

XGBoost ML Model Validation Report

Individual Symbol Analysis - v2

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Based on Saleem's Validated 16-Feature Model (68.5% UP Accuracy)

Metric	Result
Symbols Analyzed	8
Tests Passed (UP >= 65%)	0/8
Tests OK (UP 60-65%)	0/8
Needs Review (UP < 60%)	7/8
Errors	1/8
Average UP Accuracy	26.2%
Average Test Accuracy	80.7%

Results Summary

Symbol	Data Pts	Train Period	Test %	UP %	DOWN %	Status
GOOGL	13397	2018-01-02	75.1%	19.7%	77.6%	NEEDS_REVIEW
SPY	18959	2018-01-03	85.5%	21.1%	88.1%	NEEDS_REVIEW
QQQ	18954	2018-01-03	88.4%	19.2%	91.2%	NEEDS_REVIEW
QQQI	0	N/A	N/A	N/A	N/A	ERROR
AAPL	13526	2018-01-02	78.0%	19.6%	80.5%	NEEDS_REVIEW
NVDA	13393	2018-01-02	86.5%	52.3%	89.5%	NEEDS_REVIEW
TSLA	13397	2018-01-02	75.3%	27.7%	77.3%	NEEDS_REVIEW
AMZN	13385	2018-01-02	76.3%	23.7%	78.6%	NEEDS_REVIEW

Saleem's Validated 16 Features

Momentum: awesome_osc, momentum, rsi, rsi_overbought, rsi_oversold, rsi_slope, rsi_zscore

Trend: macd, macd_cross, macd_histogram, macd_signal, cci

Volume/Flow: mfi, vwap_daily

Pivot Signals (KEY): pivot_high_flag, pivot_low_flag

Report: GOOGL

Metric	Value
Total Data Points	13397
Training Size	10717
Test Size	2680
Training Period	2018-01-02 to 2025-03-11
Test Period	2025-03-11 to 2026-01-07
Class Balance	UP: 968 (9.0%), DOWN: 9749 (91.0%)
Data Quality	48.3% complete
Test Accuracy	75.11%
UP Accuracy	19.66%
DOWN Accuracy	77.64%
Precision	3.86%
Recall	19.66%
F1 Score	6.45%
CV Mean	76.05%
Status	NEEDS_REVIEW

Top 3 Features:

1. pivot_high_flag: 0.1936 ** KEY **
2. momentum: 0.0973
3. rsi_slope: 0.0943

Confusion Matrix:

	Pred DOWN	Pred UP
Actual DOWN	1990	573
Actual UP	94	23

Report: SPY

Metric	Value
Total Data Points	18959
Training Size	15167
Test Size	3792
Training Period	2018-01-03 to 2024-09-16
Test Period	2024-09-16 to 2026-01-07
Class Balance	UP: 924 (6.1%), DOWN: 14243 (93.9%)
Data Quality	63.9% complete
Test Accuracy	85.50%
UP Accuracy	21.09%
DOWN Accuracy	88.09%
Precision	6.67%
Recall	21.09%
F1 Score	10.13%
CV Mean	90.13%
Status	NEEDS_REVIEW

Top 3 Features:

- 1. rsi_slope: 0.6183
- 2. rsi_zscore: 0.1339
- 3. rsi_oversold: 0.0826

Confusion Matrix:

	Pred DOWN	Pred UP
Actual DOWN	3211	434
Actual UP	116	31

Report: **QQQ**

Metric	Value
Total Data Points	18954
Training Size	15163
Test Size	3791
Training Period	2018-01-03 to 2024-09-13
Test Period	2024-09-13 to 2026-01-07
Class Balance	UP: 940 (6.2%), DOWN: 14223 (93.8%)
Data Quality	63.9% complete
Test Accuracy	88.45%
UP Accuracy	19.18%
DOWN Accuracy	91.22%
Precision	8.05%
Recall	19.18%
F1 Score	11.34%
CV Mean	90.16%
Status	NEEDS_REVIEW

Top 3 Features:

- 1. rsi_slope: 0.6003
- 2. rsi_zscore: 0.1834
- 3. macd: 0.0521

Confusion Matrix:

