

Advanced MLOps on Google Cloud

WELCOME!



**WELLS
FARGO**





Your ASL Team



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Questions or Concerns?

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Let's get to know each other



Benoit Dherin

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ASL ML Engineer

- Machine Learning Engineer at the ASL focused on teaching and developing courses
- Machine learning research aiming at understanding model training, and improving reliability with DeepMind and Google Brain
- French/Swiss mathematician passionate about machine learning

Your turn!

- Name, Role
- Experience (Python, ML, Docker/K8, KubeFlow, TFX)
- Expectations for this course

Agenda for this course



Each topic above is broken up into modules (~2-3 hours) with 2 parts:

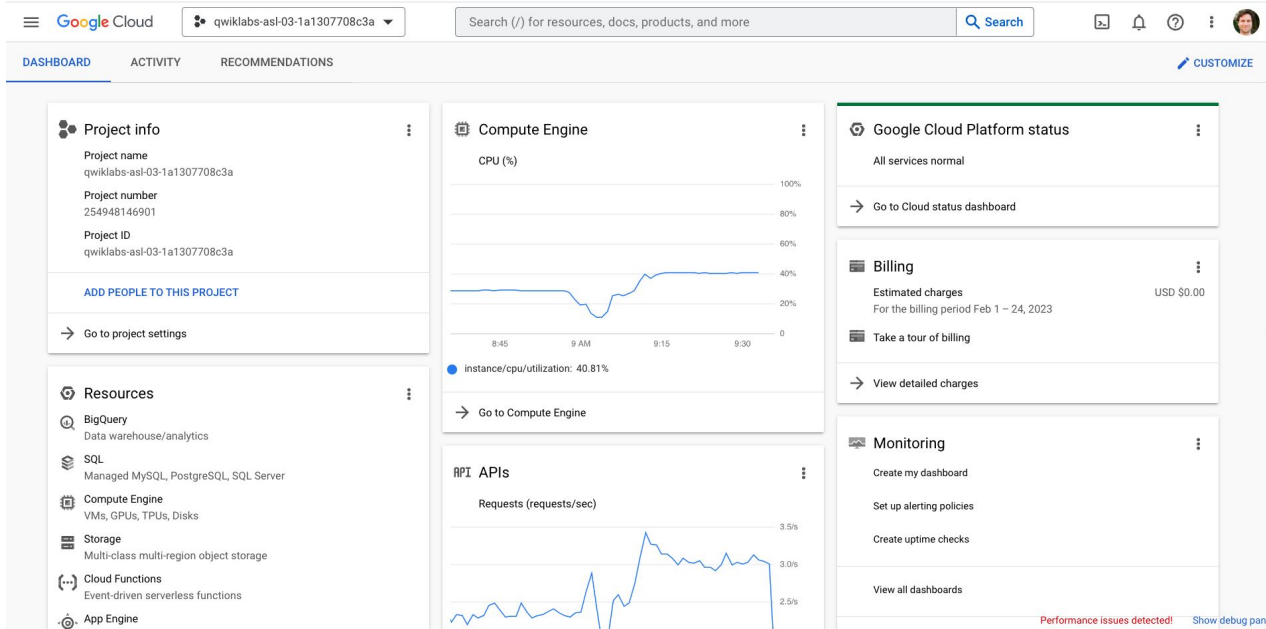
- **Module part I:** 30 mins to 1h lecture
- **Module part II:** 1 to 2h lab time with exercises on the lecture

We have **individual one-on-one time during the labs** for your questions. Ask in the main room chat and I'll jump in into your private room.

Let's talk about schedule now!

- 9am to 5pm PDT with ~1h for lunch around noon (?)
- ~ 2-3 modules per day of 1h lecture followed by ~2h+ lab
 - Please interact with us during the lab time! Good time to ask one-on-one questions
- 10-15 minutes break at the beginning of each lab and while model are training
- We'll send you the course slide each day before class

