Jet Engine Remaining Useful Life Prediction

Objective

The solution proposed is a machine learning model that can be implemented to perform above mentioned use cases. It will predict the RUL of the engine giving the servicing team an estimate of the health of the engine based on which they can decide how much priority they should give to the engine. If an engine has very low RUL they can give more time to check deploy whether this engine should be used further or retired, or if an engine has very high RUL then they should perform a routine checkup.

Benefits

01 Reduce the time in maintenance.

02 Reduce the money invested in maintenance.

03 Prioritize engine requiring more maintenance

04 Reduce accidents

Data Sharing Agreements

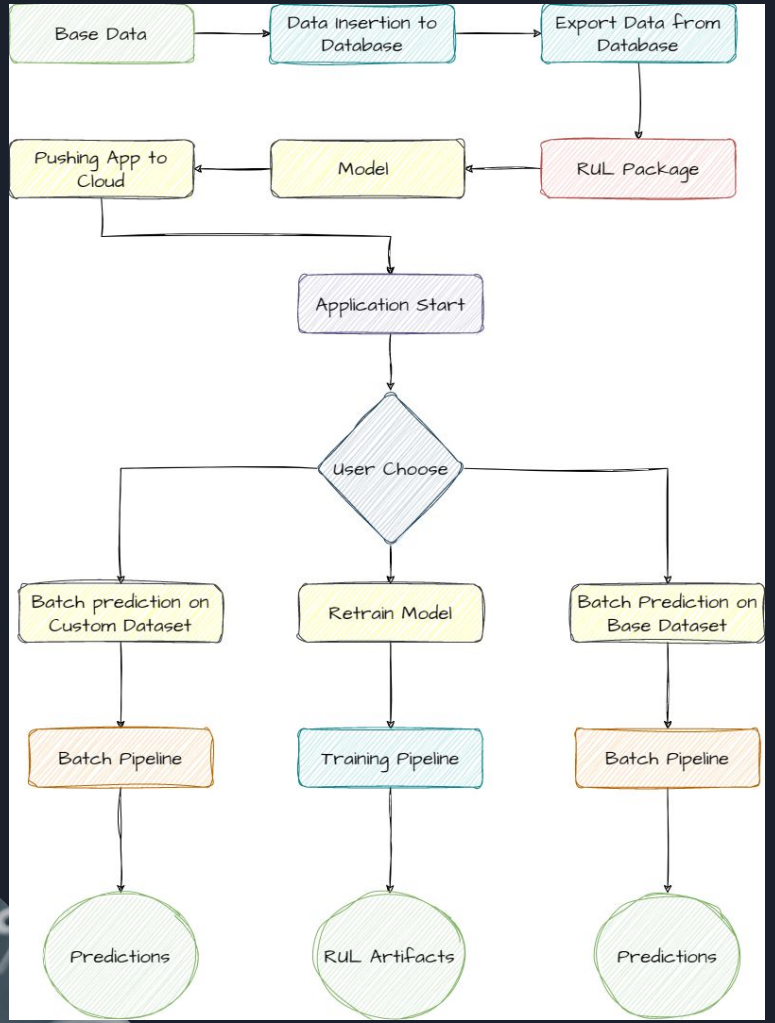
- Base Dataset for training and validation
- Length of dataset
- Number of columns
- Column names
- Column relevance
- Column data types

Data Description

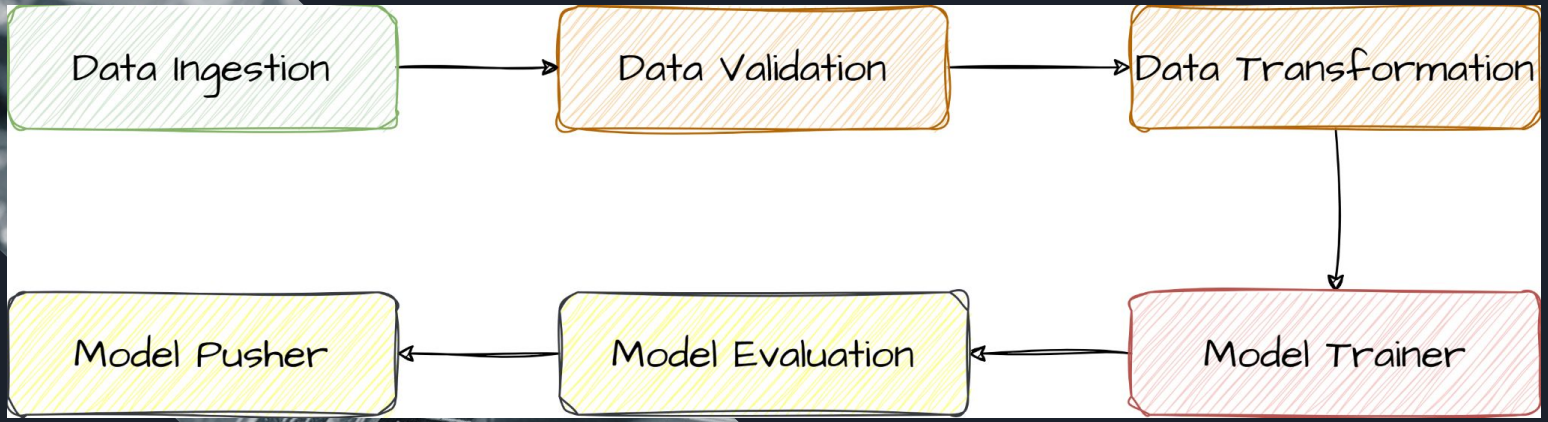
Run-to-Failure simulated data from turbofan jet engines is included. Utilizing C-MAPSS, an engine degradation simulation was performed. Four distinct sets were simulated under various arrangements of operational circumstances and fault types. records data from multiple sensor channels to track the evolution of faults. The Prognostics CoE at NASA Ames supplied the given dataset.

