California State University, Long Beach

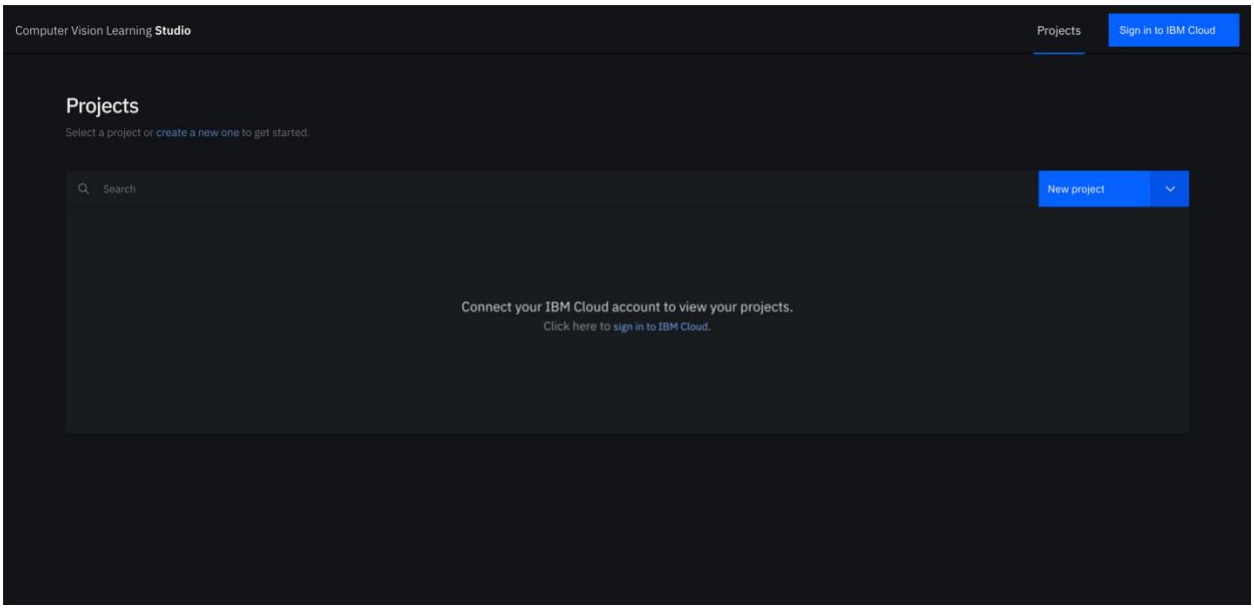
Department of Computer Engineering and Computer Science

CECS 553 Sec 02 11792 (Machine Vision) – Fall 2022

Assignment 05 – Tuesday, 10/04/2022

Connect CV Studio to your IBM Cloud account

1. Go to [CVStudio]
(Email: **benyamin.ahmadnia@csulb.edu** – Password: **Cecs55302**)
2. Click on My Projects in the top right corner
3. Click Sign into IBM Cloud at the top right corner.



You are all set!

Your learning environment is all set with access to storage, compute, and application infrastructure.