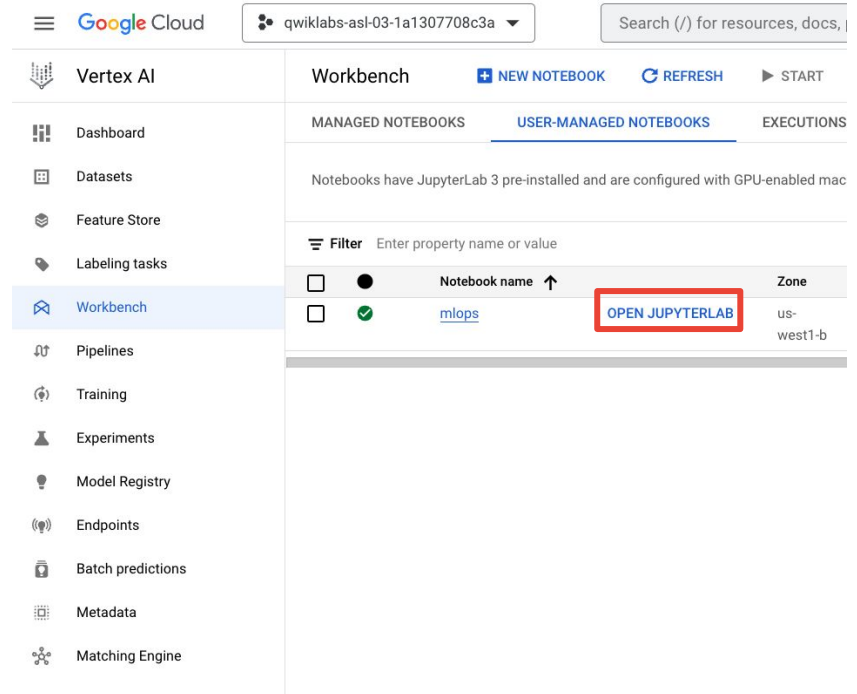
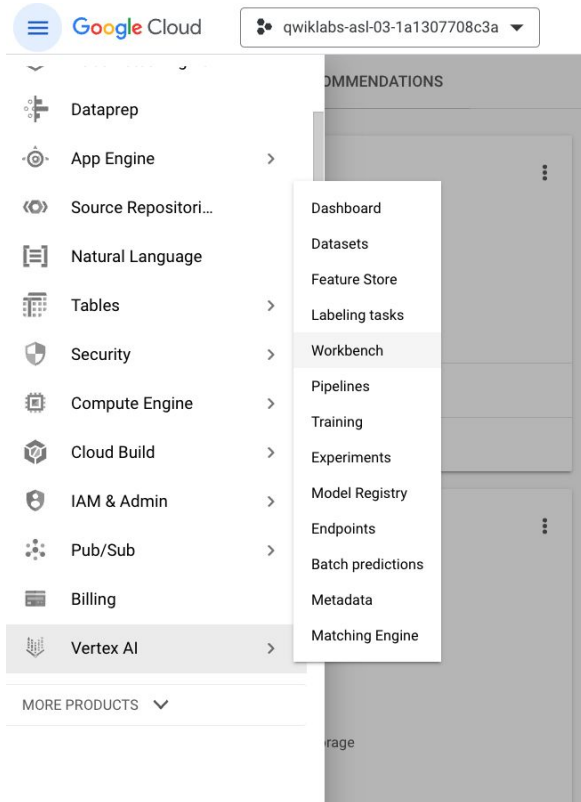
1) Login into console.cloud.google.com with them



