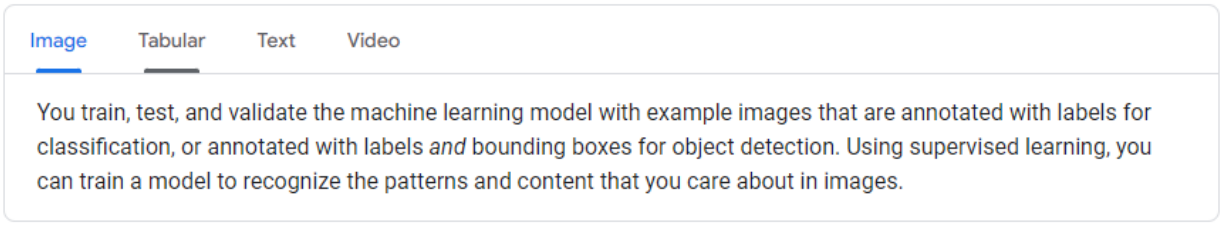
Google Cloud Services

Using google services to create benchmark:

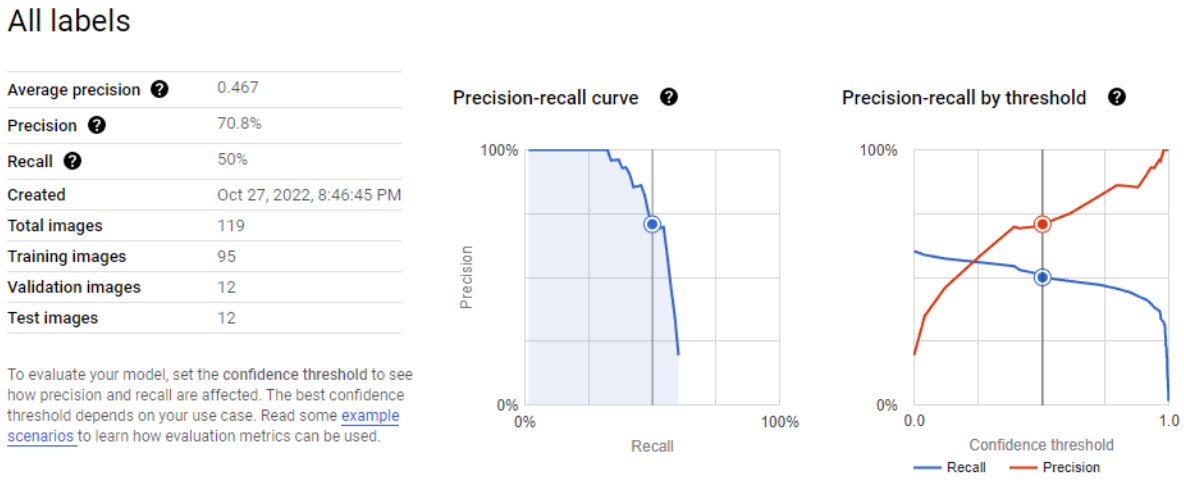
- Vision AI - API
- AutoML Vision



Once the data was appropriately transformed, I ran an initial benchmark trial run of 120 images and 685 labels. Train/Validation/Test split was 80/10/10.

It took 1 hr 18 min training with Google AutoML, Image object detection.

Results of this benchmark test:



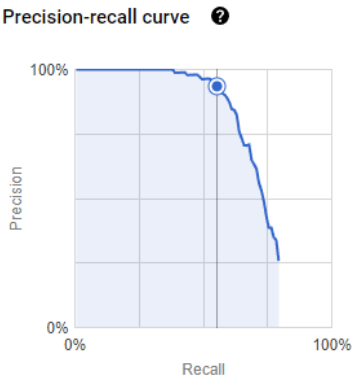
Another trial benchmark was then performed on a larger dataset. 360 images and 2084 labels. Train/Validation/Test split was 70/10/20.

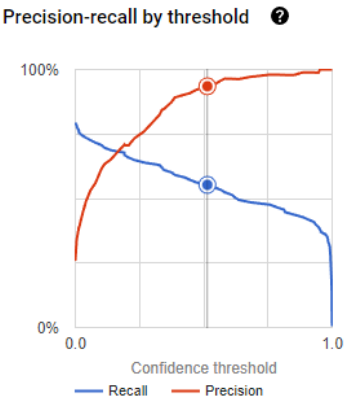
Results of final benchmark:

All labels

Average precision	0.558
Precision	93.5%
Recall	55.3%
Created	Oct 29, 2022, 11:31:05 AM
Total images	355
Training images	284
Validation images	36
Test images	35

To evaluate your model, set the **confidence threshold** to see how precision and recall are affected. The best confidence threshold depends on your use case. Read some example scenarios to learn how evaluation metrics can be used.





Ease of Use

Once images and their corresponding bounding boxes and labels were added to a directory on google cloud, training and viewing the validation results were trivial. Google cloud does all of that on its own if you use one of their pretrained models, like AutoML, the one I used.

The difficulty was understanding how to transform my data to conform with what Google Cloud wanted, but that was all well documented, and not too difficult to implement.

The code I used to transform and reduce my dataset is in the Data subdirectory of my Capstone repository.