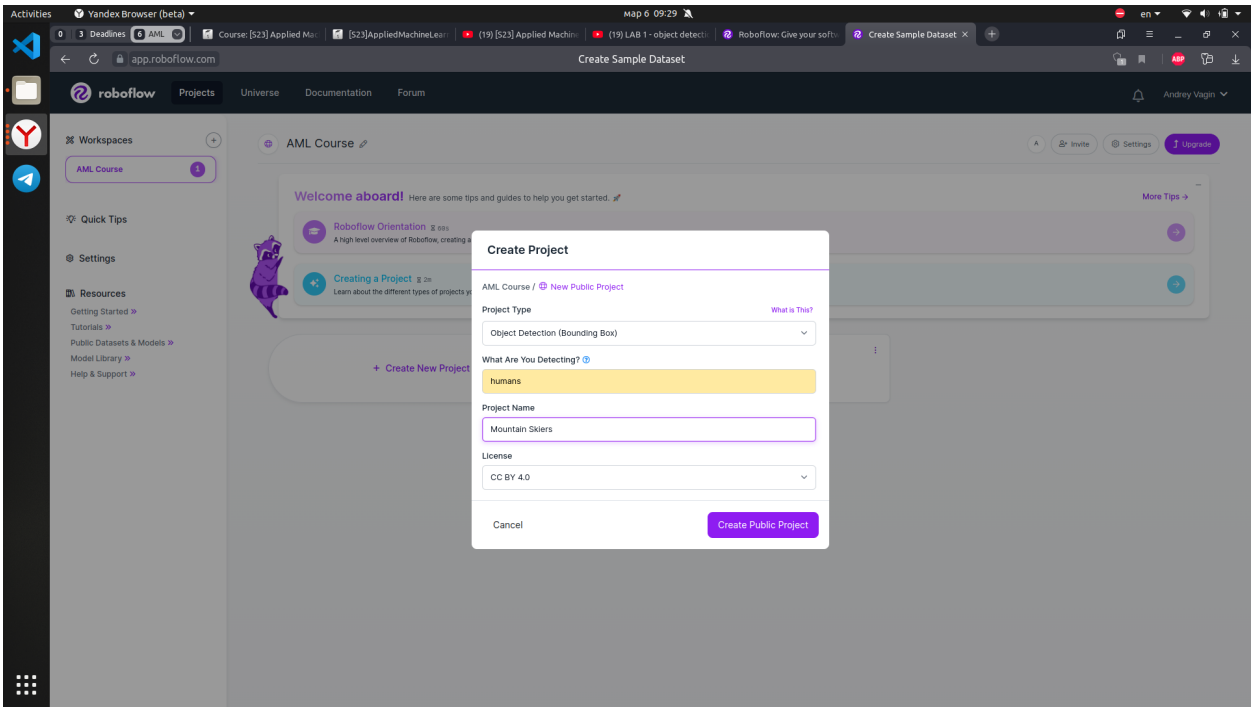
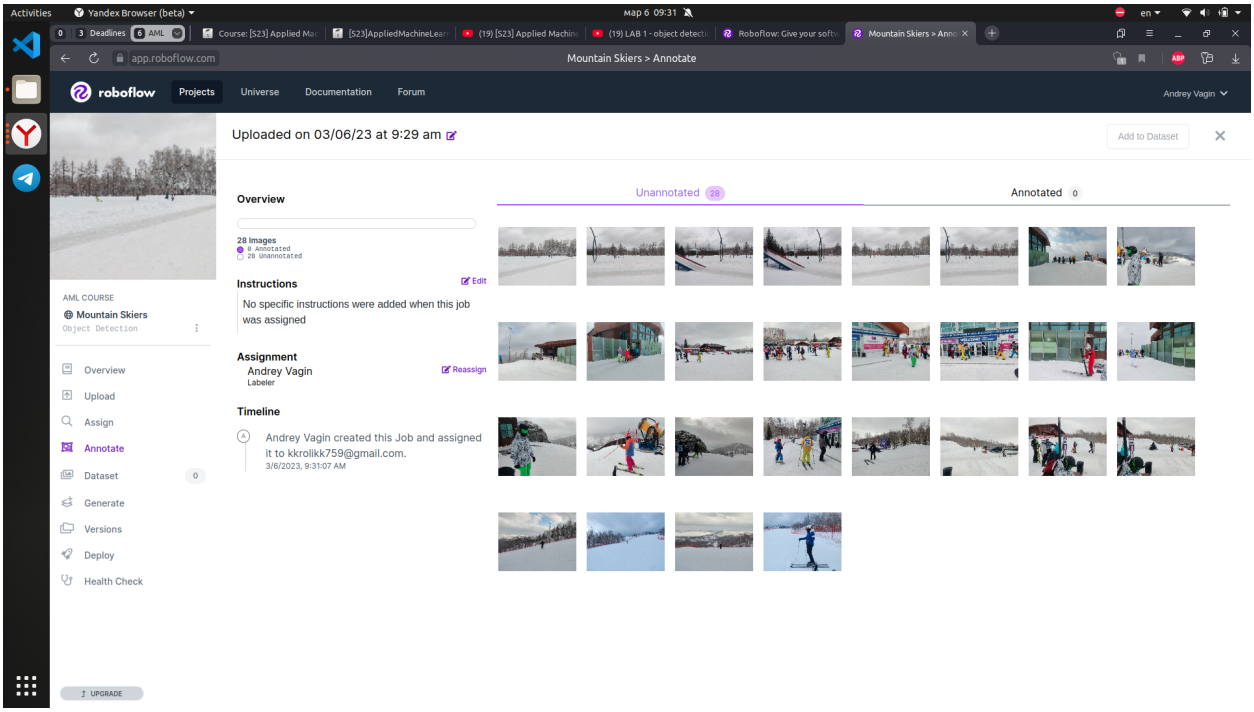
# AML Report

