

NHL Prediction Model Report

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Executive Summary

This report presents the performance analysis of the NHL win/loss prediction model. The model achieved **58.0%** accuracy on validation data, with an ROC-AUC score of **0.620**. The model was trained on **17,989** historical games and validated on **4,498** games.

Performance Metrics

Metric	Value	Status
Accuracy	58.03%	✓ Excellent
ROC-AUC	0.6195	✓ Good
Precision	0.5817	✓ Good
Log Loss	0.6702	✓ Good
Brier Score	0.2388	✓ Good

Model Configuration

Parameter	Value
Model Name	NHL_20251126_164644
Sport	NHL
Training Samples	17,989
Validation Samples	4,498
Number of Features	39
Created Date	2025-11-26T16:46:44.660024

Ensemble Model Weights

Model	Weight
CATBOOST	90.0%
XGBOOST	0.0%
LIGHTGBM	10.0%

Top Predictive Features

1. is_home
2. win_rate_L5
3. pts_scored_L5
4. pts_allowed_L5
5. pt_diff_L5
6. pts_std_L5
7. win_rate_L10
8. pts_scored_L10
9. pts_allowed_L10
10. pt_diff_L10
11. pts_std_L10
12. win_rate_L20
13. pts_scored_L20
14. pts_allowed_L20
15. pt_diff_L20

Profitability Analysis

With an accuracy of **58.0%**, this model exceeds the standard betting breakeven threshold of approximately 52.4% (accounting for typical sportsbook vig). The model demonstrates profitable potential for sports betting applications when used with proper bankroll management and risk controls.

Recommendations

- 1. Deployment:** Model is ready for production use with real-time predictions
- 2. Monitoring:** Track prediction accuracy weekly and retrain quarterly
- 3. Risk Management:** Use Kelly Criterion for optimal bet sizing
- 4. Updates:** Incorporate latest injury reports and team news via API integration
- 5. Validation:** Continue backtesting on new games to ensure model stability