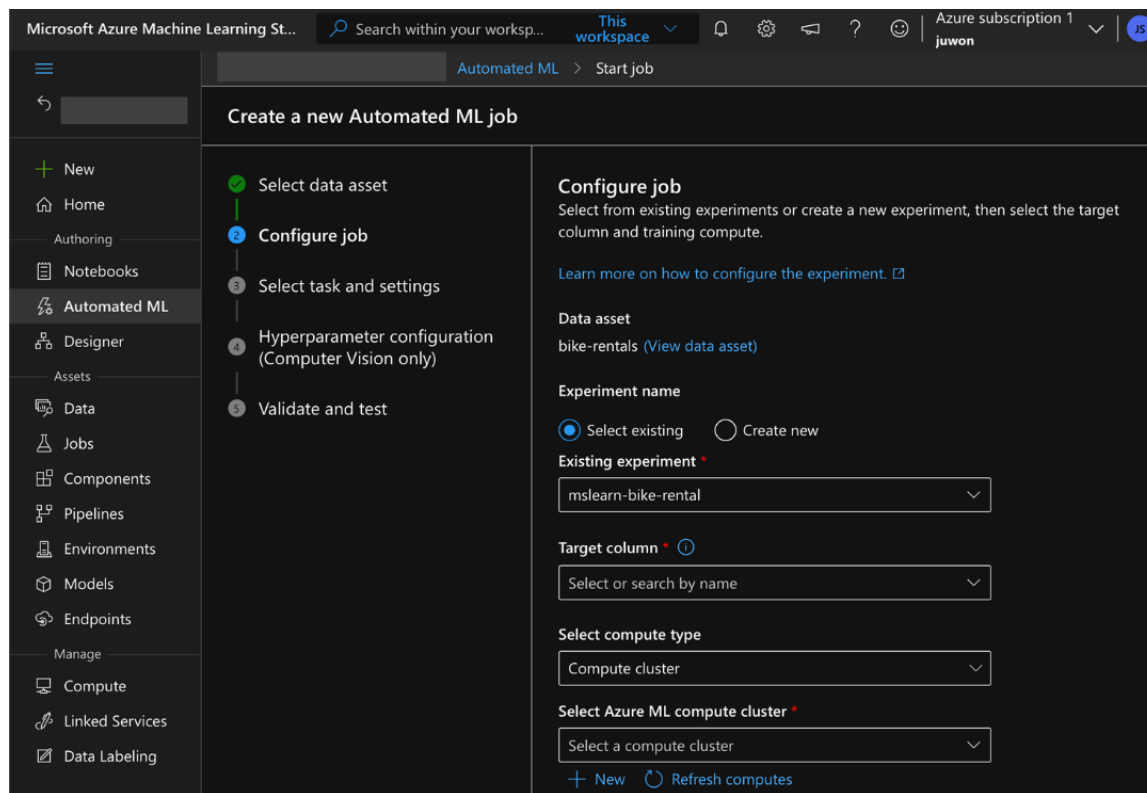


Figure 1.2 Automated Machine Learning Job Interface

AZURE MACHINE LEARNING DESIGNER

Azure ML Designer uses a visual interface based on a pipeline to train test and deploy ML models (Figure 1.3). The drag-and-drop interface utilizes specified inputs and outputs that are reusable, shareable, and version controlled. The designer has a navigation panel and a canvas. To use the Designer, select the components or building blocks required for your model, set them on your canvas, connect them, and start a machine learning job.

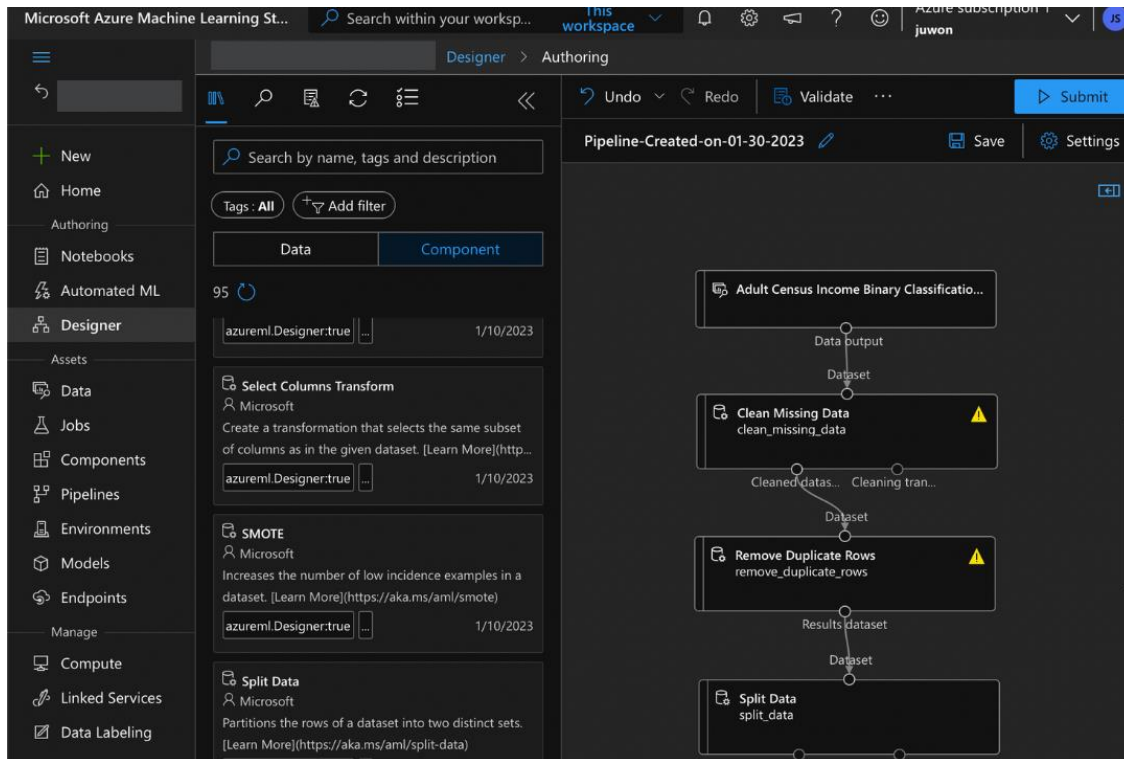


Figure 1.3 Azure Machine Learning Designer Interface

STEPS IN CREATING A MODEL USING AZURE STUDIO

The Auto ML/ Designer processes are very similar to machine learning steps.

- i. Prepare data: Data preparation involves identifying the features and labels of a dataset, data cleaning and transforming it as necessary.
- ii. Train model: Train the model by dividing the data into a training set and a validation set. Use the training data set to train a machine learning model and the validation data set to evaluate the performance of the model.
- iii. Evaluate performance: Determine how well the predictions of the model match the actual labels to assess performance.
- iv. Deploy a predictive service: Once a machine learning model has been trained, it can be published as an application on a server or device for use by others.

For practical steps to implementing Auto ML and Azure ML Designer, please refer to Microsoft's Learning Path: <https://learn.microsoft.com/en-us/training/paths/create-no-code-predictive-models-azure-machine-learning/>