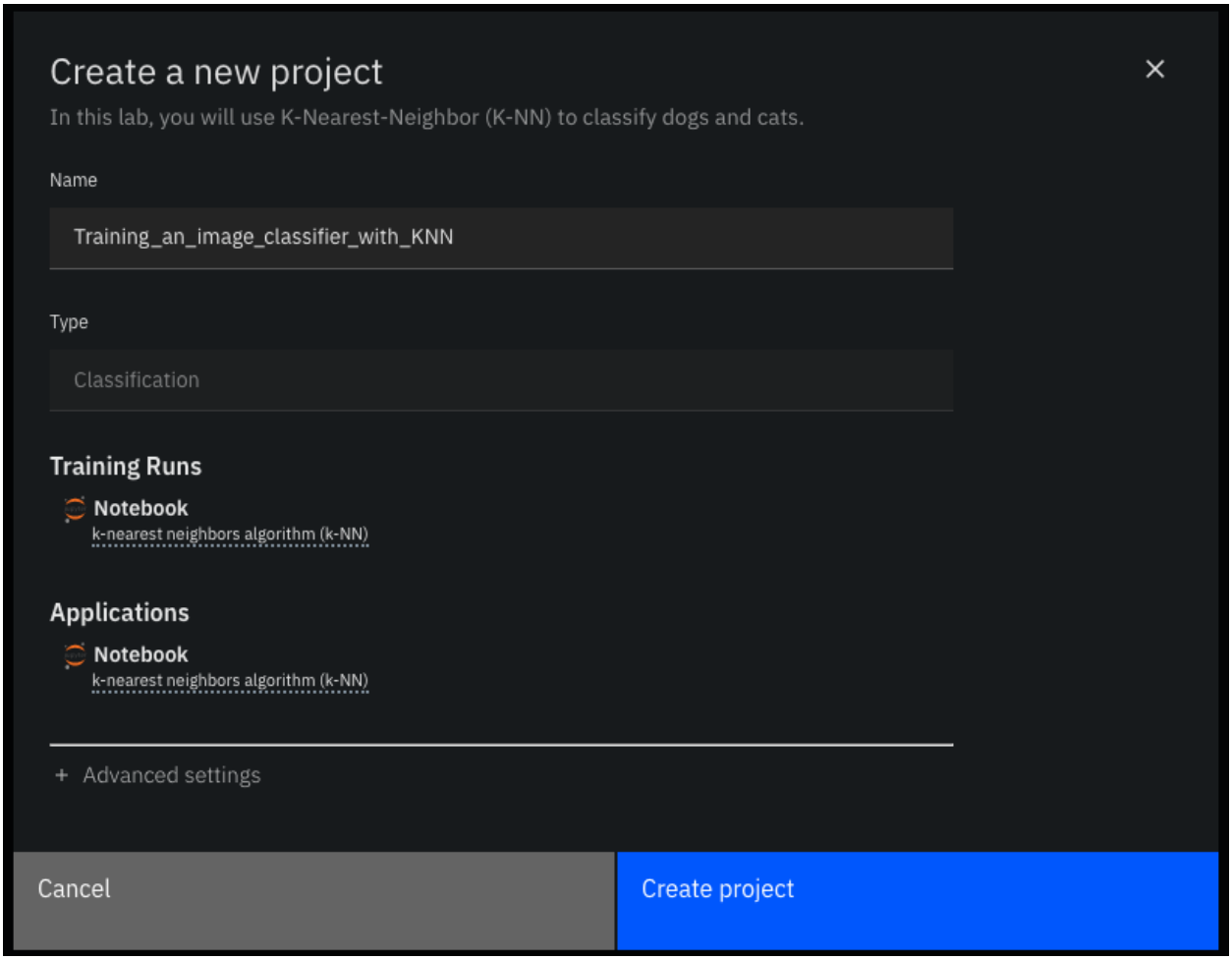
Getting started with CV Studio

CV Studio is a Computer Vision learning tool made for you which makes building your Computer Vision application fun and interactive. We are continuing to expand our learning modules and we currently have applications for Image Classification and Object Detection.

Each of the learning modules are standalone with instructions and resources about each algorithm. To build, train and deploy your Computer Vision model, here are some quick simple steps:

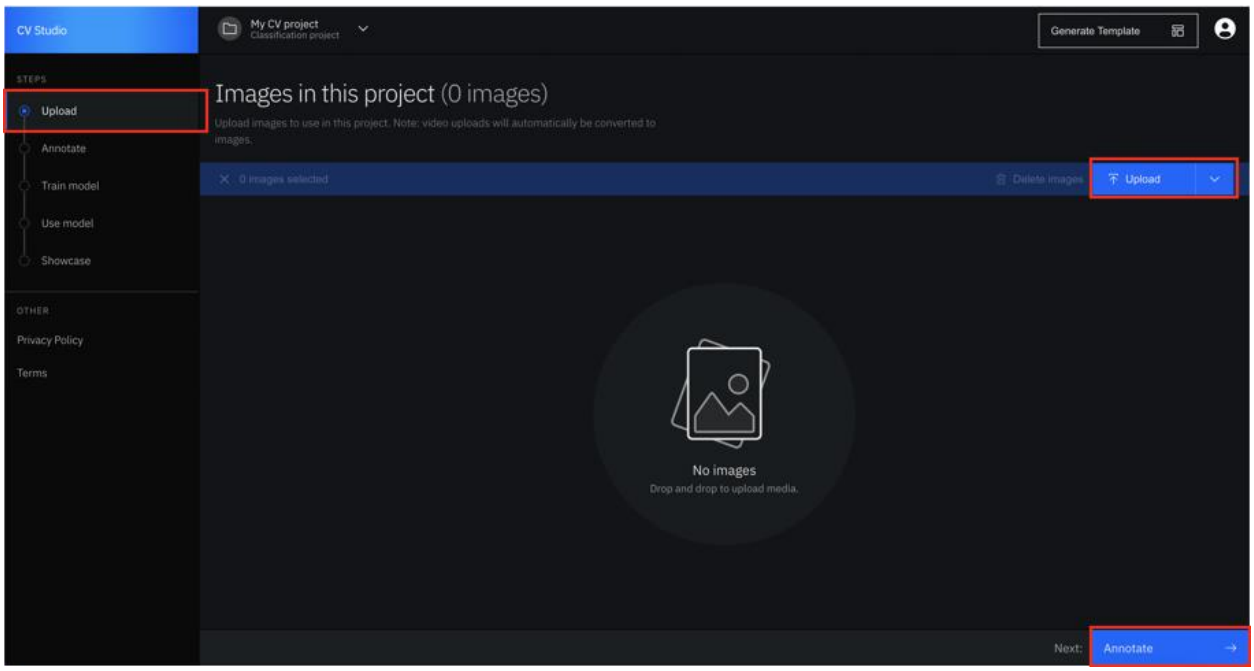
1. **Start a New Project:**

After logging into CV Studio, you can create a New Project. You will see a box like this. Choose a Name, the Type has been chosen for you based on the algorithm you will be using.



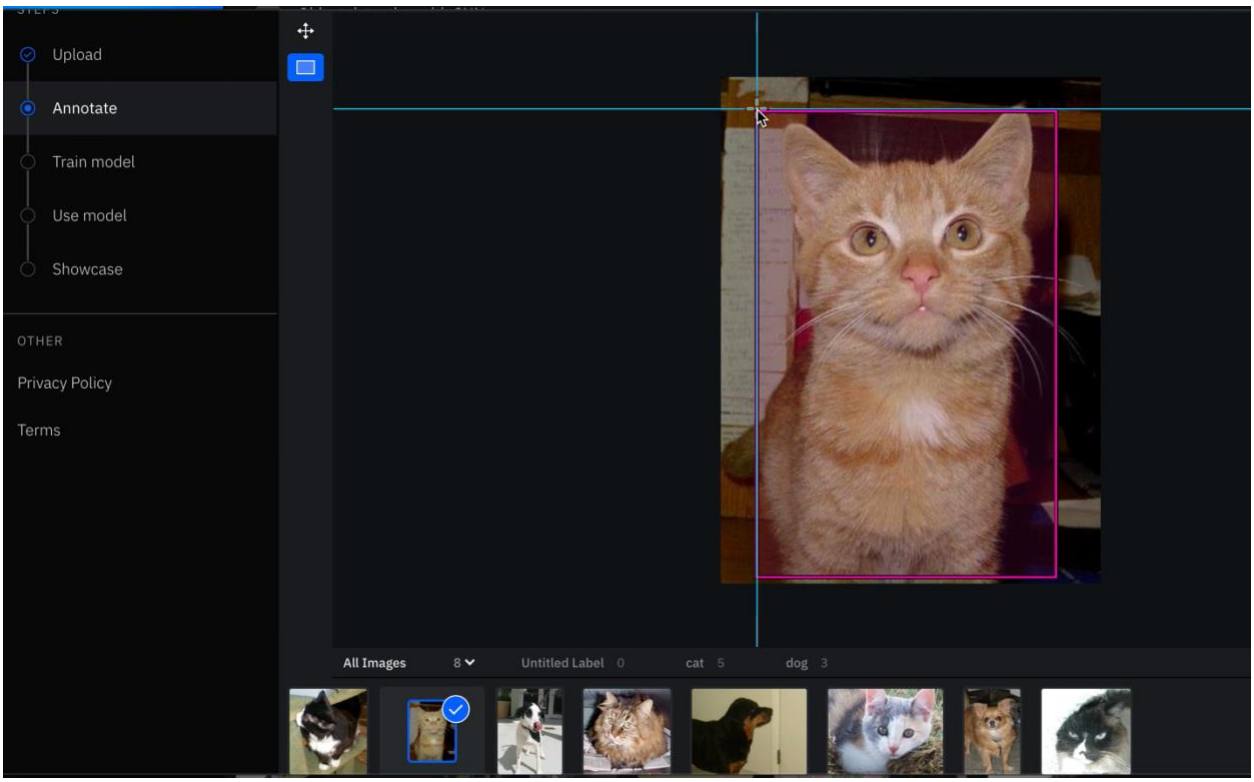
2. **Upload Images:**

Once you create your project you will land on the Upload page. Here you will upload your images for training, you can do this by using the Upload button at the right or dragging and dropping your files or folders. The current accepted formats are .jpg, .png, and .zip files and folders containing jpg and png files.

