Classification Report

|              | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0            | 0.66      | 0.92   | 0.77     | 59      |
| 1            | 0.29      | 0.07   | 0.11     | 30      |
|              |           |        |          |         |
| accuracy     |           |        | 0.63     | 89      |
| macro avg    | 0.47      | 0.49   | 0.44     | 89      |
| weighted avg | 0.53      | 0.63   | 0.54     | 89      |

Accuracy
Accuracy: 0.6292134831460674

Optimal Win Ranges Summary for Long Trades

| | feature | trade_type | optimal_win_range_start | optimal_win_range_end |
|---|---|---|---|---|
| 0 | 62_ZLEMA_percent_away | LE | -0.009227 | 0.309345 |
| 1 | 62_ZLEMA_percent_away | LE | 1.082119 | 3.141798 |
| 2 | ADX | LE | -0.545905 | 2.736595 |
| 3 | CHAIKIN | LE | -2.607515 | -0.509294 |
| 4 | DM_ADX_PLOT | LE | -0.545905 | 2.736595 |
| 5 | VOLUME | LE | -0.976899 | 0.230321 |
| 6 | VOLUME | LE | 0.632728 | 1.431444 |
| 7 | RIND | LE | -0.981483 | -0.329216 |
| 8 | RIND | LE | 0.310507 | 1.025491 |
| 9 | RSI_DEFAULT | LE | -1.712182 | -0.451679 |
| 10 | RSI_DEFAULT | LE | -0.068315 | 0.449994 |
| 11 | VROC | LE | -0.819725 | 0.127809 |
| 12 | VROC | LE | 1.038426 | 1.622943 |
| 13 | VROC | LE | 3.733360 | 4.416322 |
| 14 | 1000_SMA_percent_away | LE | -2.513960 | -1.537367 |
| 15 | 1000_SMA_percent_away | LE | 0.225466 | 1.620008 |
| 16 | 14_MA_ENVELOPES_UPPER_percent_away | LE | -0.377066 | 0.152099 |
| 17 | 14_MA_ENVELOPES_UPPER_percent_away | LE | 0.336326 | 0.724380 |
| 18 | 14_MA_ENVELOPES_UPPER_percent_away | LE | 1.034039 | 3.538751 |

Optimal Win Ranges Summary for Short Trades

| | feature | trade_type | optimal_win_range_start | optimal_win_range_end |
|---|---|---|---|---|
| 0 | 62_ZLEMA_percent_away | SE | -8.786650 | -1.266436 |
| 1 | 62_ZLEMA_percent_away | SE | -0.194903 | 0.944818 |
| 2 | ADX | SE | -1.385542 | -0.462664 |
| 3 | ADX | SE | -0.152036 | 0.757337 |
| 4 | ADX | SE | 2.035861 | 2.612098 |
| 5 | CHAIKIN | SE | -1.265811 | 0.435224 |
| 6 | CHAIKIN | SE | 3.142159 | 3.452925 |
| 7 | DM_ADX_PLOT | SE | -1.385542 | -0.462664 |
| 8 | DM_ADX_PLOT | SE | -0.152036 | 0.757337 |
| 9 | DM_ADX_PLOT | SE | 2.035861 | 2.612098 |
| 10 | VOLUME | SE | -1.293947 | -0.365052 |
| 11 | VOLUME | SE | 1.408291 | 2.736892 |
| 12 | VOLUME | SE | 3.975418 | 4.330086 |
| 13 | RIND | SE | -0.102113 | 0.560963 |
| 14 | RSI_DEFAULT | SE | -1.619338 | -0.530473 |
| 15 | RSI_DEFAULT | SE | 1.454436 | 9.711659 |
| 16 | VROC | SE | -0.838718 | -0.076650 |
| 17 | VROC | SE | 2.515743 | 4.107921 |
| 18 | VROC | SE | 5.502778 | 5.958658 |
| 19 | 1000_SMA_percent_away | SE | -1.281663 | -0.955644 |
| 20 | 1000_SMA_percent_away | SE | 0.256165 | 1.523335 |
| 21 | 1000_SMA_percent_away | SE | 3.614781 | 4.537478 |
| 22 | 14_MA_ENVELOPES_UPPER_percent_away | SE | -2.598799 | -2.563443 |
| 23 | 14_MA_ENVELOPES_UPPER_percent_away | SE | -2.390201 | -1.057293 |
| 24 | 14_MA_ENVELOPES_UPPER_percent_away | SE | -0.671917 | 0.933229 |

