AMBULANCE AND TRUCK DETECTION

Truck and ambulance detection using yolov8n for personal project

Year
2024

Role/Position
AI Developer

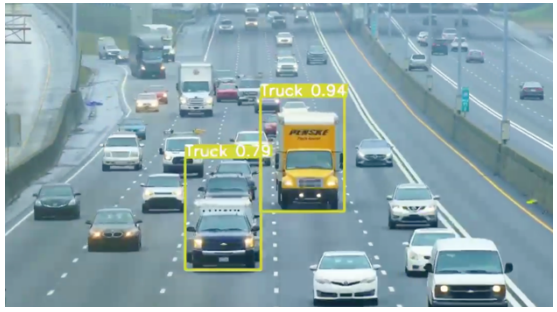
Publication Link
https://github.com/ilyamfaisal28/truck-ambulance-detection

The dataset used in this project: Cars Detection
This dataset showcases a diverse range of vehicles, comprising five distinct classes: 'Ambulance', 'Bus', 'Car', 'Motorcycle', and 'Truck'.

Trained using YOLOv8n that build from YAML and transfer weights.

These are the inference result demo:

Truck	Ambulance
	



Ilyam Faisal

https://ilyam-faisal.web.app
ilyam faisal

BATIQUE ANDROID APP

Batique is an android app to classify images of six Batik classes from Northern Coastal Region of Java Island and one class of images as negative. This project was built for my undergraduate thesis research.

In this research, the CNN method applied with the ResNet50V2, MobileNetV2, and VGG-19 architectures, comparing these three models and integrating them into an Android-based application for automating batik motif classification.

Since it's hard to find image data for each batik class, so it really needs some data augmentation to improve the model's ability for this case.

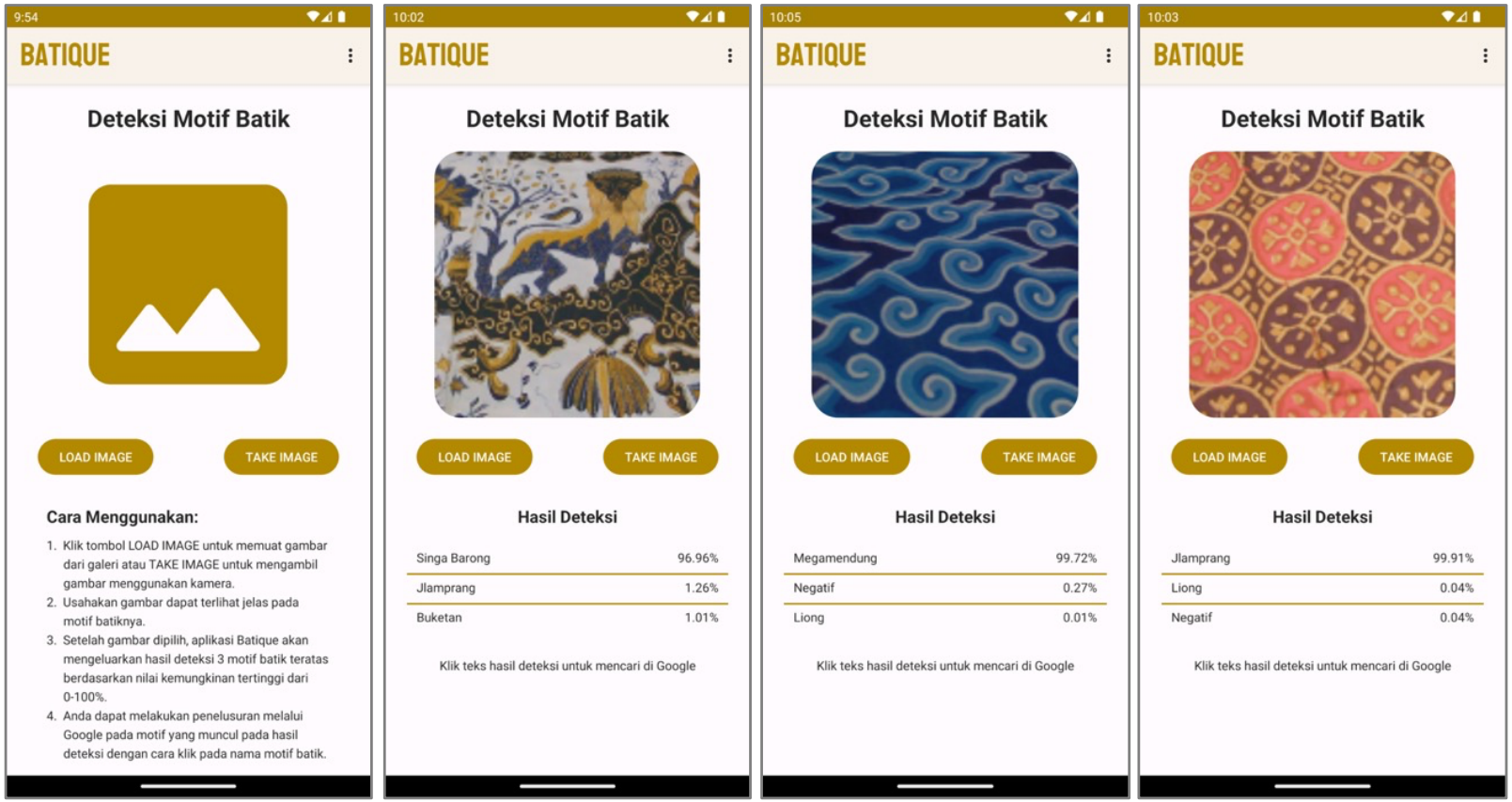
These images, before augmentation process, were divided into training, validation, and testing sets with a ratio of 7:2:1, respectively. Subsequently, after applying the augmentation process, it resulted in a total of 2,589 training data, 740 validation data, and 371 testing data.

