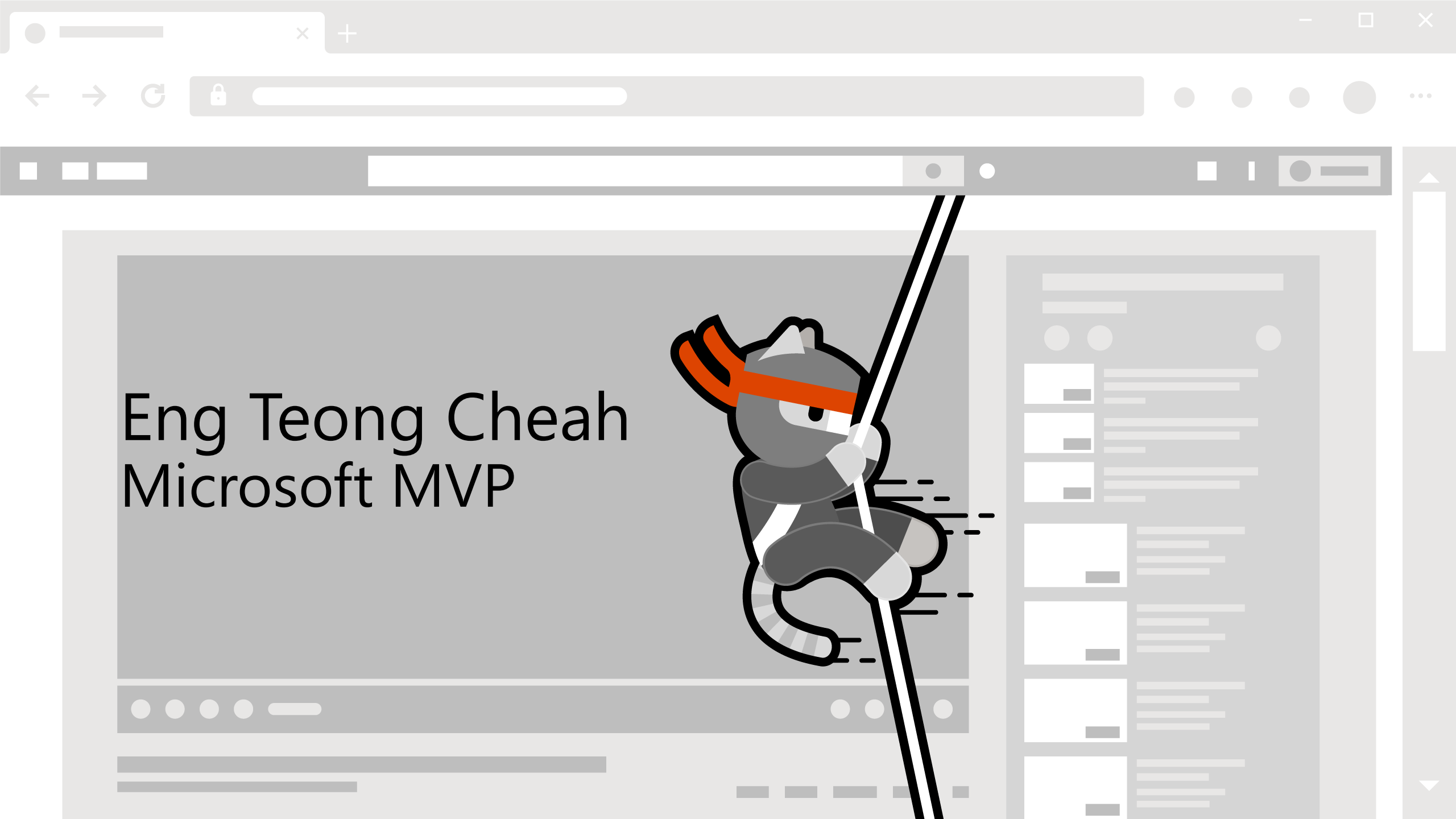


Automated Machine Learning



Eng Teong Cheah
Microsoft MVP

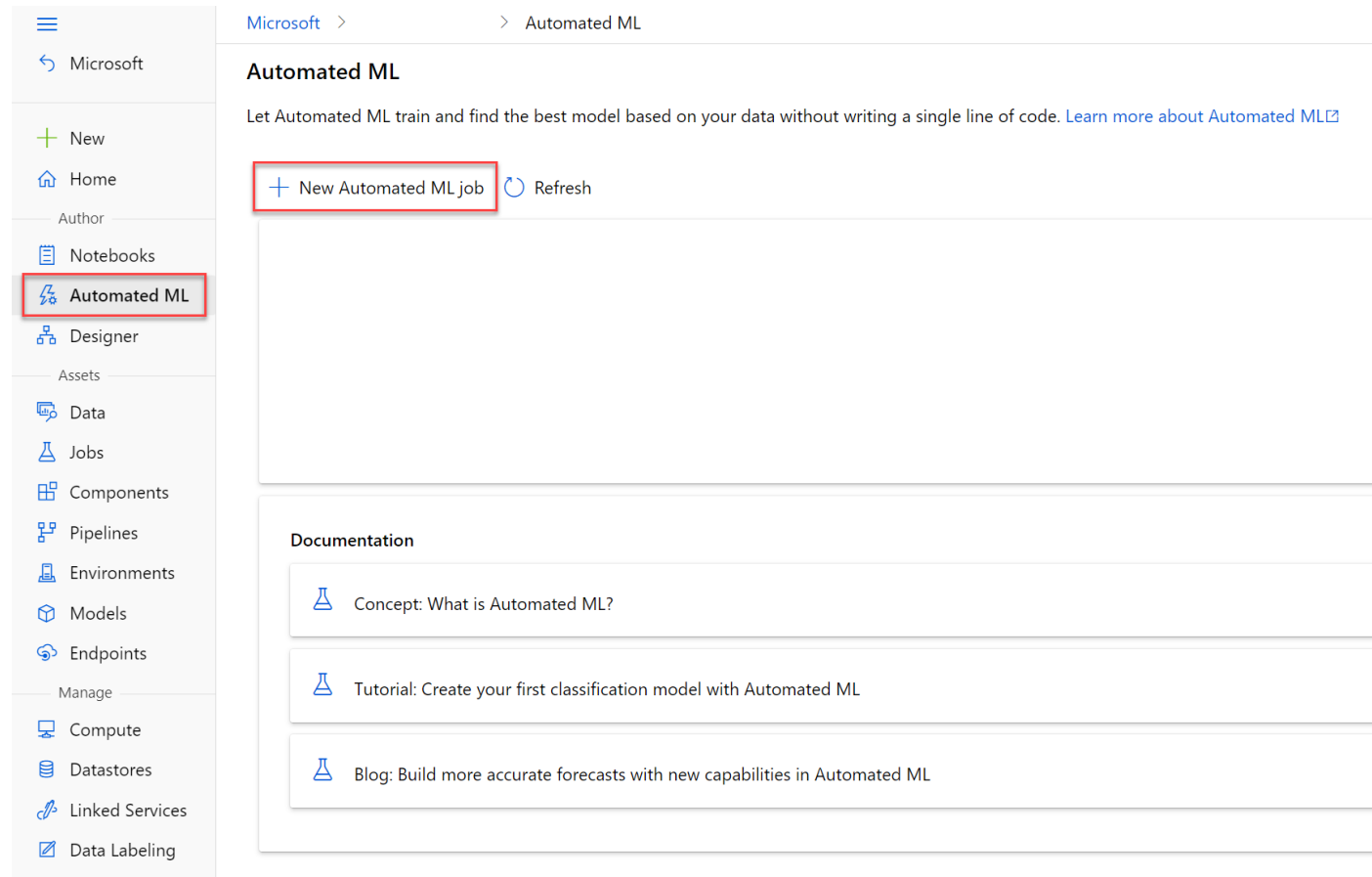
Automated Machine Learning

Azure Machine Learning includes an *automated machine learning* capability that automatically tries multiple pre-processing techniques and model-training algorithms in parallel. These automated capabilities use the power of cloud compute to find the best performing supervised machine learning model for your data.

Automated machine learning allows you to train models without extensive data science or programming knowledge. For people with a data science and programming background, it provides a way to save time and resources by automating algorithm selection and hyperparameter tuning.

Automated Machine Learning

You can create an automated machine learning job in Azure Machine Learning studio.



Automated Machine Learning

In Azure Machine Learning, operations that you run are called *jobs*. You can configure multiple settings for your job before starting an automated machine learning run. The run configuration provides the information needed to specify your training script, compute target, and Azure ML environment in your run configuration and run a training job.