Optimal Win Ranges Summary for Both Long and Short Trades

| | feature | trade_type | optimal_win_range_start | optimal_win_range_end |
|---|---|---|---|---|
| 0 | 62_ZLEMA_percent_away | | -8.786650 | -0.965696 |
| 1 | 62_ZLEMA_percent_away | | -0.547782 | 0.120880 |
| 2 | 62_ZLEMA_percent_away | | 1.171634 | 3.141798 |
| 3 | ADX | | -0.476944 | 1.647026 |
| 4 | ADX | | 1.982632 | 2.736595 |
| 5 | CHAIKIN | | -2.835997 | 0.238950 |
| 6 | CHAIKIN | | 2.994954 | 3.559240 |
| 7 | CHAIKIN | | 5.284809 | 5.333877 |
| 8 | DM_ADX_PLOT | | -0.476944 | 1.647026 |
| 9 | DM_ADX_PLOT | | 1.982632 | 2.736595 |
| 10 | VOLUME | | -1.293947 | -0.037950 |
| 11 | VOLUME | | 0.925387 | 1.650938 |
| 12 | VOLUME | | 1.846044 | 2.358198 |
| 13 | RIND | | -0.704866 | 0.693373 |
| 14 | RSI_DEFAULT | | -1.712182 | -0.500043 |
| 15 | RSI_DEFAULT | | 1.478260 | 9.711659 |
| 16 | VROC | | -0.838718 | -0.049433 |
| 17 | VROC | | 3.495545 | 4.325655 |
| 18 | VROC | | 5.686491 | 5.958658 |
| 19 | 1000_SMA_percent_away | | -2.513960 | -1.638706 |
| 20 | 1000_SMA_percent_away | | 0.217678 | 1.954068 |
| 21 | 1000_SMA_percent_away | | 3.584581 | 4.537478 |
| 22 | 14_MA_ENVELOPES_UPPER_percent_away | | -2.598799 | -1.112025 |
| 23 | 14_MA_ENVELOPES_UPPER_percent_away | | -0.485368 | 0.067564 |
| 24 | 14_MA_ENVELOPES_UPPER_percent_away | | 1.511332 | 3.538751 |