Considering the limited resources available on mobile devices (Android devices), there are two options for obtaining relatively small model sizes with still reliable accuracy. The first TFLite model is ResNet50V2 with post-training float16 quantization optimization (46.25 MB, 82.48%), and the second is the VGG-19 model with post-training dynamic range quantization optimization (19.45 MB, 77.36%).

Year
2023

Role/Position
Machine Learning Engineer & Android Developer

Publication Link
https://github.com/ilyamfaisal28/Batique_app



Ilyam Faisal

https://ilyam-faisal.web.app
ilyam faisal

OBJECT TRACKING YOLOV5 AND STRONGSORT

Object Tracking Yolov5 and Strongsort

In this internship assignment, I studied and implemented object tracking using the YOLOv5 architecture and object counting using Strongsort. Additionally, there are two objectives that must be accomplished:

Year
2023

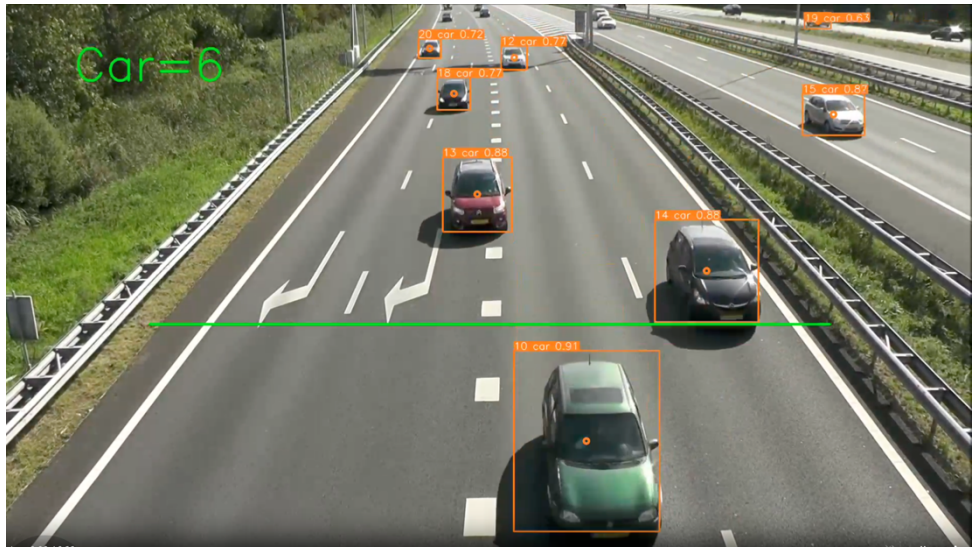
1. Develop an algorithm to obtain timestamps for each counted car.
2. Create an algorithm to generate a car intensity graph from the tracking and counting data, along with the previously obtained timestamps.

