

PrognosAI – Milestone 3 Evaluation & Alerts (Corrected)

Dataset: synthetic CMAPSS-style, samples=5000, timesteps=50, features=14

Cross-validation (KFold):

Fold 1: Train $R^2=97.42\%$, Test $R^2=97.70\%$, RMSE=0.00322, MAE=0.00256
Fold 2: Train $R^2=97.48\%$, Test $R^2=97.53\%$, RMSE=0.00318, MAE=0.00254
Fold 3: Train $R^2=97.47\%$, Test $R^2=97.52\%$, RMSE=0.00317, MAE=0.00255
Fold 4: Train $R^2=97.23\%$, Test $R^2=97.15\%$, RMSE=0.00350, MAE=0.00279
Fold 5: Train $R^2=97.47\%$, Test $R^2=97.02\%$, RMSE=0.00342, MAE=0.00274

Average Train R^2 : 97.41%

Average Test R^2 : 97.38%

Average RMSE: 0.00330

Average MAE: 0.00264

Alert thresholds:

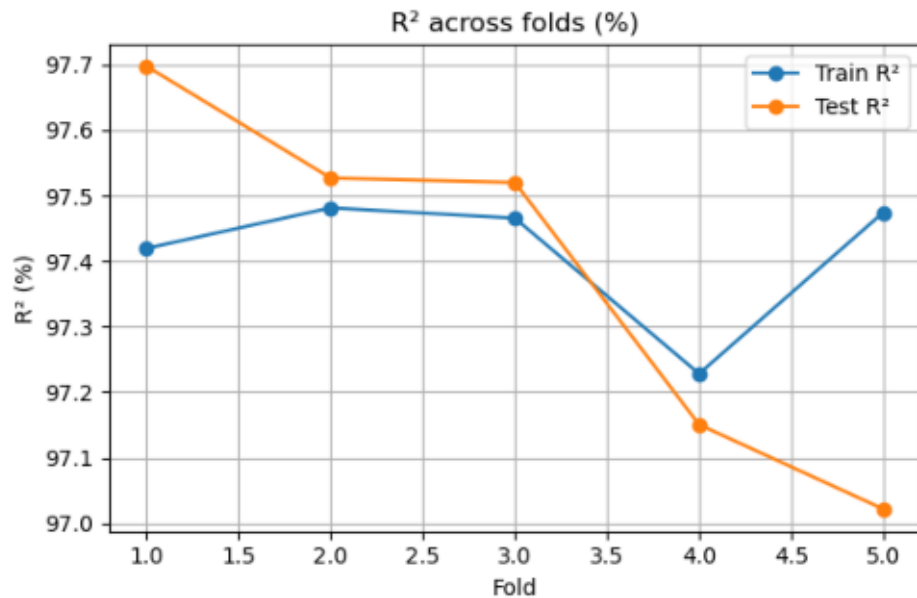
Critical (\leq bottom 20%): 0.43762

Warning (\leq bottom 50%): 0.45443

Critical alerts: 1000

Warning alerts: 1500

Files saved: optimized_lstm_final.keras, final_scalers.pkl, crossval_results_corrected.csv, predicted_rul_with_alerts_full.png, r2_across_folds.png, residuals_hist.png





Residuals (predicted - actual) distribution