Loss Mitigation Analysis

| | count | mean | std | min | 25% | 50% | 75% | max |
|---|---|---|---|---|---|---|---|---|
| ADX | 161.0 | -0.086724 | 1.033868 | -1.856146 | -0.816921 | -0.279124 | 0.611044 | 2.684127 |
| AROON DOWN | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.00000 |
| AROON UP | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ATR | 161.0 | 0.089757 | 0.990835 | -1.569222 | -0.625525 | -0.094696 | 0.731039 | 3.473657 |
| AWESOME | 161.0 | -0.039341 | 0.981945 | -1.229055 | -1.014987 | -0.558666 | 0.982758 | 1.162602 |
| CCI | 161.0 | -0.042472 | 1.017479 | -1.710272 | -1.018385 | -0.132852 | 0.930918 | 1.539593 |
| CHAIKIN | 161.0 | 0.152176 | 1.065306 | -2.835997 | -0.381632 | -0.038888 | 0.535399 | 4.891595 |
| CMO | 161.0 | -0.033158 | 0.975329 | -2.427354 | -0.717361 | -0.041638 | 0.634085 | 2.821059 |
| DISPARITY_INDEX | 161.0 | 0.062717 | 0.784129 | -2.137917 | -0.022680 | -0.022680 | -0.022680 | 2.0925 |
| DM_ADX_PLOT | 161.0 | -0.086724 | 1.033868 | -1.856146 | -0.816921 | -0.279124 | 0.611044 | 2.68412 |
| DM_DI_MINUS | 161.0 | 0.016292 | 0.988215 | -2.355034 | -0.847005 | 0.258633 | 0.852820 | 1.567347 |
| DM_DI_PLUS | 161.0 | -0.036719 | 0.912349 | -2.164098 | -0.778099 | 0.060892 | 0.740956 | 1.402539 |
| DYNAMIC_MOMENTUM | 161.0 | 0.024852 | 0.982237 | -1.147007 | -1.128881 | 0.117277 | 1.181169 | 1.2 |
| FISHER_TRANSFORM | 161.0 | -0.034812 | 0.992269 | -1.176961 | -1.165929 | -0.299934 | 1.109376 | 1.11 |
| LIN_REG_SLOPE | 161.0 | -0.063989 | 1.012748 | -1.830464 | -1.000933 | -0.159880 | 0.888555 | 1.71806 |
| MACD_AVG | 161.0 | -0.037604 | 0.941314 | -1.324624 | -0.938041 | -0.531749 | 0.891787 | 1.245018 |
| MACD_DEFAULT | 161.0 | -0.042298 | 0.956778 | -1.278772 | -0.975890 | -0.557781 | 0.926998 | 1.2002 |
| MACD_DIFF | 161.0 | -0.013007 | 0.731834 | -1.361020 | -0.571660 | -0.030803 | 0.539290 | 1.445592 |
| MFI | 161.0 | 0.090901 | 0.977689 | -1.900620 | -0.671071 | 0.160100 | 0.961028 | 2.040925 |
| MOMENTUM | 161.0 | -0.029736 | 0.976579 | -2.518763 | -0.537387 | -0.042043 | 0.453301 | 2.930021 |
| PFE | 161.0 | -0.036801 | 0.978515 | -1.279243 | -1.097408 | -0.272154 | 1.070633 | 1.210506 |
| RIND | 161.0 | 0.024435 | 1.066203 | -1.480718 | -0.967343 | -0.046757 | 0.863972 | 2.777942 |
| RSI_AVERAGE | 161.0 | -0.019465 | 0.964388 | -1.611402 | -0.846854 | -0.350340 | 0.833380 | 1.55128 |
| RSI_DEFAULT | 161.0 | 0.045158 | 0.806884 | -1.696035 | -0.501174 | -0.016771 | 0.713870 | 1.610016 |
| RSS | 161.0 | -0.052284 | 0.996792 | -1.288471 | -1.123238 | -0.145975 | 1.021024 | 1.234005 |
| RVI | 161.0 | -0.036774 | 0.986898 | -1.346030 | -1.008510 | -0.618802 | 0.959318 | 1.300526 |
| R_SQUARED | 161.0 | 0.079282 | 1.223987 | -0.235038 | -0.235038 | -0.235038 | -0.235038 | 6.48249 |
| STOCH_FAST_D | 161.0 | -0.060309 | 0.999631 | -1.187456 | -1.017111 | -0.856491 | 0.951241 | 1.11750 |
| STOCH_FAST_K | 161.0 | 0.047957 | 1.016528 | -1.801193 | -0.996574 | 0.103517 | 1.034170 | 2.50568 |
| TRIX_DEFAULT | 161.0 | -0.004517 | 0.958357 | -1.377299 | -0.037796 | -0.037796 | 1.301707 | 1.30170 |
| TRIX_SIGNAL | 161.0 | 0.023098 | 0.948604 | -1.406677 | -0.044583 | -0.044583 | 1.317511 | 1.317511 |
