Project Name: PrognosAI: AI-Driven Predictive Maintenance System Using Time-Series Sensor Data
Dataset: train_FD001 – NASA Turbofan Jet Engine Data Set
Prepared by: Durga Veera Prasad V
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Milestone 2 Documentation

Objective

The goal of Milestone 2 is to prepare the processed dataset into sequences suitable for training deep learning models (e.g., LSTM/GRU) for Remaining Useful Life (RUL) prediction.

Steps Completed

1. **Data Scaling** – Normalized sensor values using MinMaxScaler.

2. **Sequence Generation** – Created fixed-length sequences (length = 50 cycles) for time-series modeling.

3. **RUL Labeling** – Capped RUL at 125 cycles to avoid skewness from long tails.

4. **Data Saving** – Exported processed sequences into `.npz` format for efficient reuse.

Outputs

- `X_train.npz` and `y_train.npz`: Training sequences and labels.

- Verified sequence distribution and alignment with engine cycles.

Next Steps

- Build baseline deep learning models (LSTM/GRU).

- Define evaluation metrics (RMSE, MAE).

- Begin hyperparameter tuning and cross-validation.