The screenshot shows the 'Create a new Automated ML job' configuration page in the Azure Machine Learning portal. The left sidebar contains navigation links: Microsoft, New, Home, Author, Notebooks, Automated ML (selected), Designer, Assets, Data, Jobs, Components, Pipelines, Environments, Models, Endpoints, Manage, Compute, Datastores, Linked Services, and Data Labeling. The main content area is titled 'Create a new Automated ML job' and features a progress bar with five steps: 'Select data asset' (completed), 'Configure job' (active), 'Select task and settings', 'Hyperparameter configuration (Computer Vision only)', and 'Validate and test'. The 'Configure job' step is expanded, showing the following configuration options: 'Data asset' (bike-rentals), 'Experiment name' (radio buttons for 'Select existing' and 'Create new'), 'Existing experiment' (dropdown menu showing 'mslearn-bike-rental'), 'Target column' (dropdown menu showing 'rentals (Integer)'), 'Select compute type' (dropdown menu showing 'Compute cluster'), and 'Select Azure ML compute cluster' (dropdown menu showing 'Select a compute cluster'). At the bottom of the configuration area, there are links for '+ New' and 'Refresh computes'. The bottom of the page has three buttons: 'Back', 'Next', and 'Cancel'.

Microsoft > Automated ML > Start job

Create a new Automated ML job

☒ Select data asset

☒ **Configure job**

☐ Select task and settings

☐ Hyperparameter configuration (Computer Vision only)

☐ Validate and test

Configure job

Select from existing experiments or create a new experiment, then select the target column and training compute.