| VOLUME | 161.0 | 0.087517 | 1.092542 | -1.293947 | -0.671360 | -0.131785 | 0.333772 | 4.561827 |
| VOLUME_DOWN | 161.0 | -0.007181 | 0.992374 | -0.694961 | -0.694961 | -0.694961 | 0.478686 | 4.4071 |
| VOLUME_UP | 161.0 | 0.097487 | 1.161919 | -0.655680 | -0.655680 | -0.449074 | 0.563224 | 5.395945 |
| VORTEX_MINUS | 161.0 | 0.056227 | 0.990559 | -1.356432 | -0.994989 | 0.270063 | 1.083310 | 1.62547 |
| VORTEX_PLUS | 161.0 | -0.047229 | 0.984130 | -1.242821 | -1.151938 | -0.243107 | 1.029256 | 1.48367 |
| VROC | 161.0 | 0.111302 | 1.098421 | -0.830880 | -0.545617 | -0.256553 | 0.348074 | 5.326939 |
| WILLIAMS_%R | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| strategy_amount | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| account_amount | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| DIV_BULL | 161.0 | 0.060427 | 1.003068 | -0.971073 | -0.971073 | 1.029789 | 1.029789 | 1.029789 |
| DIV_BEAR | 161.0 | -0.060427 | 1.003068 | -1.029789 | -1.029789 | -1.029789 | 0.971073 | 0.971073 |
| CHOP_INDEX | 161.0 | 0.065839 | 0.994425 | -1.380297 | -0.664986 | -0.384246 | 0.717563 | 2.534683 |
| AROON_UP | 161.0 | -0.032107 | 0.988496 | -1.223579 | -1.223579 | 0.163214 | 0.933510 | 0.933510 |
| AROON_DOWN | 161.0 | 0.062059 | 1.002952 | -1.159877 | -1.159877 | 0.993562 | 0.993562 | 0.99356 |
| ACCUM_DIST | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| OBV | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| WILLIAMS__R | 161.0 | 0.047957 | 1.016528 | -1.801193 | -0.996574 | 0.103517 | 1.034170 | 2.505688 |
| CHANDE_CMO | 161.0 | -0.033158 | 0.975329 | -2.427354 | -0.717361 | -0.041638 | 0.634085 | 2.82105 |
| TSI | 161.0 | -0.042233 | 0.961280 | -1.273517 | -1.042728 | -0.231375 | 0.967703 | 1.188235 |
| 1000_SMA_percent_away | 161.0 | -0.054289 | 0.969462 | -2.284117 | -0.560677 | -0.082181 | 0.619672 | 2.43 |
| 144_SMA_percent_away | 161.0 | -0.007900 | 0.874176 | -1.824832 | -0.752271 | -0.264145 | 0.761354 | 1.598 |
| 14_P_MA_ENVELOPES_LOWER_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0 |  |
| 14_P_MA_ENVELOPES_MID_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000 |  |
| 14_P_MA_ENVELOPES_UPPER_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0 |  |
| 236_EMA_percent_away | 161.0 | -0.014981 | 0.910938 | -2.278749 | -0.642888 | -0.107425 | 0.728828 | 2.019 |
| 382_EMA_percent_away | 161.0 | -0.022606 | 0.939924 | -2.535754 | -0.650709 | 0.035614 | 0.624059 | 2.246 |
| 618_EMA_percent_away | 161.0 | -0.036559 | 0.959180 | -2.526879 | -0.655269 | 0.014647 | 0.536922 | 2.425 |
| 62_ZLEMA_percent_away | 161.0 | 0.007904 | 0.828307 | -1.842191 | -0.762863 | 0.200388 | 0.742982 | 1.35 |
| 8_ZLEMA_percent_away | 161.0 | 0.049304 | 0.955599 | -1.970770 | -0.887448 | 0.737721 | 0.940378 | 1.312 |
| ACCUM_DIST_percent_away | 161.0 | 0.022234 | 0.986007 | -0.970893 | -0.703996 | -0.253135 | 0.361190 | 4. |
| APZ_LOW_percent_away | 161.0 | 0.054962 | 0.956047 | -2.011243 | -0.889745 | 0.744222 | 0.958067 | 1.32 |
| APZ_UPPER_percent_away | 161.0 | 0.038502 | 0.949815 | -1.998469 | -0.900980 | 0.670735 | 0.966535 | 1.3 |

