

To,
IITD-AIA Foundation of Smart Manufacturing

Subject: Weekly Progress Report

Dear sir,

Following is the required progress report to the best of my knowledge considering relevant topics to be covered.

What happened last week:

- Morlet-Wavelets
- PSD study
- Convolutions Operations, Theorem
- CNN Implementation

What's happening this week:

Weekly Progress:

Following are the topics I've brushed upon and intend to learn deeper with upcoming days.

July 10:

- Random Forest:
Random Forest is a popular machine learning algorithm that can be used for both regression and classification tasks. It is an ensemble method that combines multiple decision trees to make predictions.
- Random Forest Implementation.

July 11:

- Defined CNN model.
- Went forward with some iterations.
- Ran into issues

July 12:

- Troubleshooted issues
- Experimented with pre-existing models.

July 13:

- Began working on the front-end part of the project.
- Dash Framework
- Dashboard creation

July 14:

- More work using Dash framework.
- Implemented data in the dashboard

July 15:

- Continued my work on the CNN model and made significant progress after resolving the earlier issue.
- Web application to utilize the machine learning model

July 16:

- Optimized the CNN model.
- Conducted experiments with different optimizers
 - o Adamax
 - o Nadam

Weekly Progress:

This week, I focused on building a model and then proceeded to optimize it.

Issues were arisen and dealt-with.

Resolving the issues also turned out to be a learning experience.

However, it is no easy task optimizing it, may need to search for even more meaningful features from the data which can then be processed by the model.