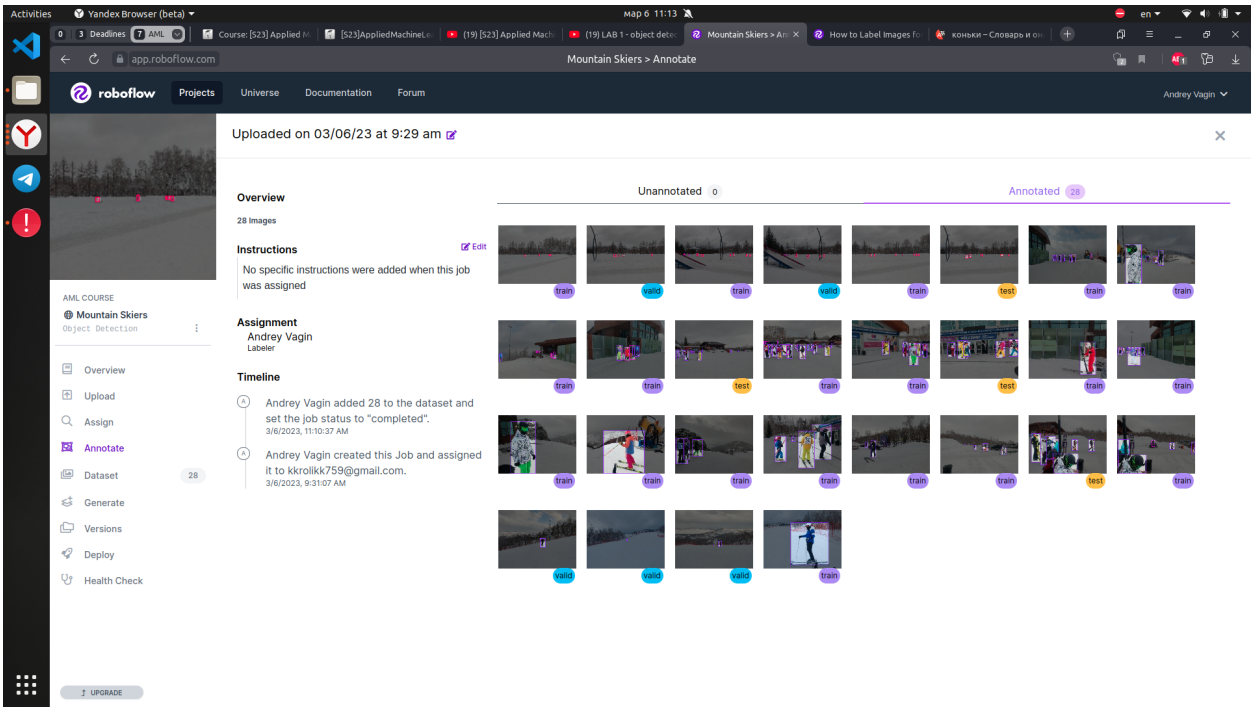
Resulting colab notebook:
https://colab.research.google.com/drive/1AF8X3M7IdmSEl7RjgHOONLmvsMHzGzUB#scrollTo=N4UQ3OocyV-x