Loss Mitigation Analysis

| | count | mean | std | min | 25% | 50% | 75% | max |
|---|---|---|---|---|---|---|---|---|
| BOLLI_500_P_LOWER_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | |
| BOLLI_500_P_MID_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | |
| BOLLI_500_P_UPPER_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | |
| CP+_C_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_R1_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_R2_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_R3_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_R4_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_R5_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_R6_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_S1_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_S2_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_S3_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_S4_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_S5_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| CP+_S6_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| LIN_REG_percent_away | 161.0 | 0.051824 | 0.965211 | -1.811486 | -0.908261 | 0.643023 | 0.979421 | 1.289 |
| LIN_REG_INTERCEPT_percent_away | 161.0 | -0.029671 | 0.813782 | -3.492166 | -0.370264 | -0.023743 | 0.272038 | |
| OBV_percent_away | 161.0 | 0.022494 | 0.987962 | -1.007527 | -0.715813 | -0.253923 | 0.369669 | 4.12344 |
| VROC_percent_away | 161.0 | 0.102744 | 1.264883 | 0.003057 | 0.003057 | 0.003057 | 0.003057 | 16.0526 |
| VWAP_percent_away | 161.0 | -0.004920 | 0.997914 | -3.343468 | -0.425954 | 0.083211 | 0.534928 | 2.7315 |
| VWAP_CLOUD_HIGH_percent_away | 161.0 | 0.004632 | 0.994155 | -4.238419 | -0.207008 | 0.492549 | 0.612840 | |
| VWAP_CLOUD_LOW_percent_away | 161.0 | -0.018531 | 1.020223 | -0.668333 | -0.571711 | -0.530098 | 0.18266 | |
| VWAP_L1_percent_away | 161.0 | 0.033598 | 1.007244 | -2.463562 | -0.550016 | -0.036018 | 0.560001 | 3.48 |
| VWAP_L2_percent_away | 161.0 | 0.068150 | 1.024710 | -1.805910 | -0.691588 | -0.158509 | 0.516157 | 3.97 |
| VWAP_U1_percent_away | 161.0 | -0.033751 | 0.999296 | -3.827084 | -0.460838 | 0.179575 | 0.614244 | 1.90 |
| VWAP_U2_percent_away | 161.0 | -0.051815 | 1.004183 | -4.045844 | -0.473131 | 0.310372 | 0.638305 | 1.24 |
| ZIGZAG_HIGH_percent_away | 161.0 | 0.073162 | 0.898233 | -4.632593 | -0.001429 | 0.414480 | 0.458993 | 1. |
| ZIGZAG_LOW_percent_away | 161.0 | -0.063405 | 0.593196 | -0.822025 | -0.336612 | -0.299673 | 0.039531 | 2. |
| VOLUME_UP_percent_away | 161.0 | 0.083313 | 1.660656 | -0.047565 | -0.047565 | -0.047565 | -0.047565 | 21 |
| CP__R6_percent_away | 161.0 | -0.000669 | 1.020631 | -2.499174 | -0.674171 | 0.014235 | 0.810805 | 2.172 |
| CP__S6_percent_away | 161.0 | -0.077161 | 0.993780 | -1.455098 | -0.881476 | -0.319022 | 0.445941 | 2.672 |
| CHAIKIN_percent_away | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| BOLLI_500_UPPER_percent_away | 161.0 | -0.010971 | 0.979219 | -3.612127 | -0.522336 | 0.158419 | 0.686827 | |
| CP__S3_percent_away | 161.0 | -0.080173 | 1.012653 | -2.019182 | -0.910201 | -0.061938 | 0.557939 | 2.677 |
| BOLLI_500_LOWER_percent_away | 161.0 | -0.027122 | 0.954706 | -1.930522 | -0.745580 | -0.042059 | 0.491800 | |
| 14_MA_ENVELOPES_UPPER_percent_away | 161.0 | 0.038318 | 0.914088 | -2.454637 | -0.863963 | 0.532139 | 0.88 | |
| 14_MA_ENVELOPES_LOWER_percent_away | 161.0 | 0.038327 | 0.914036 | -2.454502 | -0.864895 | 0.531873 | 0.88 | |
| 14_MA_ENVELOPES_MID_percent_away | 161.0 | 0.038305 | 0.914053 | -2.454700 | -0.863995 | 0.532908 | 0.8867 | |
| CP__S2_percent_away | 161.0 | -0.078610 | 1.015381 | -2.040837 | -0.905768 | -0.048792 | 0.558686 | 2.614 |
| VOLUME_DOWN_percent_away | 161.0 | 0.083313 | 1.660656 | -0.047565 | -0.047565 | -0.047565 | -0.047565 | |
| CP__S1_percent_away | 161.0 | -0.076540 | 1.018175 | -2.135086 | -0.833336 | -0.016894 | 0.557401 | 2.535 |
| CP__R5_percent_away | 161.0 | -0.024394 | 1.028781 | -2.759710 | -0.761173 | 0.167312 | 0.769370 | 2.106 |
| CP__R4_percent_away | 161.0 | -0.048407 | 1.031246 | -2.775388 | -0.755696 | 0.153103 | 0.661412 | 1.827 |
| CP__R1_percent_away | 161.0 | -0.070768 | 1.023575 | -2.393238 | -0.664270 | 0.041792 | 0.539985 | 2.321 |
| CP__C_percent_away | 161.0 | -0.073930 | 1.020944 | -2.269003 | -0.752572 | -0.009869 | 0.552733 | 2.4373 |
| CP__S5_percent_away | 161.0 | -0.081342 | 0.998079 | -1.704626 | -0.812217 | -0.251391 | 0.550570 | 2.779 |
| BOLLI_500_MID_percent_away | 161.0 | -0.019248 | 0.965564 | -2.909324 | -0.632198 | 0.055874 | 0.572167 | 2. |
| CP__R3_percent_away | 161.0 | -0.062898 | 1.027968 | -2.599601 | -0.540786 | 0.157130 | 0.599208 | 2.141 |
| VOLUME_percent_away | 161.0 | 0.102016 | 1.659005 | -0.058243 | -0.058243 | -0.058243 | -0.058243 | 20.31 |
| CP__S4_percent_away | 161.0 | -0.082394 | 1.005521 | -1.915401 | -0.806777 | -0.171469 | 0.552755 | 2.779 |
| CP__R2_percent_away | 161.0 | -0.067072 | 1.025950 | -2.504379 | -0.569731 | 0.113497 | 0.541409 | 2.227 |
| 1000_SMA_binary | 161.0 | 0.453416 | 0.499378 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| 144_SMA_binary | 161.0 | 0.484472 | 0.501318 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| 14_P_MA_ENVELOPES_LOWER_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| 14_P_MA_ENVELOPES_MID_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 14_P_MA_ENVELOPES_UPPER_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| 236_EMA_binary | 161.0 | 0.484472 | 0.501318 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| 382_EMA_binary | 161.0 | 0.503106 | 0.501550 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| 618_EMA_binary | 161.0 | 0.509317 | 0.501473 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| 62_ZLEMA_binary | 161.0 | 0.515528 | 0.501318 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| 8_ZLEMA_binary | 161.0 | 0.515528 | 0.501318 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| ACCUM_DIST_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| APZ_LOW_binary | 161.0 | 0.993789 | 0.078811 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