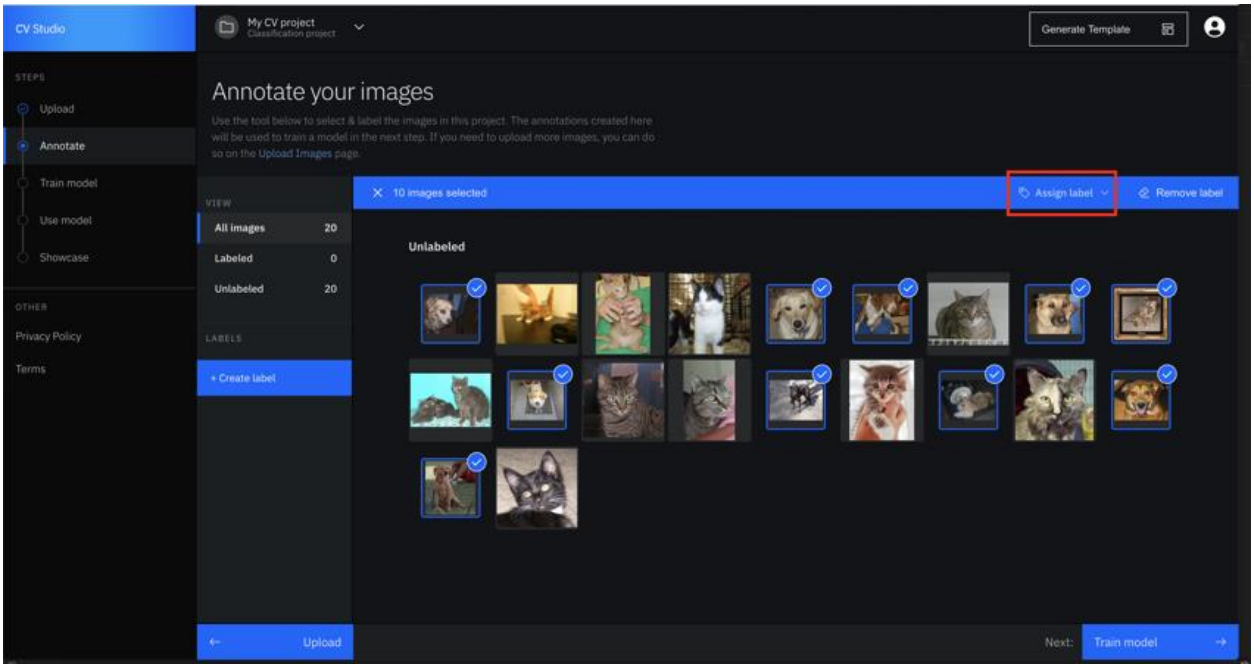


3. **Annotate your images:**

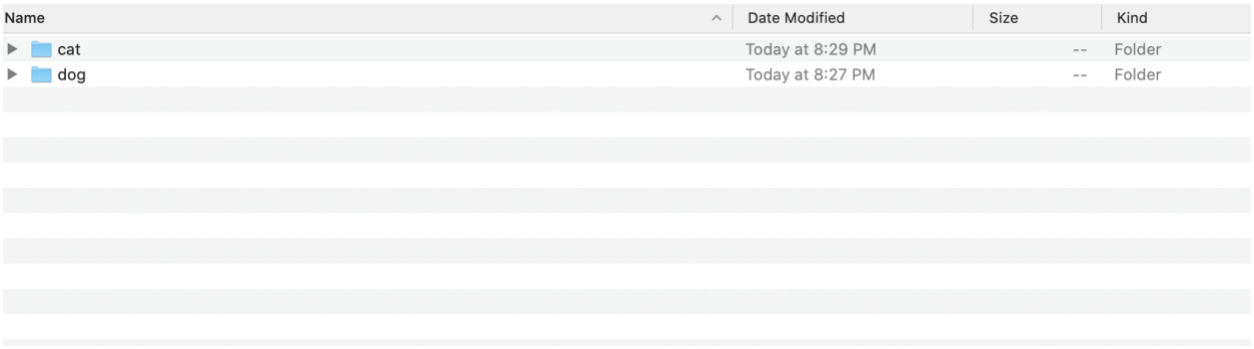
For object detection, use the integrated tool to highlight target elements in your images.