[Learn more on how to configure the experiment.](#)

Data asset
bike-rentals ([View data asset](#))

Experiment name
☒ Select existing ☐ Create new

Existing experiment *
mslearn-bike-rental

Target column * ⓘ
rentals (Integer)

Select compute type
Compute cluster

Select Azure ML compute cluster *
Select a compute cluster

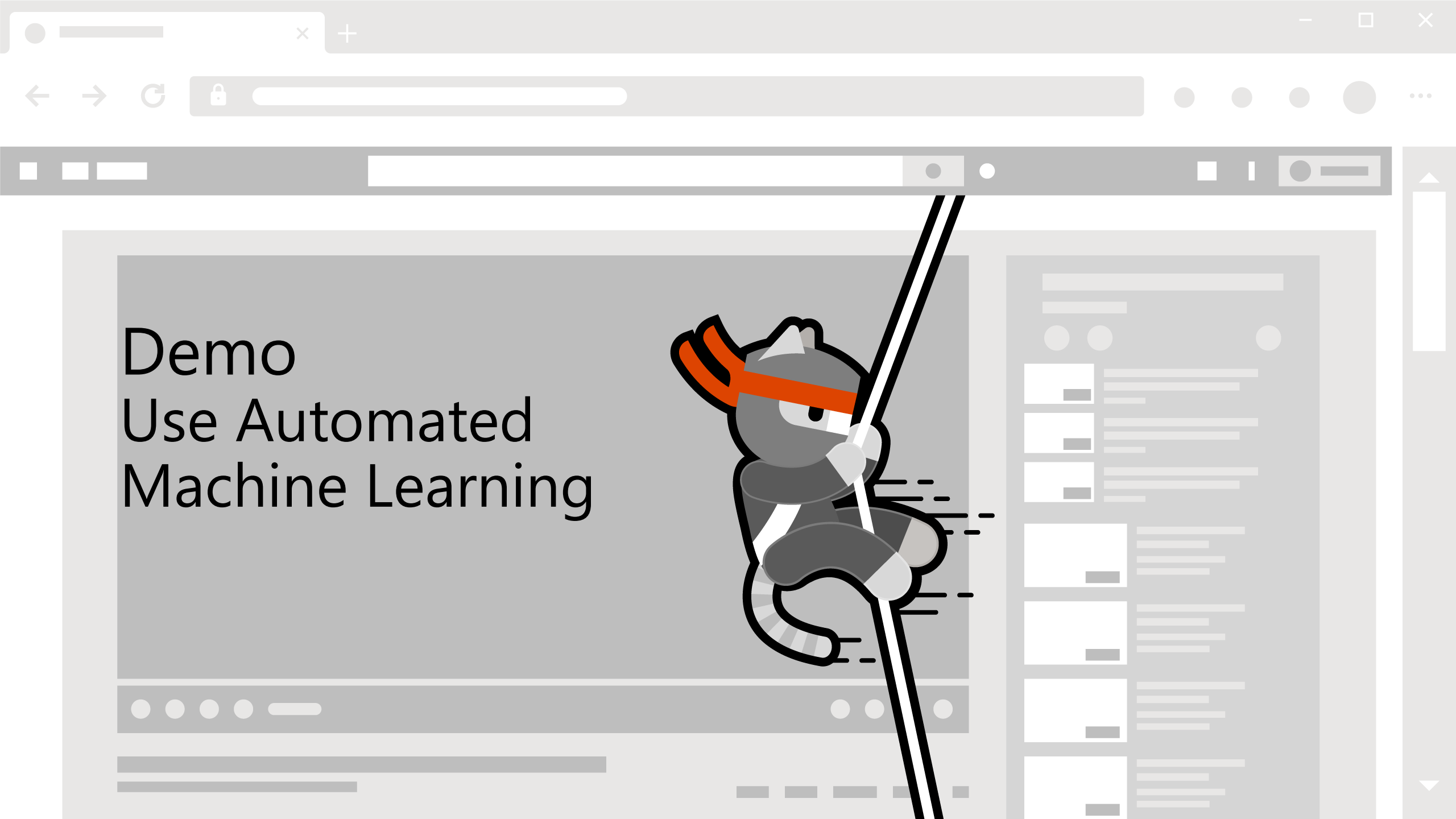
[+ New](#) [Refresh computes](#)

[Back](#) [Next](#) [Cancel](#)

Understand the AutoML process

You can think of the steps in a machine learning process as:

- **Prepare data:** Identify the features and label in a dataset. Pre-process, or clean and transform, the data as needed.
- **Train model:** Split the data into two groups, a training and a validation set. Train a machine learning model using the training data set. Test the machine learning model for performance using the validation data set.
- **Evaluate performance:** Compare how close the model's predictions are to the known labels.
- **Deploy a predictive service:** After you train a machine learning model, you can deploy the model as an application on a server or device so that others can use it.



Demo
Use Automated
Machine Learning

References

Microsoft Docs