

To,

IITD-AIA Foundation of Smart Manufacturing

Subject: Weekly Progress Report

INTP23-ML-05: Equipment Failure Prediction for Predictive Maintenance

What is happening this week:

- Started writing internship report
- Working on the final presentation of the internship
- Doing comparative analysis
- Creating table of the result
- Making graphs, diagram to showcase the results
- Concluding my learning
- Reading research papers

Week 7

24th July:

- Learning from the shared resources of Deep Learning
- Practicing on Nasa turbofan engine dataset
- Practicing on CNC mill ware dataset to improve the accuracy
- Working to improve the accuracy of implemented models
- Reading Research papers about similar techniques used.

25th July:

- Learning from the shared resources of Deep Learning
- Practicing on Nasa turbofan engine dataset
- Practicing on CNC mill ware dataset to improve the accuracy
- Improving accuracy of implemented models on both the datasets
- Going through research papers

26th July:

- Summarizing the result, I get from Implemented models on both the dataset
- Working on internship document/ report and presentation
- reading research paper

27th July:

- Summarizing the result, I get from Implemented models on both the dataset
- Working on internship document/ report
 - 1) Briefing about the problem statement
 - 2) Explaining the importance of research in this domain
 - 3) writing a description of dataset
 - 4) started writing about implementation part
- Reading research papers to find ways to present my learning and implementation in a good way

28st July:

- Summarizing the result, I get from Implemented models on both the dataset
- Working on internship document/ report and presentation
- Improving the already written part of the document
- continuing writing about implementation
- making table about result and accuracy of the implemented models
- creating diagram related to the implementation
- Reading research papers

29nd July:

- Summarizing the result, I get from Implemented models on both the dataset
- Working on internship document/ report and presentation
- Writing result analysis and doing comparative analysis of implemented model
- writing conclusion
- Preparing Presentation
- Reading research papers to find ways to present my learning and implementation

30rd July:

- Summarizing the result, I get from Implemented models on both the dataset
- Working on internship document
- continuing writing about implementation
- making table about result and accuracy of the implemented model
- Writing result and collecting all my reference papers
- Working to make presentation

REFERENCES:

1. Nacchia, M., Fruggiero, F., Lambiase, A., & Bruton, K. (2021). A systematic mapping of the advancing use of machine learning techniques for predictive maintenance in the manufacturing sector. *Applied Sciences*, 11(6), 2546.
2. Hesser, D. F., & Markert, B. (2019). Tool wear monitoring of a retrofitted CNC milling machine using artificial neural networks. *Manufacturing letters*, 19, 1-4.
3. Wu, D., Jennings, C., Terpenney, J., Gao, R. X., & Kumara, S. (2017). A comparative study on machine learning algorithms for smart manufacturing: tool wear prediction using random forests. *Journal of Manufacturing Science and Engineering*, 139(7), 071018.
4. Maschler, B., Vietz, H., Jazdi, N., & Weyrich, M. (2020, September). Continual learning of fault prediction for turbofan engines using deep learning with elastic weight consolidation. In *2020 25th IEEE international conference on emerging technologies and factory automation (ETFA)* (Vol. 1, pp. 959-966). IEEE.
5. Lubomski, J. F. (1980, January). Status of NASA full-scale engine aeroelasticity research. In *Struct., Structural Dyn., and Mater. Conf.* (No. NASA-TM-81500).