

Twitter Thread by Priyanka Vergadia



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Day 14 #31DaysofML

■ How to pick the right #GoogleCloud #MachineLearning tool for your application?

Answer these questions

■ What's your teams ML expertise?

■ How much control/abstraction do you need?

■ Would you like to handle the infrastructure components?



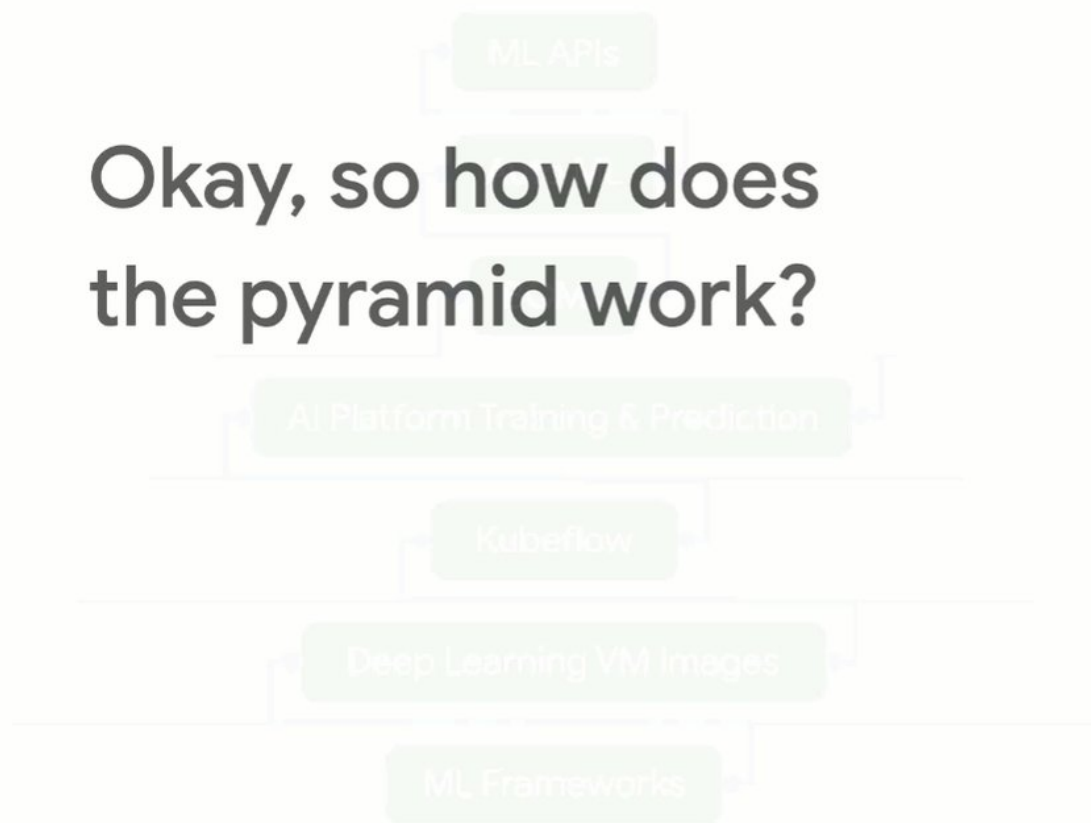
[@SRobTweets](#) created this pyramid to explain the idea.

As you move up the pyramid, less ML expertise is required, and you also don't need to worry as much about the infrastructure behind your model.

To learn more watch this video ■ <https://t.co/EqJNDmTfhV>

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Okay, so how does the pyramid work?