# Loss Mitigation Analysis

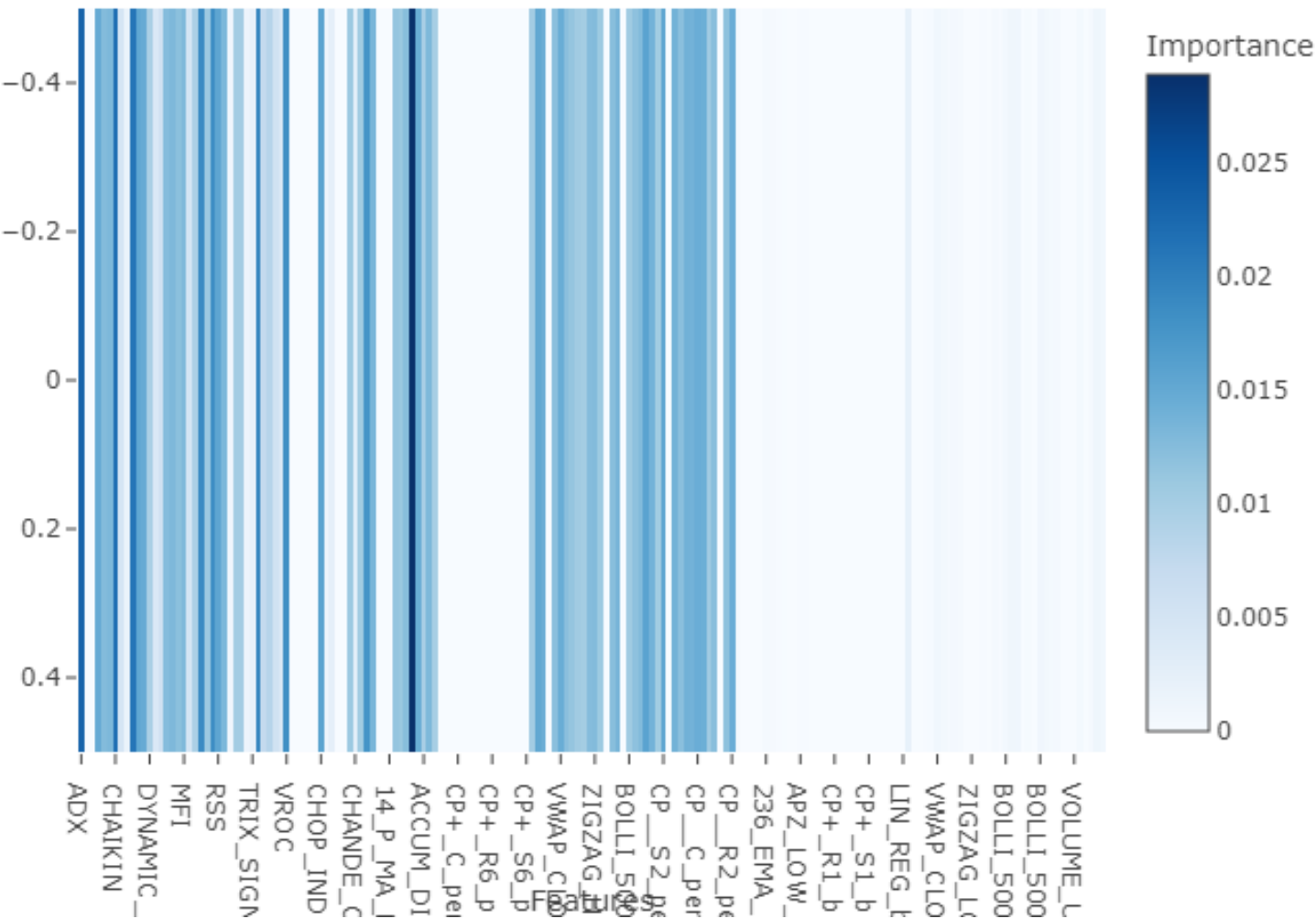| | count | mean | std | min | 25% | 50% | 75% | max |
|---|---|---|---|---|---|---|---|---|
| APZ_UPPER_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| BOLLI_500_P_LOWER_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0. |
| BOLLI_500_P_MID_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000 |
| BOLLI_500_P_UPPER_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0 |
| CP+_C_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_R1_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_R2_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_R3_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_R4_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_R5_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_R6_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_S1_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_S2_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_S3_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_S4_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_S5_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP+_S6_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| LIN_REG_binary | 161.0 | 0.515528 | 0.501318 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| LIN_REG_INTERCEPT_binary | 161.0 | 0.503106 | 0.501550 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1. |
| OBV_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| VROC_binary | 161.0 | 0.006211 | 0.078811 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 |
| VWAP_binary | 161.0 | 0.459627 | 0.499922 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| VWAP_CLOUD_HIGH_binary | 161.0 | 0.136646 | 0.344545 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1. |
| VWAP_CLOUD_LOW_binary | 161.0 | 0.801242 | 0.400310 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1 |
| VWAP_L1_binary | 161.0 | 0.677019 | 0.469075 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| VWAP_L2_binary | 161.0 | 0.900621 | 0.300104 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| VWAP_U1_binary | 161.0 | 0.273292 | 0.447040 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| VWAP_U2_binary | 161.0 | 0.093168 | 0.291574 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 |
| ZIGZAG_HIGH_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.0000 |
| ZIGZAG_LOW_binary | 161.0 | 1.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.0000 |
| 14_MA_ENVELOPES_LOWER_binary | 161.0 | 1.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1.00000 |
| 14_MA_ENVELOPES_MID_binary | 161.0 | 0.515528 | 0.501318 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| 14_MA_ENVELOPES_UPPER_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.00000 |
| VOLUME_DOWN_binary | 161.0 | 0.006211 | 0.078811 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.00 |
| CP__S1_binary | 161.0 | 0.503106 | 0.501550 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| BOLLI_500_MID_binary | 161.0 | 0.534161 | 0.500388 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.0000 |
| BOLLI_500_UPPER_binary | 161.0 | 0.335404 | 0.473605 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.00 |
| CP__C_binary | 161.0 | 0.422360 | 0.495476 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| VOLUME_binary | 161.0 | 0.012422 | 0.111107 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 |
| CP__R4_binary | 161.0 | 0.068323 | 0.253087 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 |
| CP__R5_binary | 161.0 | 0.006211 | 0.078811 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 |
| BOLLI_500_LOWER_binary | 161.0 | 0.670807 | 0.471386 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.00 |
| CP__S5_binary | 161.0 | 0.906832 | 0.291574 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| CP__S2_binary | 161.0 | 0.602484 | 0.490911 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| CP__R3_binary | 161.0 | 0.198758 | 0.400310 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 |
| CP__S6_binary | 161.0 | 1.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| CHAIKIN_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| VOLUME_UP_binary | 161.0 | 0.006211 | 0.078811 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.0000 |
| CP__R2_binary | 161.0 | 0.254658 | 0.437028 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |
| CP__R6_binary | 161.0 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| CP__S4_binary | 161.0 | 0.745342 | 0.437028 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| CP__S3_binary | 161.0 | 0.652174 | 0.477767 | 0.000000 | 0.000000 | 1.000000 | 1.000000 | 1.000000 |
| CP__R1_binary | 161.0 | 0.366460 | 0.483340 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000000 |

