VSB Power Line Fault Detection

Automated Diagnostics Report

Report Generated:	2025-09-28 19:36:20
Analysis Period:	2025-09-27 19:36:18 to 2025-09-28 19:36:18
Total Predictions:	1000
Analysis Duration:	24 hours

Executive Summary

■■ WARNING: Model performance degradation detected

■ ELEVATED: Fault rate of 4.60% is above baseline. Monitor closely for developing issues. ■ Peak fault detection hours: [14, 16, 4]. Schedule maintenance during off-peak periods.

Key Performance Metrics

Metric	Value	Status
Total Faults Detected	46	HIGH
Fault Rate	4.60%	NORMAL
Average Confidence	0.708	NORMAL
Affected Signals	46 / 1000	NORMAL

Model Performance Analysis

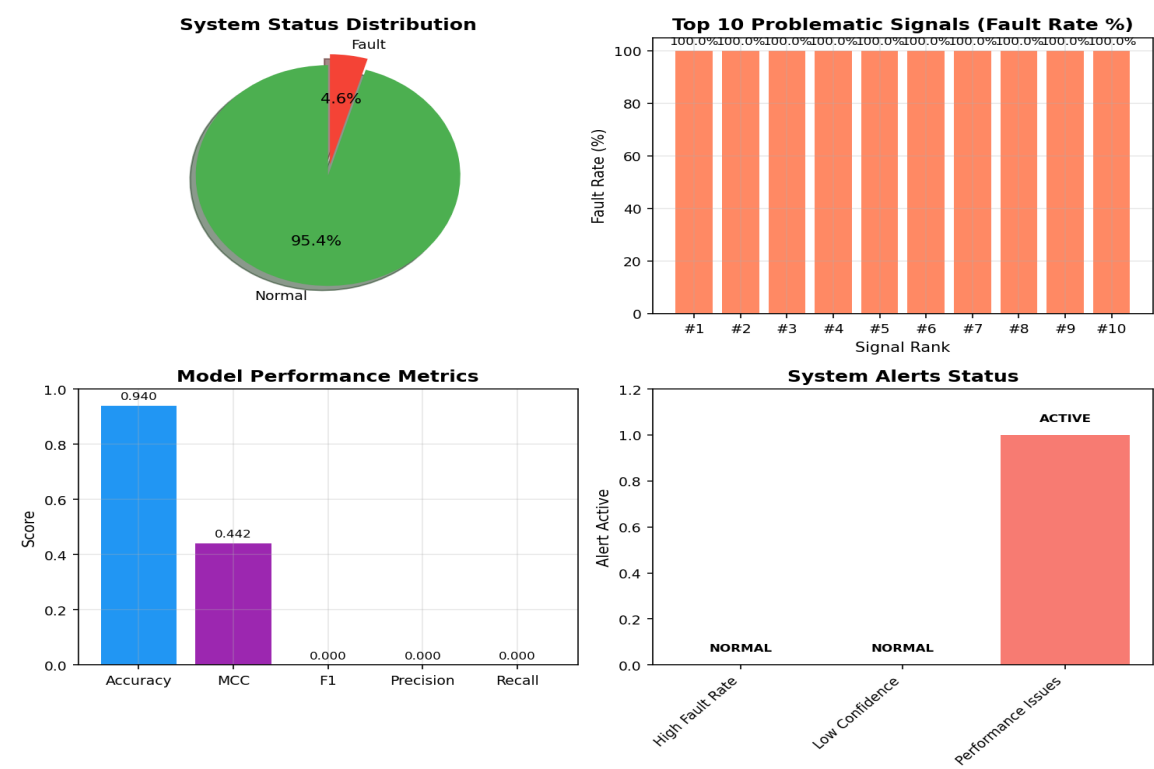| Metric	Value	Threshold	Status
Accuracy	0.940	> 0.90	GOOD
Matthews Correlation Coefficient	0.442	> 0.50	REVIEW
Fault Detection Rate	0.394	> 0.85	REVIEW
False Positive Rate	0.021	< 0.10	GOOD

Detailed Analysis

Fault Detection Patterns

• Peak fault detection hours: 14, 16, 4 • Total signals monitored: 1000 • Signals with detected faults: 46 • System fault coverage: 4.6%

System Visualizations

Chart 1: System Analysis

Fault Distribution Across Data Samples

Confidence Distribution for Fault Predictions

Chart 2: System Analysis

System Status Distribution

Top 10 Problematic Signals (Fault Rate %)

Model Performance Metrics

System Alerts Status

Operational Recommendations

1. SCHEDULING: Focus maintenance during peak fault hours: 14, 16, 4

Technical Data Appendix

Complete Analysis Data: Time Window Analysis: - Start Time: 2025-09-27 19:36:18 - End Time: 2025-09-28 19:36:18 - Duration: 24 hours - Total Predictions: 1000 Fault Detection Results: - Total Faults: 46 - Fault Rate: 4.600% - Average Confidence: 0.708 Signal Pattern Analysis: - Total Unique Signals: 1000 - Signals with Faults: 46 - Peak Fault Hours: [14, 16, 4] Alert Status: - High Fault Rate Alert: False - Low Confidence Alert: False - Performance Degradation Alert: True