@SRobTweets If you're using Open source ML frameworks (#TensorFlow) to build the models, you get the flexibility of moving your workloads across different development & deployment environments. But, you need to manage all the infrastructure yourself for training & serving

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```
[*]: from tensorflow.keras.layers import Dense  
from tensorflow.keras.models import Sequential
```

```
[ ]:
```

@SRobTweets Deep Learning VMs provide managed, click-to-deploy VMs for processing data & training the model

- Popular ML frameworks pre-installed
- Reduces the overhead of managing & allocating compute & storage required
- But you figure out how you'll serve those models

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← New Deep Learning VM deployment

Deployment name

tensorflow-1

Zone

GPU availability is limited to certain zones. [Learn more](#)

us-west1-b

Machine type

2 vCPUs

13 GB memory

[Customize](#)

GPUs

The number of GPU dies is linked to the number of CPU cores and memory selected for this instance. For the current configuration, you can select no fewer than 1 GPU die of this type. [Learn more](#)

Number of GPUs

1

GPU type

NVIDIA Tesla K80

Machines with GPUs can't migrate on host maintenance

Framework

Choose the primary machine learning framework you will be using. If the library you would like to use is not listed, choose the base image, which provides core packages.

TensorFlow 1.14 (Intel(R) optimized, with Intel(R) MKL-DNN/MKL and CUD...

GPU

☐ Install NVIDIA GPU driver automatically on first startup?

I want to use NVIDIA GPUs with this image. Please fetch NVIDIA GPU drivers from a third-party location and install them on my behalf (requires internet access on the VM).

Access to the Jupyter Lab

☐ Enable access to JupyterLab via URL instead of SSH. (Beta)

Enable this feature to access the running JupyterLab environment through a URL instead of SSH tunneling. Anyone who has been granted the Editor or Owner role in your GCP project can access this URL. This feature is available only in the US, EU and Asia.

Boot Disk

Boot disk type

Standard Persistent Disk

Boot disk size in GB

100

Networking

Network

default

Subnetwork

default (10.138.0.0/20)

External IP

Ephemeral



Deep Learning VM overview

Solution provided by Google Click to Deploy

\$295.20 per month estimated

Effective hourly rate \$0.404 (730 hours per month)

[Details](#)

Software

Operating System

Debian (9)

Documentation

[Official Documentation](#)

[StackOverflow: Deep Learning VM](#)

[Google Group: Deep Learning VM](#)

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@SRobTweets Kubeflow - OS project for deploying ML workloads on #Kubernetes

- Helps configure a multi-step ML pipeline including pre-processing data, training & serving the model
- Run it on-premise or on any cloud
- You'll still need to configure where it's managed

