

To,

IITD-AIA Foundation of Smart Manufacturing

Subject: **Weekly Progress Report for Week 5**

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 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

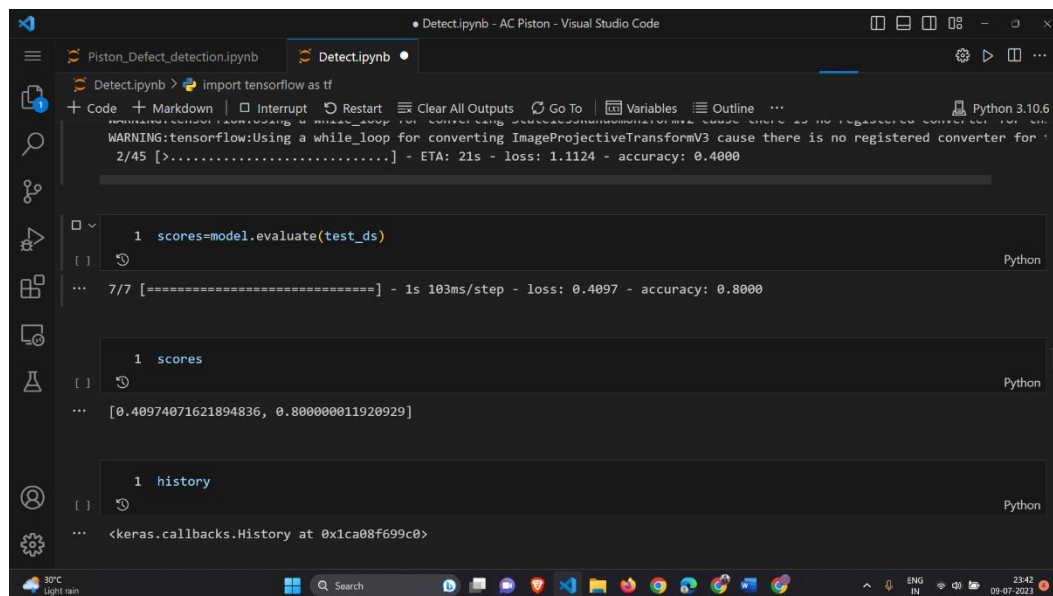
What's happening this -week 5:

- Experiment with various hyperparameters
- Explored about Lazy Predict tool
- Implementation of YOLO Algorithm
- Object detection and its associated algorithms
- Annotated images using labeling tool
- Learned about Neural Style Transfer
- Object detection with Faster R-CNN

Weekly Progress:

July 3:(Monday)

Explore different hyperparameters and architectures to maximize accuracy in computer vision through experimentation with various machine learning classification methods commonly employed in this field.