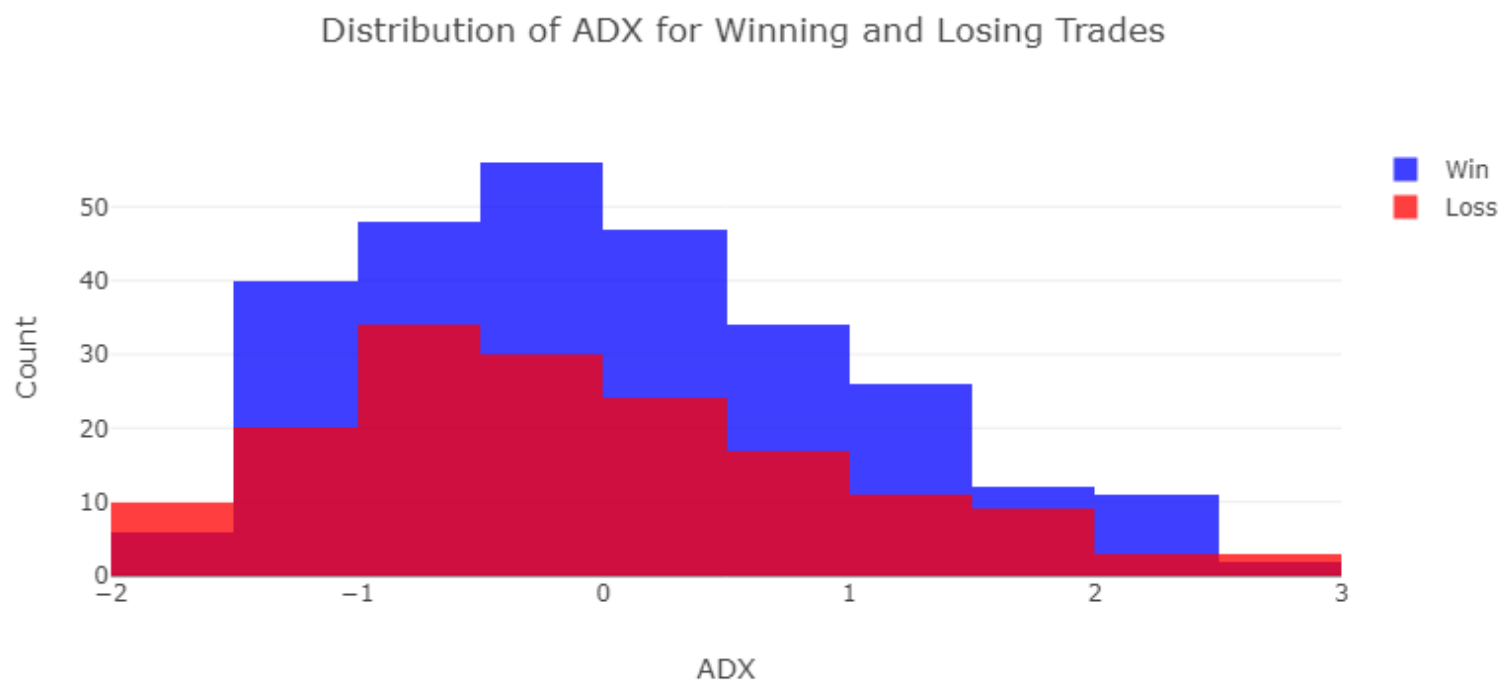Confusion Matrix
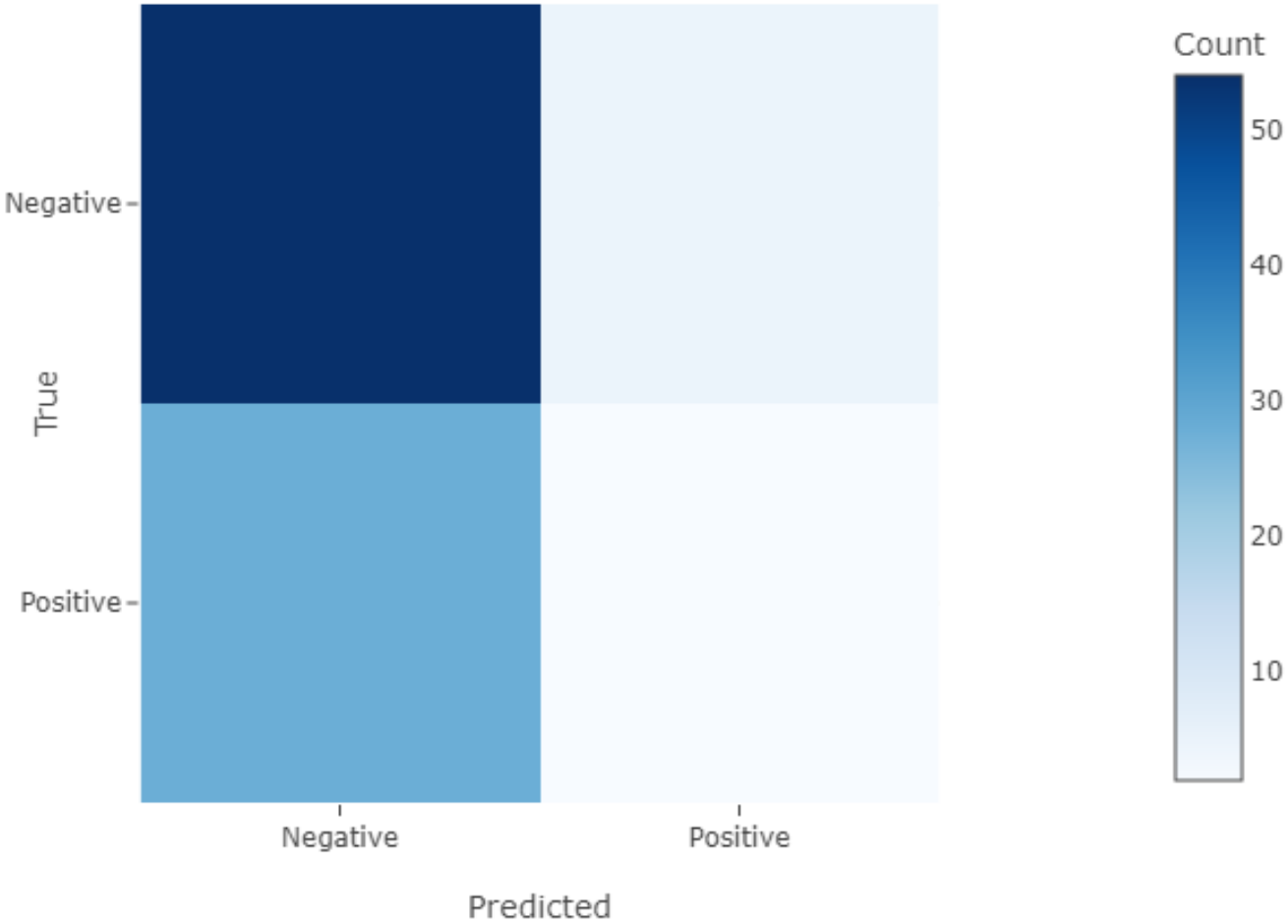