**Summary of data (4 time series)**

Operation Conditions: ONE (Sea Level), SIX

Fault modes: ONE (HPC Degradation), TWO (HPC Degradation, Fan Degradation)

\*Three operational settings that have a substantial effect on engine performance.

\*Four time series, four engines, each start with different wear and tear (not fault conditions)

\* The data is contaminated with sensor noise.

**Prediction Goal**

In this dataset the goal is to predict the remaining useful life (RUL) of each engine in the test dataset. RUL is equivalent of number of flights remained for the engine after the last datapoint in the test dataset.

* predict the number of remaining operational cycles before failure in the test set, i.e., the number of operational cycles after the last cycle that the engine will continue to operate. Also provided a vector of true Remaining Useful Life (RUL) values for the test data.

**Summary of current analysis**

Modeling with moving avg data is much better. The best ML model is “Random Forest Regressor” with n\_estimators>300

R2 score >0.94

**Next Steps**

Univariate Holt’s Winter Method works pretty well

Multivariate Vector Auto Regression (VAR)

\*We can use RNN to learn trends in the data