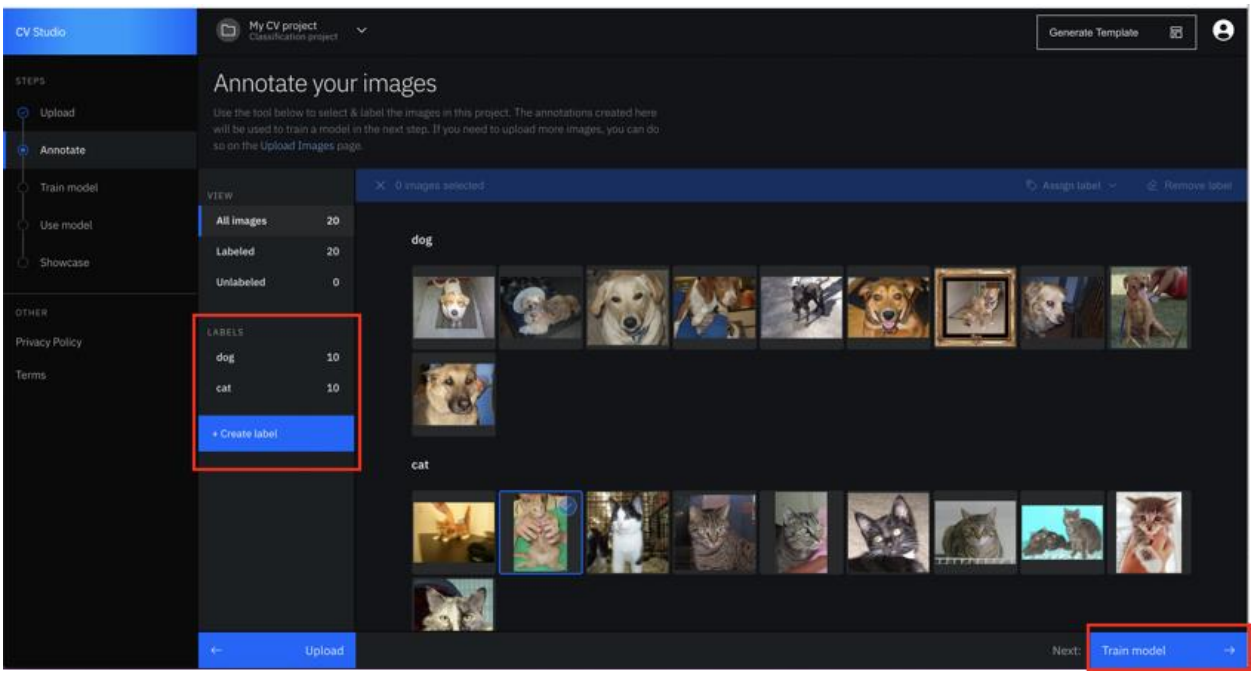
For image classification, you can annotate within the tool by clicking on the images and adding them to a label. You can add them to a new label or a label you already created.



If you name your folder with the respective classes, the annotation will happen automatically when you upload your images.