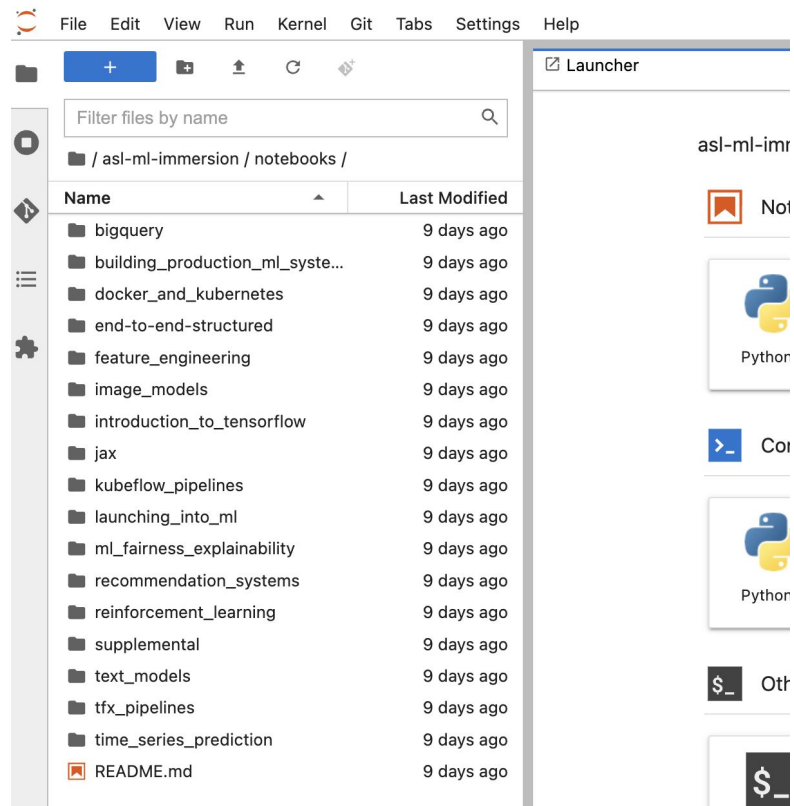
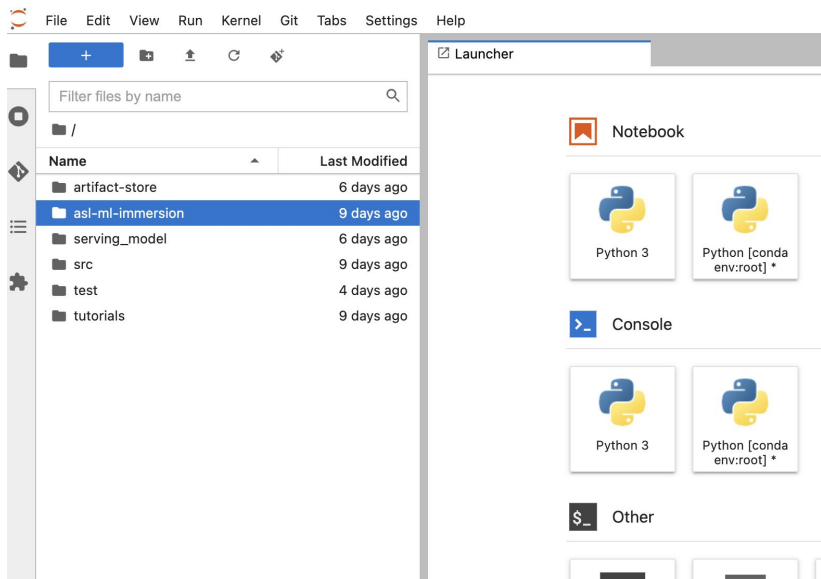
GCP Credentials

student-00-eb596f7ab534@qwiklabs.net
student-00-9db156f39557@qwiklabs.net
student-02-ea7cf55a92b1@qwiklabs.net
student-02-e3233d2620da@qwiklabs.net
student-02-14d5922afc5c@qwiklabs.net
student-02-a447e9970070@qwiklabs.net
student-02-9a5aa06da0cb@qwiklabs.net

2) Vertex AI → Workbench



4) Navigate to `asl-ml-immersion/notebooks/`



Lab folder structure

📁 / ... / notebooks / docker_and_kubernetes /

Name	Last Modified
📁 assets	2 hours ago
📁 labs	2 hours ago
📁 solutions	2 hours ago

Exercises and Solutions

The image displays a JupyterLab environment. On the left, a file browser shows the directory `/.../docker_and_kubernetes/labs/` with files `dockerfiles`, `src`, `1_intro_docker.ipynb` (selected), `2_intro_k8s.ipynb`, and `3_k8s_hello_node.ipynb`. The two notebooks on the right are titled "Introduction to Docker" and contain the following content:

Introduction to Docker

Learning Objectives

- Build and run Docker containers
- Pull Docker images from Docker Hub and Google Container Registry
- Push Docker images to Google Container Registry

Overview

Docker is an open platform for developing, shipping, and running applications. With Docker, you can separate your applications from your infrastructure and treat your infrastructure like a managed application. Docker helps you ship code faster, test faster, deploy faster, and shorten the cycle between writing code and running code.

Docker does this by combining kernel containerization features with workflows and tooling that helps you manage and deploy your applications.

Docker containers can be directly used in Kubernetes, which allows them to be run in the Kubernetes Engine with ease. After learning the essentials of Docker, you will have the skillset to start developing Kubernetes and containerized applications.

Basic Docker commands

See what docker images you have.

```
[ ]: !docker images
```

If this is the first time working with docker you won't have any repositories listed.

Note. If you are running this in an AI Notebook, then you should see a single image `gcr.io/inverting-proxy/agent`. This is the container that is currently running the AI Notebook.

Let's use `docker run` to pull a docker image called `hello-world` from the public registry. The docker daemon will search for the `hello-world` image, if it doesn't find

Demo! Then do it yourself.

Navigate to

[asl-mi-immersion/notebooks/docker_and_kubernetes/labs/1_intro_to_docker.ipynb](https://github.com/ast-mi-immersion/notebooks/docker_and_kubernetes/labs/1_intro_to_docker.ipynb)