Role/Position
AI Vision Engineer Intern

Obtaining Timestamps
The code to obtain timestamps is in track.py. The process involves adding (appending) the current time using datetime.datetime.now() to the timestamp list when an object passes the green line. The code looks like this:

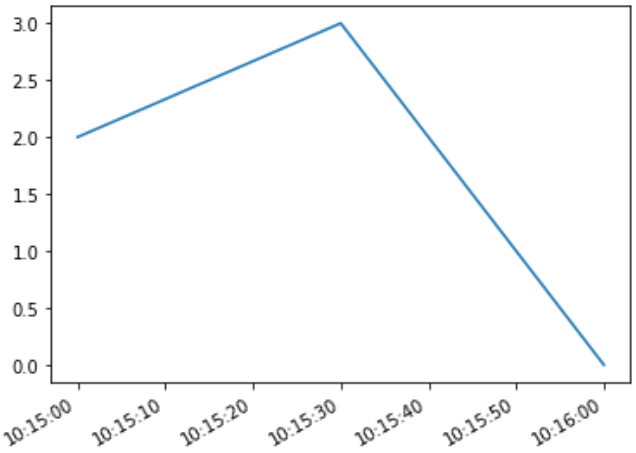
After obtaining the csv file, the next step is to create a graph based on the csv file using Python code.

Publication Link
https://github.com/ilyamfaisal28/Object_Tracking_Yolov5_and_Strongsort



Exported_Data.csv — Open with Numbers

	Class	Object_id	Timestamp
0	2	2	2022-12-01 15:42:54.460302
1	2	1	2022-12-01 15:42:54.733638
2	2	4	2022-12-01 15:43:05.234830
3	2	6	2022-12-01 15:43:13.912965
4	2	5	2022-12-01 15:43:14.738289
5	2	10	2022-12-01 15:43:44.524121
6	2	14	2022-12-01 15:43:46.555814
7	2	13	2022-12-01 15:43:49.491845
8	2	18	2022-12-01 15:43:56.875661
9	2	12	2022-12-01 15:44:03.274201
10	2	20	2022-12-01 15:44:06.310497



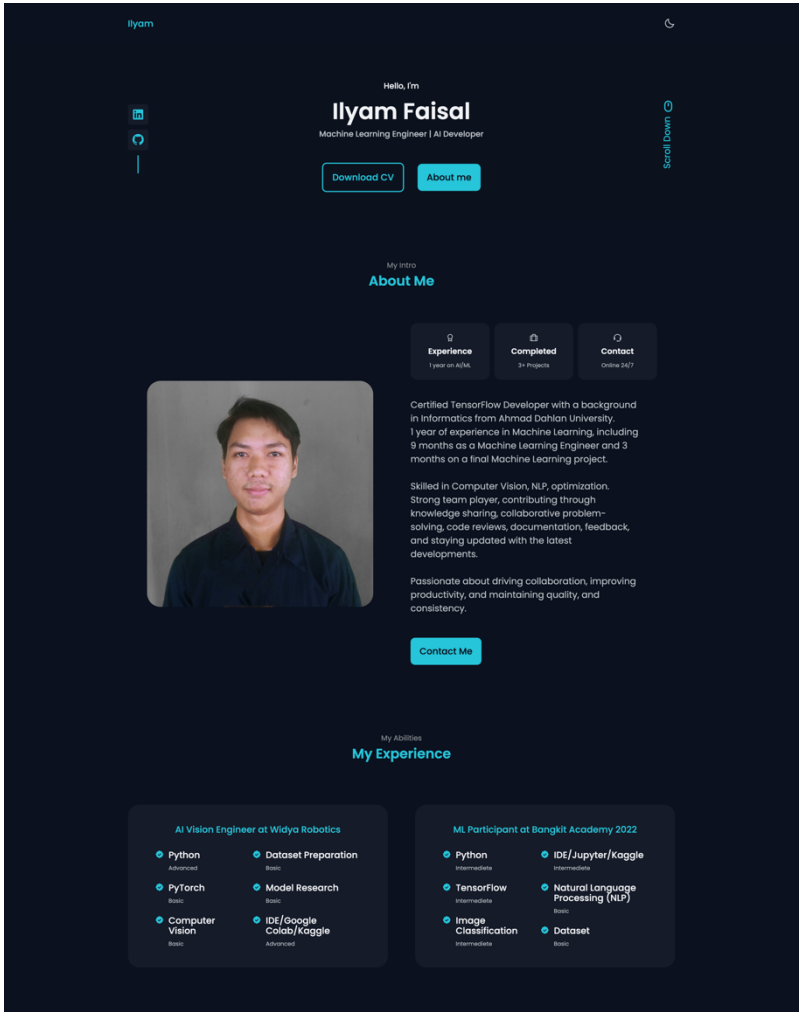
Ilyam Faisal
https://ilyam-faisal.web.app
ilyam faisal

MY RESPONSIVE PORTFOLIO WEBSITE

This is my responsive personal portfolio website using HTML, CSS, & JavaScript

Made a responsive website for my personal portfolio. Hostinged using Firebase freemium.
The final version of this website can accesed through: https://ilyam-faisal.web.app

The screenshot you can see here:



Year
2022

Role/Position
Web Development

Publication Link
https://github.com/ilyamfaisal28/my-responsive-portfolio-website

---

Ilyam Faisal

https://ilyam-faisal.web.app
ilyam faisal

INDONESIAN LANDMARK CLASSIFICATION

This is the machine learning part of our capstone project in Bangkit Academy. Because we have 2 ML people in this capstone team. I was responsible to make Indonesian Landmark Classification.