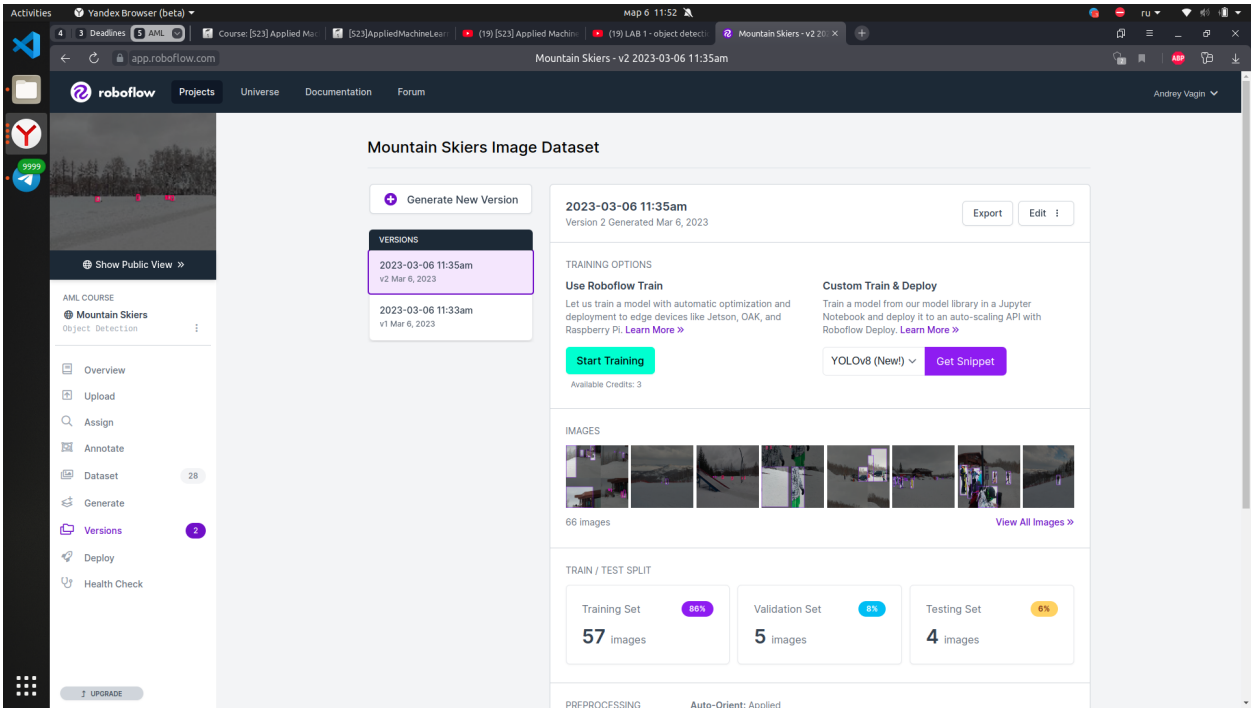
1. I went outside and collected images of skiers, skaters and just people. The images were captured in different environments and under different lighting conditions.


2. The images were then annotated on Roboflow.


Create Sample Dataset
app.roboflow.com
roboflow
Projects
Universe
Documentation
Forum
Workspaces
AML Course
Quick Tips
Settings
Resources
Getting Started
Tutorials
Public Datasets & Models
Model Library
Help & Support
Welcome aboard!
Here are some tips and guides to help you get started.
Roboflow Orientation
Creating a Project
+ Create New Project
Create Project
AML Course / New Public Project
Project Type
What is This?
Object Detection (Bounding Box)
What Are You Detecting?
humans
Project Name
Mountain Skiers
License
CC BY 4.0
Cancel
Create Public Project


Mountain Skiers > Annotate
app.roboflow.com
roboflow
Projects
Universe
Documentation
Forum
Uploaded on 03/06/23 at 9:29 am
Add to Dataset
Overview
28 Images
0 Annotated
28 Unannotated
Instructions
Edit
No specific instructions were added when this job was assigned
Assignment
Andrey Vagin
Labeler
Reassign
Timeline
Andrey Vagin created this Job and assigned it to kkrolikk759@gmail.com.
3/6/2023, 9:31:07 AM
Unannotated 28
Annotated 0
AML COURSE
Mountain Skiers
Object Detection
Overview
Upload
Assign
Annotate
Dataset 0
Generate
Versions
Deploy
Health Check
UPGRADE




3. Then I used this tutorials for training Faster RCNN.
    a. https://colab.research.google.com/github/roboflow-ai/notebooks/blob/main/notebooks/train-detectron2-segmentation-on-custom-data.ipynb#scrollTo=hmAcBbpXX-Rh
    b. https://colab.research.google.com/drive/1-TNOcPm3Jr3fOJG8rnGT9gh60mHUsvaW?ref=roboflow-blog#scrollTo=HBUdNVhn1rHh

4. I trained YOLO-8 using the following tutorial:
    a. https://colab.research.google.com/github/roboflow-ai/notebooks/blob/main/notebooks/train-yolov8-object-detection-on-custom-dataset.ipynb#scrollTo=Wjc1ctZykYuf
5. Conclusion
    a. I've got mAP of 0.20 for Faster RCNN and 0.667 for the YOLO.

       The data is a bit complicated as difference between is not very big. Ice-skaters and skiers looks pretty similar but YOLO showed pretty good results.

| Class | Images | Instances | Box(P | R | mAP50 | mAP50-95): |
|---|---|---|---|---|---|---|
| all | 5 | 20 | 0.878 | 0.612 | 0.667 | 0.293 |
| human | 5 | 5 | 0.802 | 0.2 | 0.432 | 0.136 |
| skater | 5 | 11 | 0.832 | 0.909 | 0.798 | 0.556 |
| skier | 5 | 4 | 1 | 0.726 | 0.77 | 0.186 |

    b. Time needed for Faster RCNN is 0.14 secs and for YOLO it is 0.024 secs. Yolo is almost 6 times faster than RCNN.
    c. Number of parameters for Faster RCNN is 41_305_311

       Number of parameters for YOLO is 11_126_745.

So, in my case YOLO performed noticeably better and it is 6 times faster and 4 times smaller.