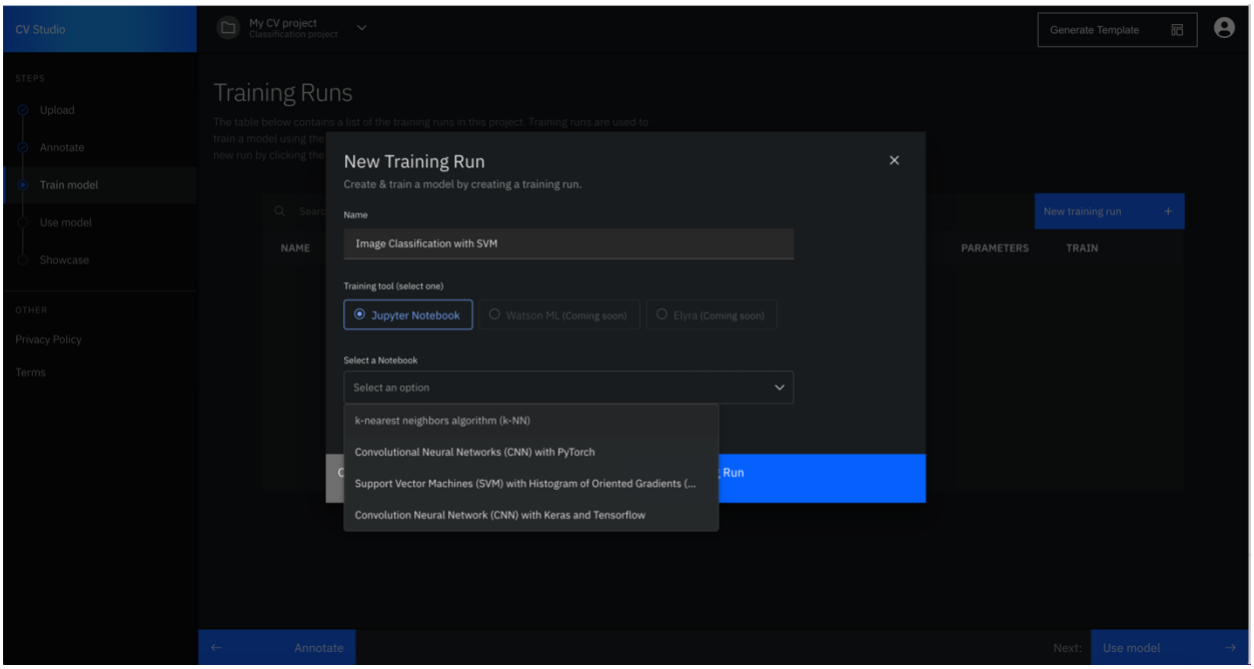
We will see the classes cat and dog.



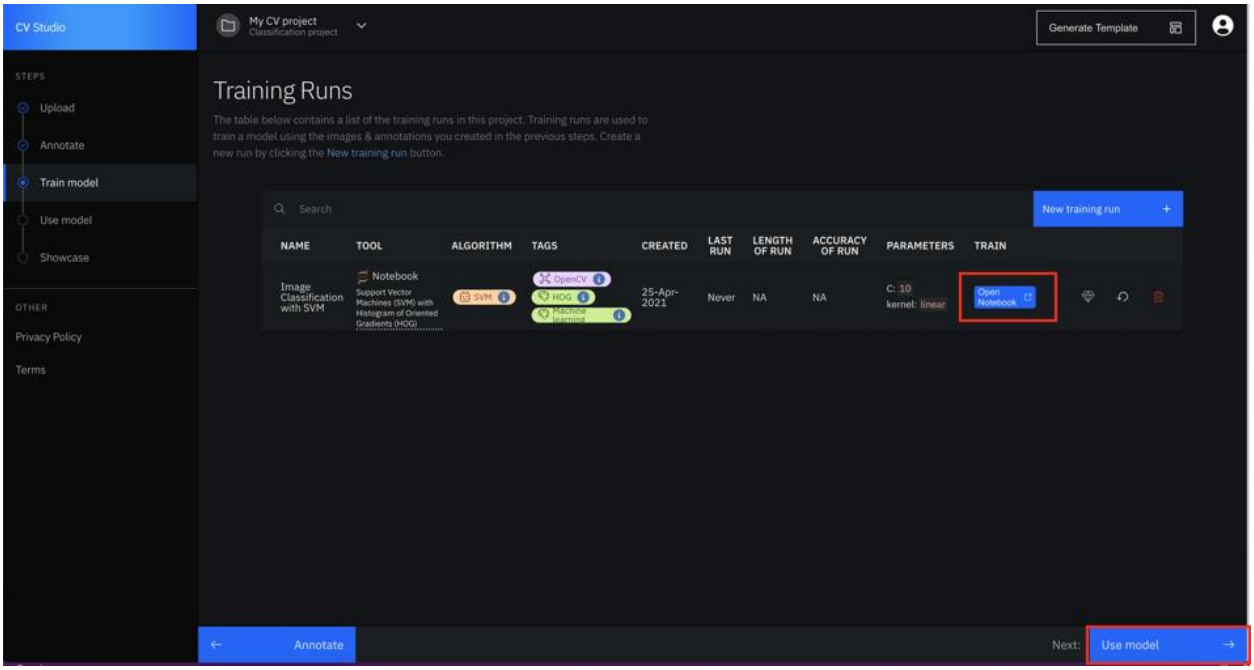
Next, we go to Train Model on the bottom right.

4. **Train Model:**

You will be able to train your model using the image annotations from the previous step. You will be required to enter a name, pick a tool, and select the training algorithm.