I've built the landmark classification model using MobileNetV2 with the input shape 300 x 300 x 3, and added a few layers such as GlobalAveragePooling2D and dense layers with 'softmax' activation as the output activation.

Year
2022

The dataset is from Google Landmark Recognition Competition 2020 on Kaggle that are free to use. It has landmark images from all around the world, but we choose Indonesian landmarks only because we think this is suitable for our MVP (Minimum Viable Product). Also because of the time limit for 1 month to finish this capstone project.

Role/Position
Machine Learning Engineer

In total we have 1260 images from 18 Indonesian landmarks. For training 50 images and validation 20 images per landmark. So we use only 70 images per landmark. Because the total amount of Indonesian landmarks image from Google Landmark Recognition Competition 2020 dataset is small compared to other landmark and many of them are old school images and irrelevant today. So, we have to manually clean the data and we set up threshold minimum 70 images per landmark.

Publication Link
https://github.com/pesanbotol/machine_learning/tree/main

id	name
0	Candi Borobudur
1	Candi Jago
2	Kraton of Yogyakarta
3	Monas
4	Pura Besakih
5	Pura Tanah Lot
6	Pura Tirta Empul
7	Sanur
8	Taman Sari
9	Ubud Monkey Forest
10	Landmark Tidak Dikenal
11	Candi Panataran
12	Candi Prambanan
13	Candi Ratu Boko
14	Candi Sewu
15	Candi Sukuh
16	Gili Trawangan
17	Kawah Ijen
18	Komodo National Park

In [4]:
```
import pandas as pd
train_csv = pd.read_csv('../input/indonesian-landmark/train.csv')
train_csv.head(10)
```

Out[4]:

	id	landmark_id
0	img3	0
1	img6	0
2	img8	0
3	img9	0
4	img10	0
5	img14	0
6	img15	0
7	img16	0
8	img17	0
9	img24	0

In [5]:
```
len(train_csv)
```

Out[5]: 1438

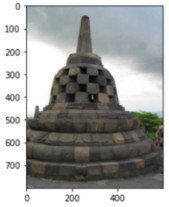
In [6]:
```
len(train_csv['landmark_id'].unique())
```

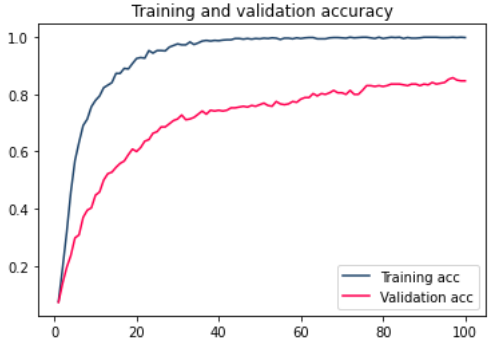
Out[6]: 18

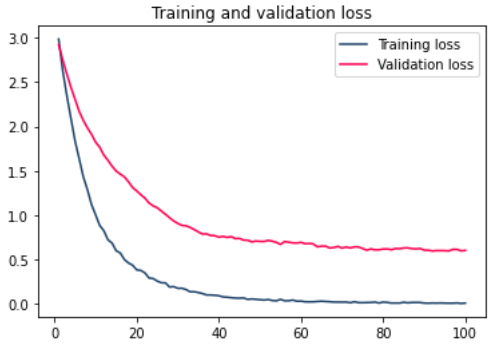
In [8]:
```
import matplotlib.image as img
import matplotlib.pyplot as plt

def show_img(file_name):
    base_path = '../input/indonesian-landmark/Train/'
    for path in os.listdir(base_path):
        for file in os.listdir(base_path+path):
            if file == file_name:
                image = img.imread('../input/indonesian-landmark/Train/'+path+'/'+file_name)
    plt.imshow(image)
    plt.show()
```

In [9]:
```
show_img('img10.jpg')
```







Ilyam Faisal

https://ilyam-faisal.web.app
ilyam faisal