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Documentation

About

Getting Started**Getting Started
with Kubeflow**

Cloud Installation

Kubernetes
InstallationWorkstation
Installation

Use Cases

Jupyter Notebooks

Pipelines

Fairing

Kubeflow on Azure

Kubeflow on AWS

Kubeflow on GCP

Components of
KubeflowTutorials, Samples,
and Shared
ResourcesFurther Setup and
Troubleshooting

Upgrading Kubeflow

Reference

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Getting Started with Kubeflow

Overview

Before you begin

This document provides information about setting up Kubeflow in various environments.

It's important that you have some knowledge of the following systems and tools:

- [Kubernetes](#)
- [Kustomize](#)

If you plan to deploy Kubeflow on an existing Kubernetes cluster, review these [Kubernetes system requirements](#).

Installing Kubeflow

There are various ways to install Kubeflow. Choose one of the following options to suit your environment (desktop or server, existing Kubernetes cluster or public cloud):

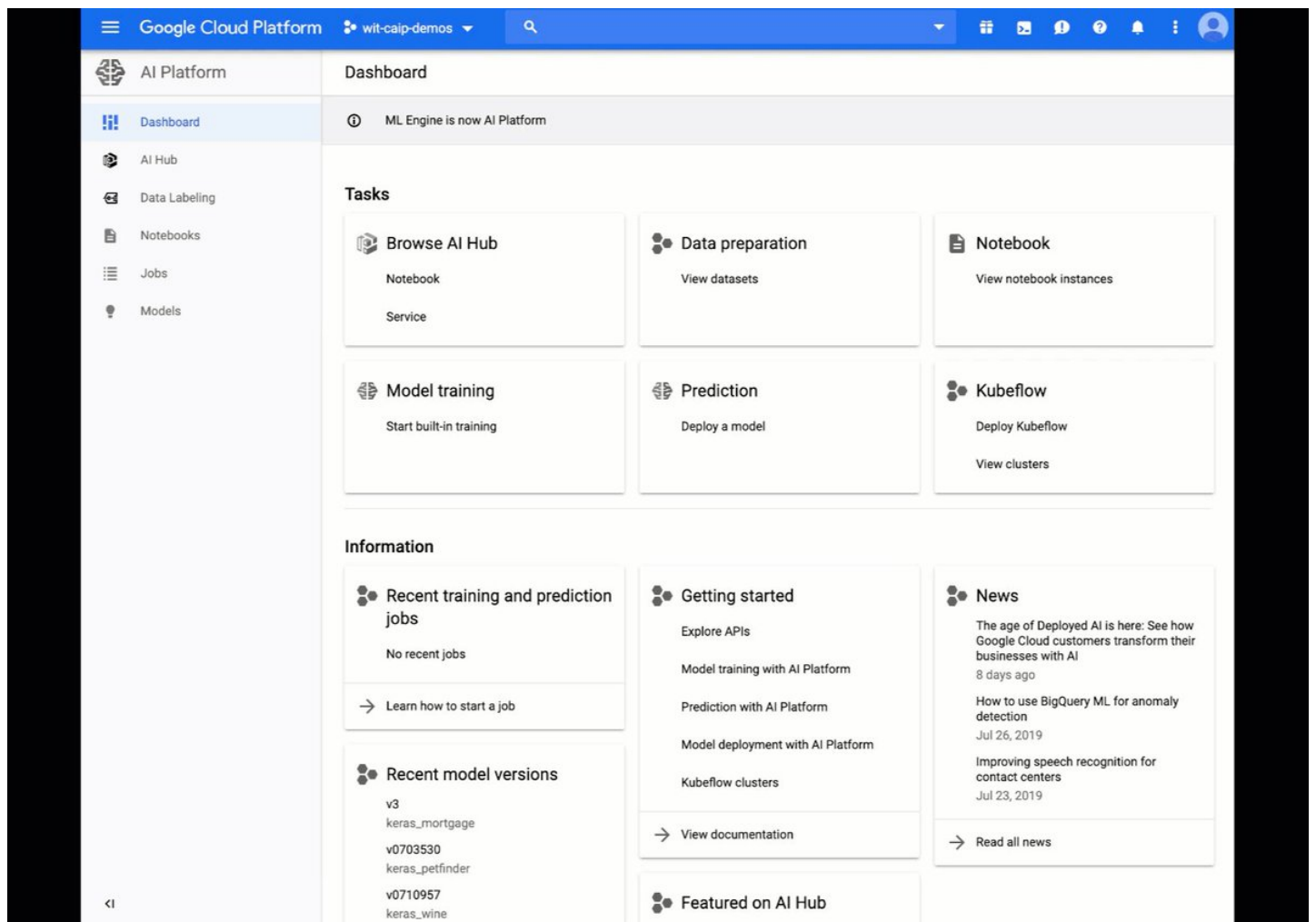
- Installing Kubeflow on a **desktop** or **server**:
 - To use Kubeflow on Windows, follow the [Windows deployment guide](#).
 - To use Kubeflow on MacOS, follow the [MacOS deployment guide](#).
 - To use Kubeflow on Linux, follow the [Linux deployment guide](#).
- Installing Kubeflow on a **existing Kubernetes cluster** or a **public cloud**:
 - Installing Kubeflow on a Kubernetes cluster, follow the [guide to deploying Kubeflow on Kubernetes](#).
 - To use Kubeflow on Google Cloud Platform (GCP) and Kubernetes Engine

[@SRobTweets](#) AI Platform - managed service for all custom model needs

■ Includes tools for training & serving models, hosted notebooks, a data labeling service & more

■ Eg: take notebook code running on-premise with Kubeflow, and run it on GCP with AI Platform Notebooks

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@SRobTweets BQML: Brings the power of ML closer to where the data is analyzed & make it accessible to data analysts

- You don't have to write any of the underlying model code
- Choose model type
- Simple SQL queries to create & train the model & make predictions

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The screenshot shows the Google Cloud Platform BigQuery interface. The left sidebar contains a navigation menu with options like Query history, Saved queries, Job history, Transfers, Scheduled queries, BI Engine, and Resources. The Resources section is expanded, showing a search bar and a list of datasets under the 'sara-bqml' project, including 'bikes', 'candy', 'chocolate_ranking', 'cards', 'cpu_performance', 'diabetes', 'energy', 'wine', 'red', 'red_quality', 'redwine_quality', 'white', 'white_quality', 'white_test_data', and 'sara-bigquery'.

The main area is the Query editor, which contains a SQL query to create or replace a model named 'chocolate_pct'. The query is as follows:

