

# Slides That are used a thumbnails in the `github/statmike/vertex-ai-mlops` repository

Notes:

- Do not insert new slides or reorder without updating the notebooks. The slides are exported to numbered .png files that are referenced in the notebooks

Process

- Save as PDF
- Copy to `github/statmike/vertex-ai-mlops/architectures/thumbnails`
- Convert PDF to PNG images
  - Use Notebook: `/architectures/Create Images.ipynb`
  - OUTPUT:
    - To: `/architectures/thumbnails/plain`
    - To: `/architectures/thumbnails/playbutton`



# Vertex AI



## Vertex AI for Machine Learning Operations

👋 I'm Mike

I want to share and enable [Vertex AI](#) from [Google Cloud](#) with you. The goal here is to share a comprehensive set of end-to-end workflows for machine learning that each cover the range of data to model to serving and managing - even automating the flow. Regardless of your data type, skill level or framework preferences you will find something helpful here.

### Considerations

#### Data Type

- Tables: Tabular, structured data in rows and columns
- Language: Text for translation and/or understanding
- Vision: Images
- Video

#### Convenience Level

- Use Pre-Trained APIs
- Automate building Custom Models
- End-to-end Custom ML with core tools in the framework of your choice

#### Framework Preferences

- [Scikit-learn](#)
- [XGBoost](#)
- [Tensorflow](#)
- [Pytorch](#)
- More!

### Overview

This is a series of workflow demonstrations that use the same data source to build and deploy the same machine

# Introduction



# Vertex AI



## Environment Setup



# Vertex AI



## Data Source



# Vertex AI



## End-To-End: No Code



# Vertex AI



## End-To-End: Interactive Code



# Vertex AI



## End-To-End: Pipeline Orchestration



# BigQuery Machine Learning

Vertex AI



End-To-End with SQL





# BigQuery Machine Learning

Vertex AI



## BQML to Online Predictions



# Custom Training



Vertex AI



# Custom Training in Notebook



# Custom Training



Vertex AI



Managed Tensorboard (**Setup**)



# Custom Training



Vertex AI

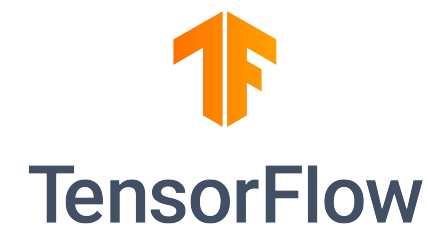


Custom Job

With Python File



# Custom Training



Vertex AI



Custom Job

With Python Source Distribution



# Custom Training



Vertex AI

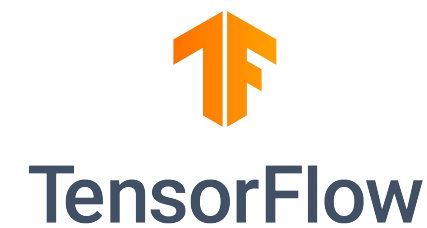


# Training Pipeline

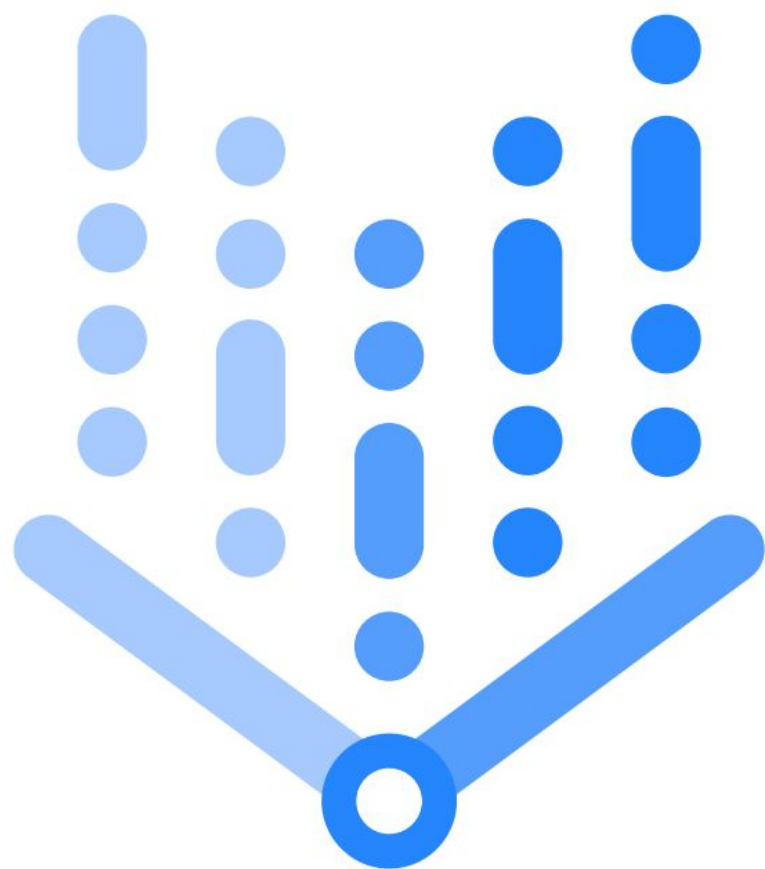
With Python File



# Custom Training



Vertex AI

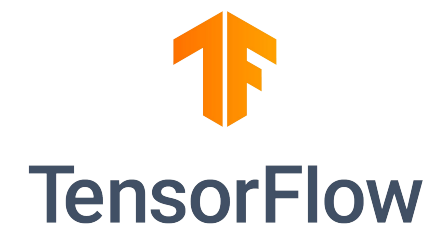


## Training Pipeline

With Python Source Distribution



# Custom Training



Vertex AI



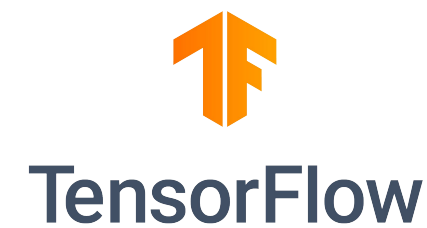
# Hyperparameter Tuning Job

With Python File





# Custom Training



Vertex AI



# Hyperparameter Tuning Job

With Python Source Distribution



Vertex AI



Vizier Optimization Service



# Vertex AI



# Feature Store