To,

IITD-AIA Foundation of Smart Manufacturing

Subject: **Weekly Progress Report for Week 4**

Dear Sir,

Based on my understanding and the topics covered, I have prepared the following progress report that addresses the relevant objectives of the project.

What happened last week – Week 3:

- Functionalities of OpenCV
- Exploratory Data Analysis (EDA)
- Tensorflow framework for deep learning
- YOLO algorithm for object detection.
- Semantic segmentation and U-Net architecture
- Model building
- Model Training

What's happening this -week 4:

- Experiment with various hyperparameters and architectures to optimize accuracy.
- Object detection and its associated algorithms
- Convolutional Neural Network Classifier
- Transferred learning techniques to fine-tune the CNN model
- Experiment with various hyperparameters
- Transferred learning by fine-tuning pre-trained models

Weekly Progress:

June 26:(Monday)

My primary focus was on revisiting and reinforcing my understanding of key concepts in deep learning. I learned more about tensorflow framework for deep learning.

June 27:(Tuesday)

I delved into various types of neural networks such as ResNet, AlexNet, and MobileNet, familiarizing myself with their unique characteristics. To put my knowledge into practice, I conducted a prediction task on a sample image.

June 28:(Wednesday)

I dedicated time to revisiting and reinforcing the fundamental concepts of Deep Learning and Machine Learning. Building upon my refreshed understanding, I continued my efforts on the project, aiming to improve the model's accuracy compared to previous iterations.

June 29:(Thursday)

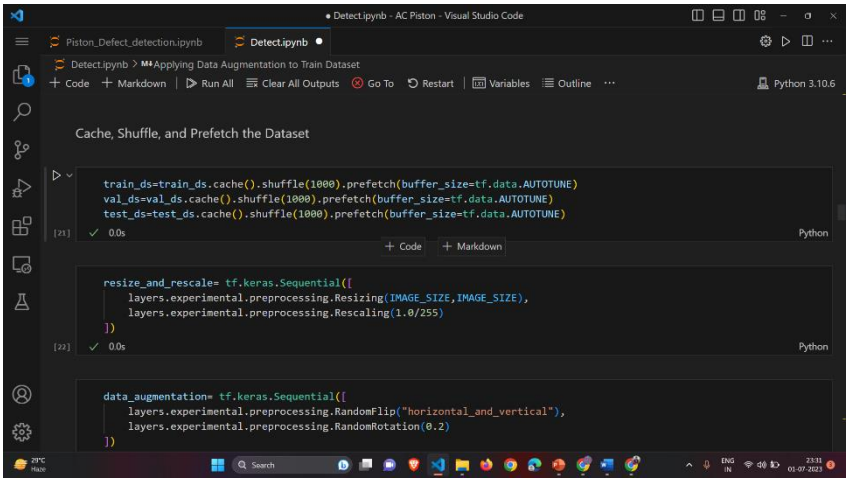
I have learned about object detection and its associated algorithms, deepening my understanding of the subject. Furthermore, I made progress on my project by implementing a model that utilizes the pretrained ResNet model as a foundation.

June 30:(Friday)

Explored about object detection and its various algorithms, enhancing my comprehension of this field. Building on this knowledge, I made significant strides in my project by successfully implementing a model that leverages the powerful pretrained ResNet model as its base.

July 01:(Saturday)

I carried out thorough testing and evaluation to assess the accuracy of the algorithm. Additionally, I drafted a Mid-Internship Review to summarize my progress thus far. Furthermore, I employed transfer learning techniques to fine-tune the CNN model, aiming to improve its performance and achieve better results.



July 02:(Sunday)

Experiment with various hyperparameters and architectures to optimize accuracy. Implement techniques like transfer learning by fine-tuning pre-trained models (VGG, ResNet) to leverage their learned features and improve the model's accuracy