```
1 CREATE OR REPLACE MODEL `sara-bqml.chocolate_pct`
2 OPTIONS
3   (model_type='linear_reg',
4     labels=['winpercent']) AS (
5   SELECT
6     chocolate,
7     fruity,
8     caramel,
9     peanutyalmondy,
10    nougat,
11    crispedricewafer,
12    hard,
13    bar,
14    pluribus,
15    sugarpercent,
16    pricepercent,
17    winpercent
18  FROM
19    `sara-bqml.chocolate_ranking`)
```

Below the query editor, there are buttons for Run, Save query, Save view, Schedule query, and More. A status message indicates that the query will process 8 KB (ML) when run.

The 'chocolate_ranking' table schema is displayed below the query editor. It has the following fields:

Field name	Type	Mode	Description
competitorname	STRING	NULLABLE	
chocolate	INTEGER	NULLABLE	
fruity	INTEGER	NULLABLE	
caramel	INTEGER	NULLABLE	
peanutyalmondy	INTEGER	NULLABLE	
nougat	INTEGER	NULLABLE	
crispedricewafer	INTEGER	NULLABLE	
hard	INTEGER	NULLABLE	
bar	INTEGER	NULLABLE	

@SRobTweets AutoML democratizes ML to build custom ML models regardless of ML expertise.

- Use the UI to upload the data - images, video, text, or structured
- Press "train" button
- Model is available for prediction via an API
- No need to deploy it yourself

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AutoML Vision BETA

clouds_2
+ ADD IMAGES
|| LABEL STATS
⌘ EXPORT DATA

sara-vcn

☰

🔍

IMAGES

TRAIN

EVALUATE

PREDICT

All images1821

Labeled1821

Unlabeled0

Type to filter...

altocumulus203

altostratus134

cirrus496

cumulonimbus453

cumulus535

Add label

Type to filter images...

☑ Select all images

cirrus

cirrus

altocumulus

altocumulus

altocumulus

altocumulus

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@SRobTweets ML APIs: Easiest and fastest way to get started with AI

- Don't need ML engineers or data scientists just some developers
- Simple API request to pre-trained models for images, video, speech, text & translation
- No need to supply any training data yourself

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AI & Machine Learning Products Contact sales Get started for free

NATURAL LANGUAGE

Natural Language API demo

Try the API

Besides her innate athletic ability, Biles' willingness to take risks in the face of failure has undoubtedly helped her become one of the greatest gymnasts in history.

ANALYZE

[See supported languages](#)

How AutoML Natural Language works

```
graph LR; Documents[Orders, Receipts, Invoices, Notes, Info Requests, Complaints] --> Model[AutoML Natural Language]; Model --> Results[Bar Chart, Line Graph, +1.0]
```

@SRobTweets ML APIs → <https://t.co/XdR6oS5Xrc>

AutoML → <https://t.co/vbmIBiciLF>

BQML → <https://t.co/Hs8zz57pcn>

AI Platform → <https://t.co/zyYRq4HzT5>

Kubeflow → <https://t.co/DNX7MftUb3>

Deep Learning VMs → <https://t.co/9MG9KntYXb>

Tensorflow → <https://t.co/G2xLT68gRX>