How to predict analysis on machine learning of aircraft engine

This article aims to prove that Machine Learning (ML) methods are effective for Predictive Maintenance (PdM) and to obtain other developing methods that suitable applied on PdM, especially for aircraft engine, and potential method that can apply on future research, and also compared between articles in International and Indonesia institution. Maintenance factors are important to prognostic the states of a machine. PdM is one of the factor strategies based on real-time data to diagnosis a failure of the machine through forecasting remaining useful life (RUL), especially on aircraft machine where the safety is priority due to enormous cost and human life. ML is the technique that accurately prediction through the data. Applied ML on PdM is the huge contribution for saving cost and human life guarantee of safety. This work provides the literature survey for recent research which trends and challenges on PdM of aircraft engine using ML that compared the research from international and Indonesia from 2016 to 2021. Result of this work shows that ML method, Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) are the best method to calculate PdM with more than 99% on rate accuracy, and low level of Indonesia institution research which focused on PdM on aircraft engine using ML.

Conclusion:

The study of systematic literature review focused on PdM using ML method for aircraft engine is resulting PdM using ML is rather new topic which show the average publish article only 3,7 articles per year that fulfil our criteria. LSTM and GRU are the best for now to calculate PdM, especially on aircraft engine which the accuracy more than 99%. The interesting of this topic is low level in Indonesia, because there are only 3 articles published focusing on PdM using ML which fulfil our criteria, and there is no article focus on aircraft engine. Combination other ML method, tunning parameter, and using real-data is the future possible study that can be applied on ML method for PdM.