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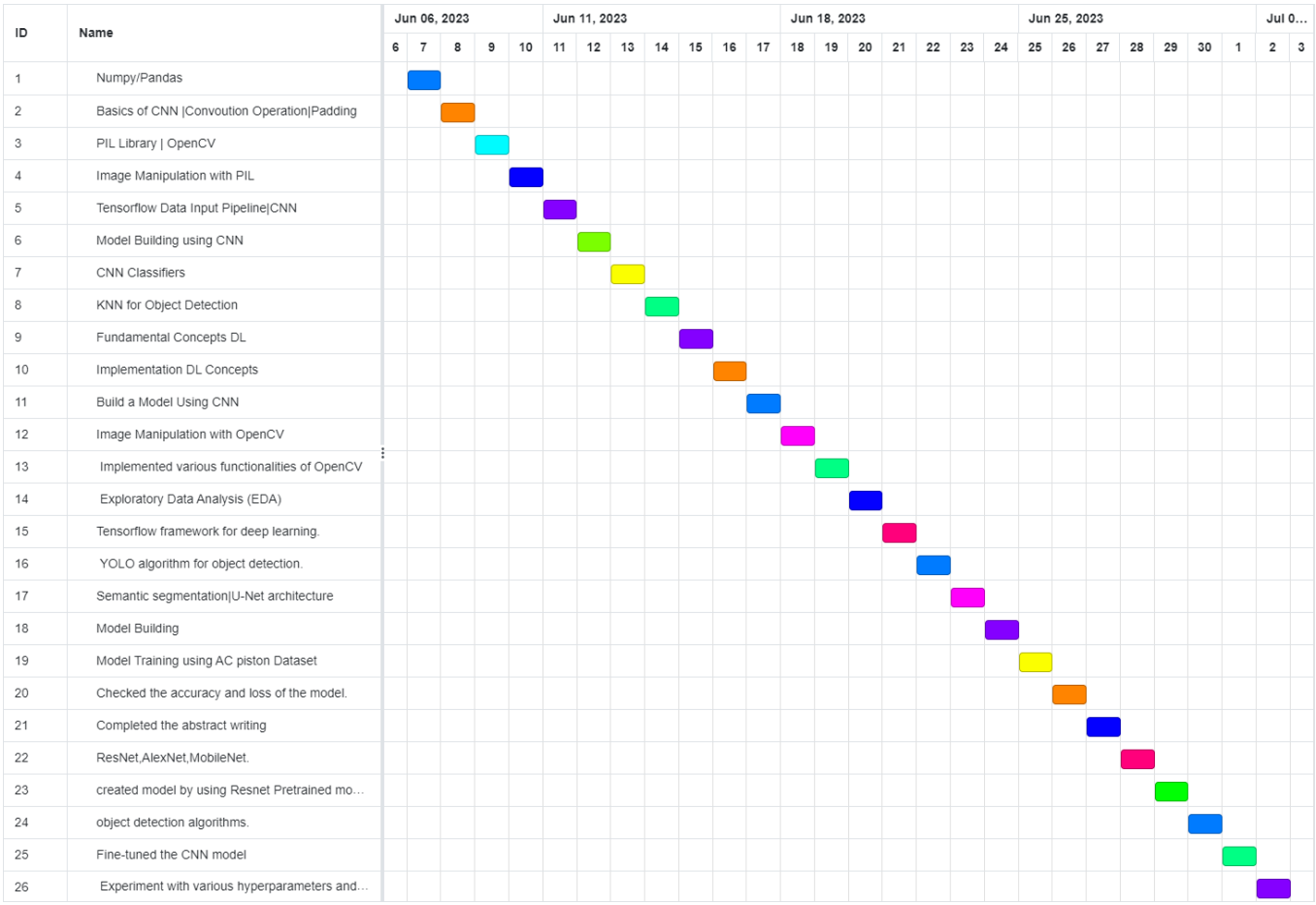

ID	Name
1	Numpy/Pandas
2	Basics of CNN |Convoution Operation|Padding
3	PIL Library | OpenCV
4	Image Manipulation with PIL
5	Tensorflow Data Input Pipeline|CNN
6	Model Building using CNN
7	CNN Classifiers
8	KNN for Object Detection
9	Fundamental Concepts DL
10	Implementation DL Concepts
11	Build a Model Using CNN
12	Image Manipulation with OpenCV
13	Implemented various functionalities of OpenCV
14	Exploratory Data Analysis (EDA)
15	Tensorflow framework for deep learning.
16	YOLO algorithm for object detection.
17	Semantic segmentation|U-Net architecture
18	Model Building
19	Model Training using AC piston Dataset
20	Checked the accuracy and loss of the model.
21	Completed the abstract writing
22	ResNet,AlexNet,MobileNet.
23	created model by using Resnet Pretrained mo…
24	object detection algorithms.
25	Fine-tuned the CNN model
26	Experiment with various hyperparameters and…