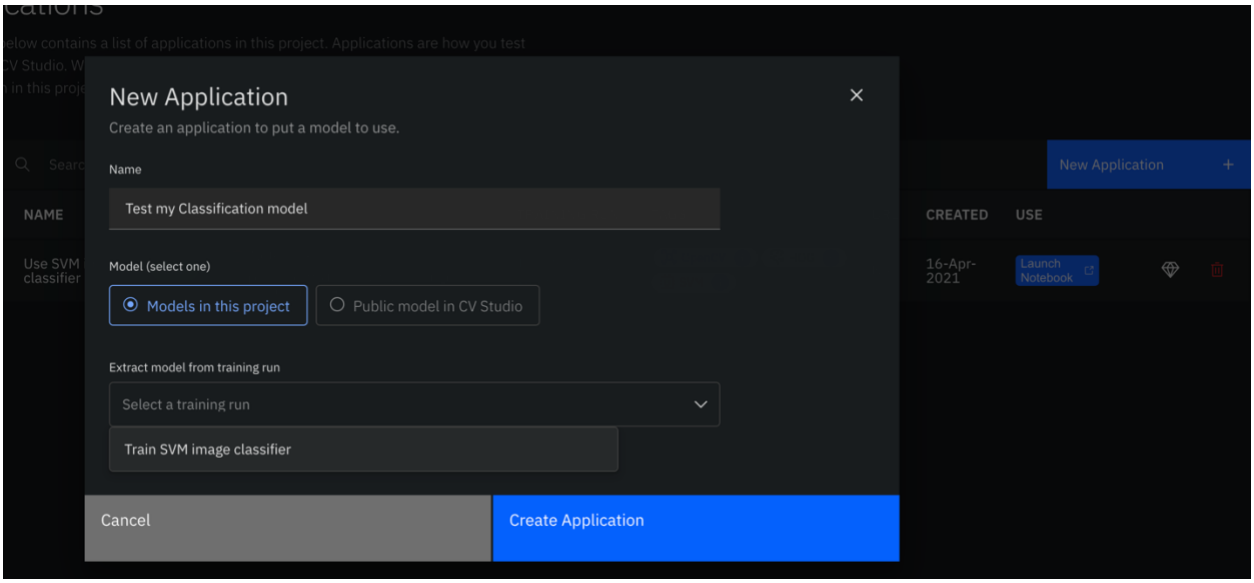
Once you fill this in, you can now open the tool and run your model. Once the model is done running, you will come back to this interface and create an application.