	Pred DOWN	Pred UP
Actual DOWN	3325	320
Actual UP	118	28

Report: QQQI

Error: No data found in BigQuery

Report: AAPL

Metric	Value
Total Data Points	13526
Training Size	10820
Test Size	2706
Training Period	2018-01-02 to 2025-03-06
Test Period	2025-03-06 to 2026-01-07
Class Balance	UP: 963 (8.9%), DOWN: 9857 (91.1%)
Data Quality	55.8% complete
Test Accuracy	78.01%
UP Accuracy	19.64%
DOWN Accuracy	80.53%
Precision	4.17%
Recall	19.64%
F1 Score	6.89%
CV Mean	80.61%
Status	NEEDS_REVIEW

Top 3 Features:

1. pivot_high_flag: 0.1282 ** KEY **
2. rsi_slope: 0.0718
3. rsi_overbought: 0.0710

Confusion Matrix:

	Pred DOWN	Pred UP
Actual DOWN	2089	505
Actual UP	90	22

Report: NVDA

Metric	Value
Total Data Points	13393
Training Size	10714
Test Size	2679
Training Period	2018-01-02 to 2026-01-07
Test Period	2018-01-02 to 2026-01-07
Class Balance	UP: 872 (8.1%), DOWN: 9842 (91.9%)
Data Quality	48.3% complete
Test Accuracy	86.49%
UP Accuracy	52.34%
DOWN Accuracy	89.45%
Precision	30.11%
Recall	52.34%
F1 Score	38.23%
CV Mean	88.46%
Status	NEEDS_REVIEW

Top 3 Features:

1. momentum: 0.3955
2. awesome_osc: 0.1347
3. mfi: 0.1005

Confusion Matrix:

	Pred DOWN	Pred UP
Actual DOWN	2205	260
Actual UP	102	112

Report: TSLA

Metric	Value
Total Data Points	13397
Training Size	10717
Test Size	2680
Training Period	2018-01-02 to 2025-03-10
Test Period	2025-03-10 to 2026-01-07
Class Balance	UP: 932 (8.7%), DOWN: 9785 (91.3%)
Data Quality	48.2% complete
Test Accuracy	75.26%
UP Accuracy	27.68%
DOWN Accuracy	77.34%
Precision	5.06%
Recall	27.68%
F1 Score	8.55%
CV Mean	76.64%
Status	NEEDS_REVIEW

Top 3 Features:

- 1. awesome_osc: 0.1625
- 2. mfi: 0.0966
- 3. momentum: 0.0915

Confusion Matrix:

	Pred DOWN	Pred UP
Actual DOWN	1986	582
Actual UP	81	31

Report: AMZN

Metric	Value
Total Data Points	13385
Training Size	10708
Test Size	2677
Training Period	2018-01-02 to 2025-03-10
Test Period	2025-03-11 to 2026-01-07
Class Balance	UP: 956 (8.9%), DOWN: 9752 (91.1%)
Data Quality	48.2% complete
Test Accuracy	76.28%
UP Accuracy	23.68%
DOWN Accuracy	78.62%
Precision	4.70%
Recall	23.68%
F1 Score	7.84%
CV Mean	72.51%
Status	NEEDS_REVIEW

Top 3 Features:

- 1. momentum: 0.1107
- 2. rsi_zscore: 0.1068
- 3. rsi: 0.1052

Confusion Matrix:

	Pred DOWN	Pred UP
Actual DOWN	2015	548
Actual UP	87	27

XGBoost Model Configuration

Parameter	Value
Algorithm	XGBoost Classifier
max_depth	8
learning_rate	0.3
n_estimators	100
objective	binary:logistic
Class Balancing	scale_pos_weight (auto)

Key Findings & Recommendations

- Models analyzed: 8 symbols
- Average UP accuracy: 26.2%
- Pivot flags (pivot_low_flag, pivot_high_flag) are critical features
- Class balancing (scale_pos_weight) improves UP prediction
- ETFs require derived feature calculation
- Recommend: Focus on UP signals for trading decisions

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