- 20631 rows
- 26 columns.
- Columns:
    - Unit number
    - Time, in cycles
    - Operational setting 1, 2 & 3
    - Sensor measurement 1, 2, 3, …. 26

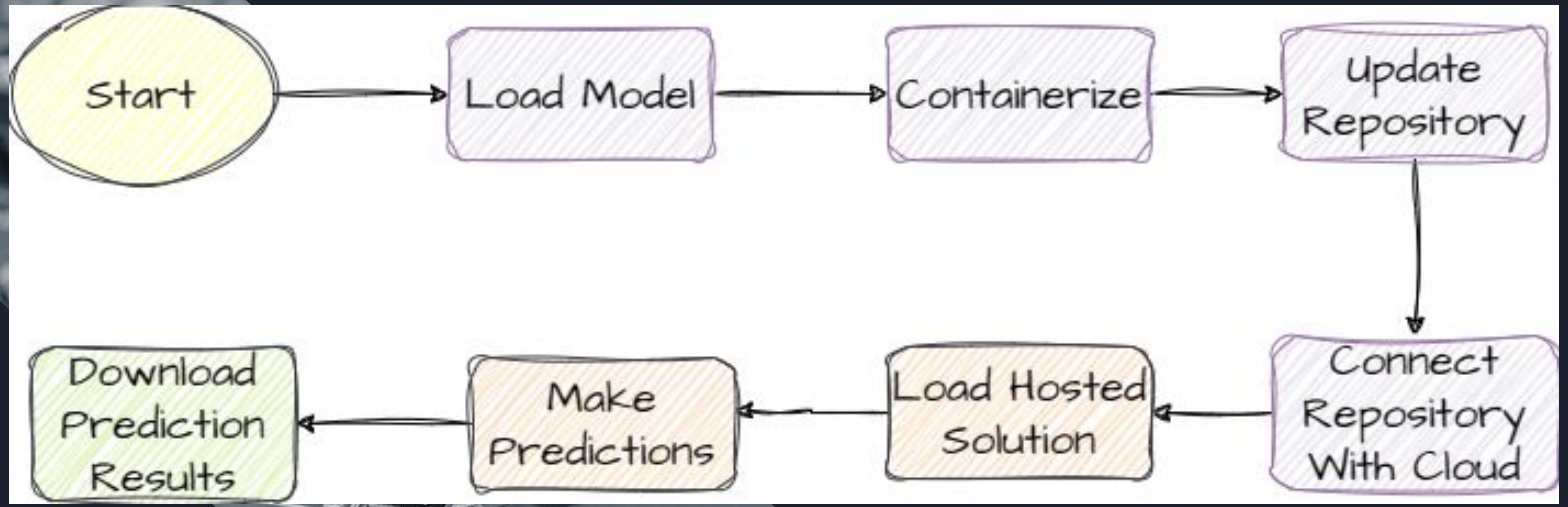
Architecture Flow



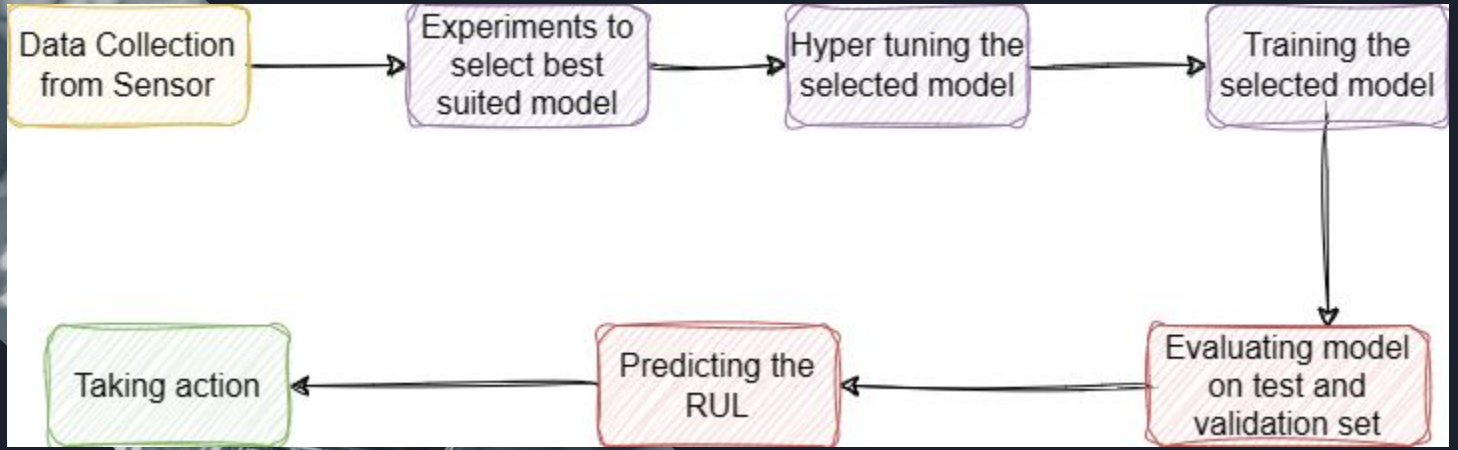
RUL Component Flow



Deployment Flow



Experiment Flow



Q & A

Q1: What is source of data?

Ans: Data is provided by NASA AMES

Q2: What was the tool used for data collection?

Ans: CMaps software was used to model and collect data.

Q3: What's the flow of architecture?

Ans: Refer slide 6 for better understandings

Q4: How are logs managed?

Ans: We are performing logs for each steps in each of the components throughout the pipeline.