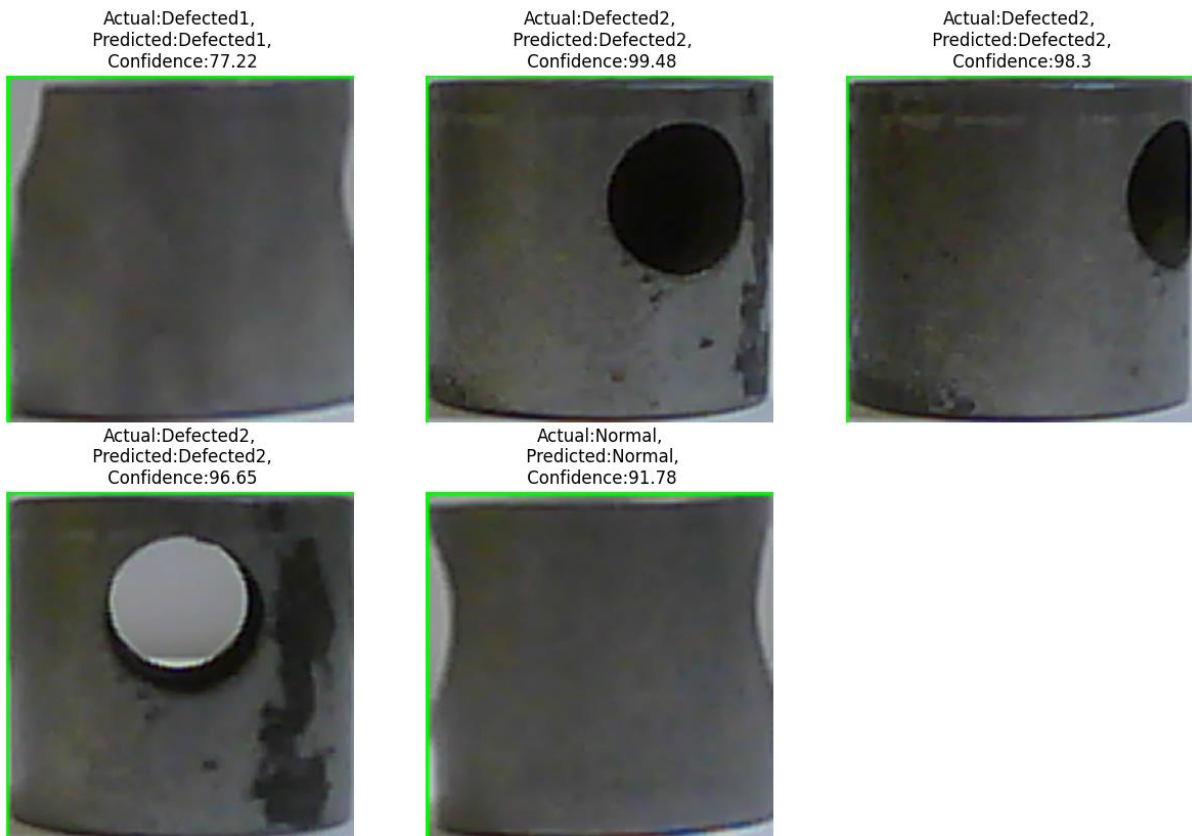


The screenshot shows a Jupyter Notebook titled 'Detect.ipynb' in Visual Studio Code. The notebook is running a TensorFlow training process. The output of the training process is displayed in the console, showing the progress of the training over 7/7 epochs. The output includes the following information:

- Epoch 1: scores=model.evaluate(test_ds)
- Epoch 7/7: [=====] - 1s 103ms/step - loss: 0.4097 - accuracy: 0.8000
- Epoch 1: scores
- Epoch 7/7: [0.40974071621894836, 0.800000011920929]
- Epoch 1: history
- Epoch 7/7: <keras.callbacks.History at 0x1ca08f699c0>

July 4:(Tuesday)

After conducting thorough research on the Lazy Predict tool, I acquired valuable insights and familiarized myself with its functionalities. Continued my work on that project and trying to get more accuracy on the model than previous.



July 5:(Wednesday)

Explored about implementation of YOLO Algorithm on the dataset. Continued my work on that project and tried working on YOLO algorithm.

July 6:(Thursday)

I have learned about object detection and its associated algorithms, deepening my understanding of the subject

Learned about bounding box predictions, intersection over union, non-max suppression.

July 7:(Friday)

Annotated images using labeling tool. Revised important machine learning concepts. Annotated images which can be further used in training the model using YOLO algorithm.

July 8:(Saturday)

I recently discovered Neural Style Transfer and explored different pretrained models to enhance my understanding. Additionally, I evaluated the accuracy of these pretrained models to assess their performance.

July 9:(Sunday)

Learned about Object detection with Faster R-CNN. Implemented pretrained faster R-CNN on COCO dataset.

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ID	Name	Jun, 23					Jul, 23	
		3.	04	11	18	25	02	09
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...							
27	Machine learning classification methods							
28	Explored about Lazy Predict tool							
29	Explored about implementation of YOLO Algori...							
30	Bounding box predictions, intersection over uni...							
31	Annotated images							
32	Learned about Neural Style Transfer.							
33	Object detection with Faster R-CNN							