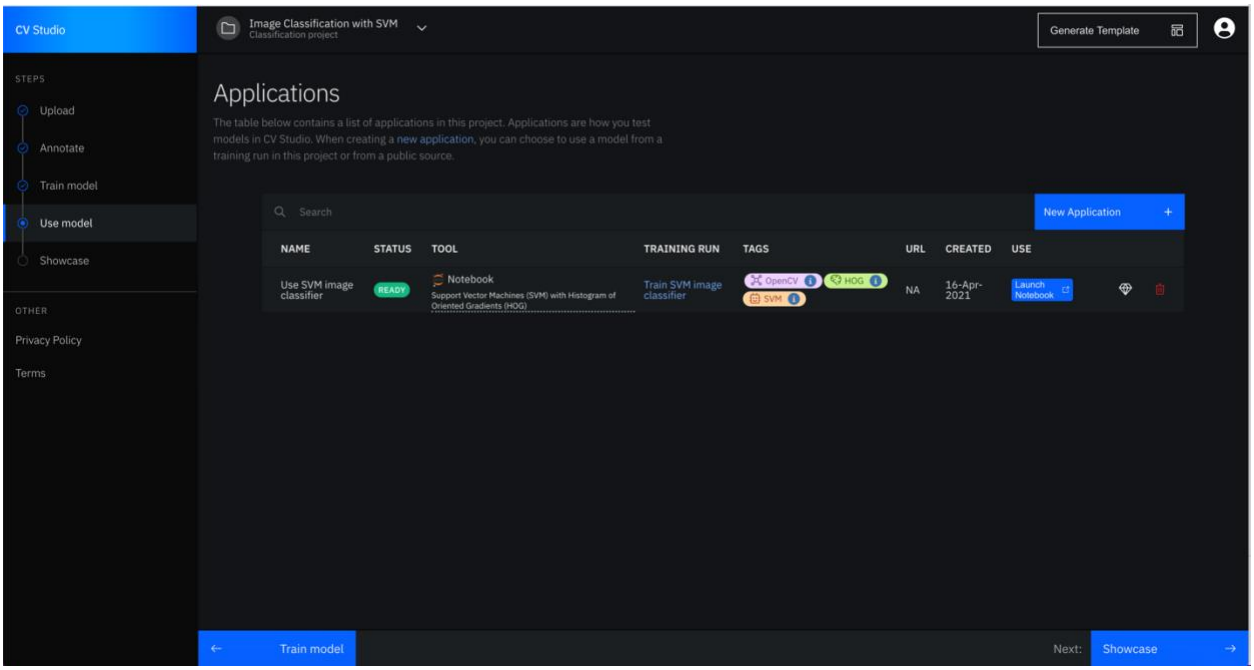
5. **Use Model:**

You will come back into this interface and create a New Application to test the model.

- Choose a name for your application
- Choose a Model
- Choose the appropriate Training Run



Once you are done, you will now launch a tool to test the app.



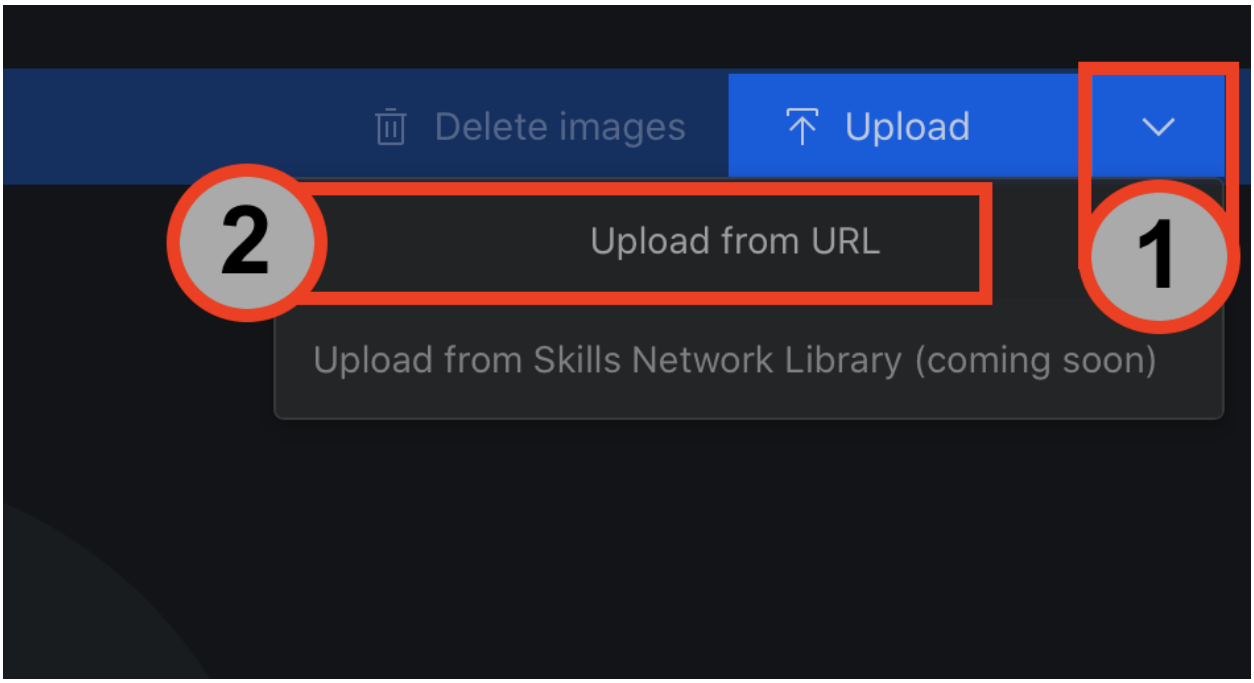
6. **Showcase your app:**

If you are using a learning module that supports deployment to the web, you will be able to click on the showcase tab to deploy your web app to code engine.

Label your Data and Perform Image Classification with KNN

In this lab, you will use a K-Nearest-Neighbor (K-NN) classifier to classify dogs and cats with the provided dataset.

Opening the tool will direct you to CV Studio. I have already created a project template for you, so you can get right to the action! To upload the dataset, open the drop-down menu at the top right of the page and click "Upload from URL".



Then copy and paste the following URL of the dataset into the appropriate box and click OK:

```
https://cv-studio-accessible.s3.us-south.cloud-object-storage.appdomain.cloud/cats_dogs_images_.zip
```

Note: if your internet connection is slow some images may fail to upload, don't worry, your lab will still run.