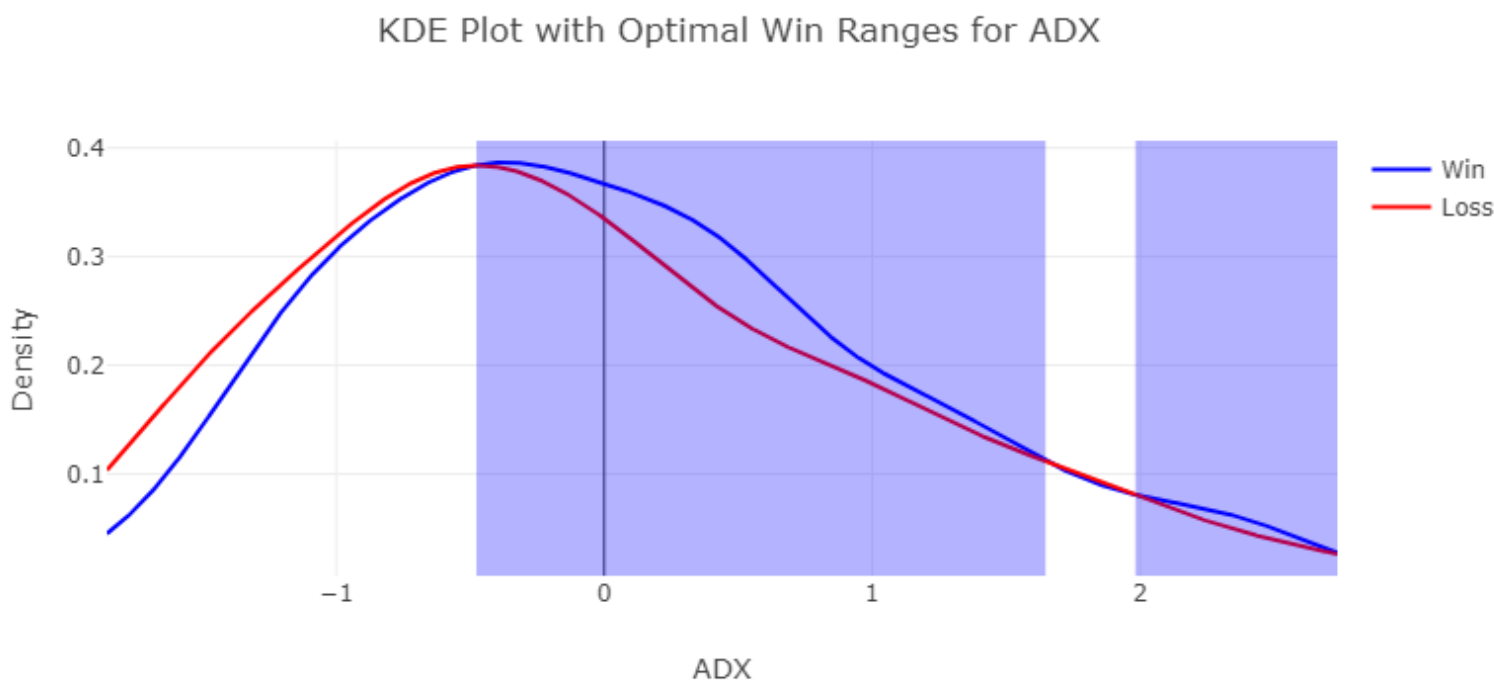
# Feature Importance
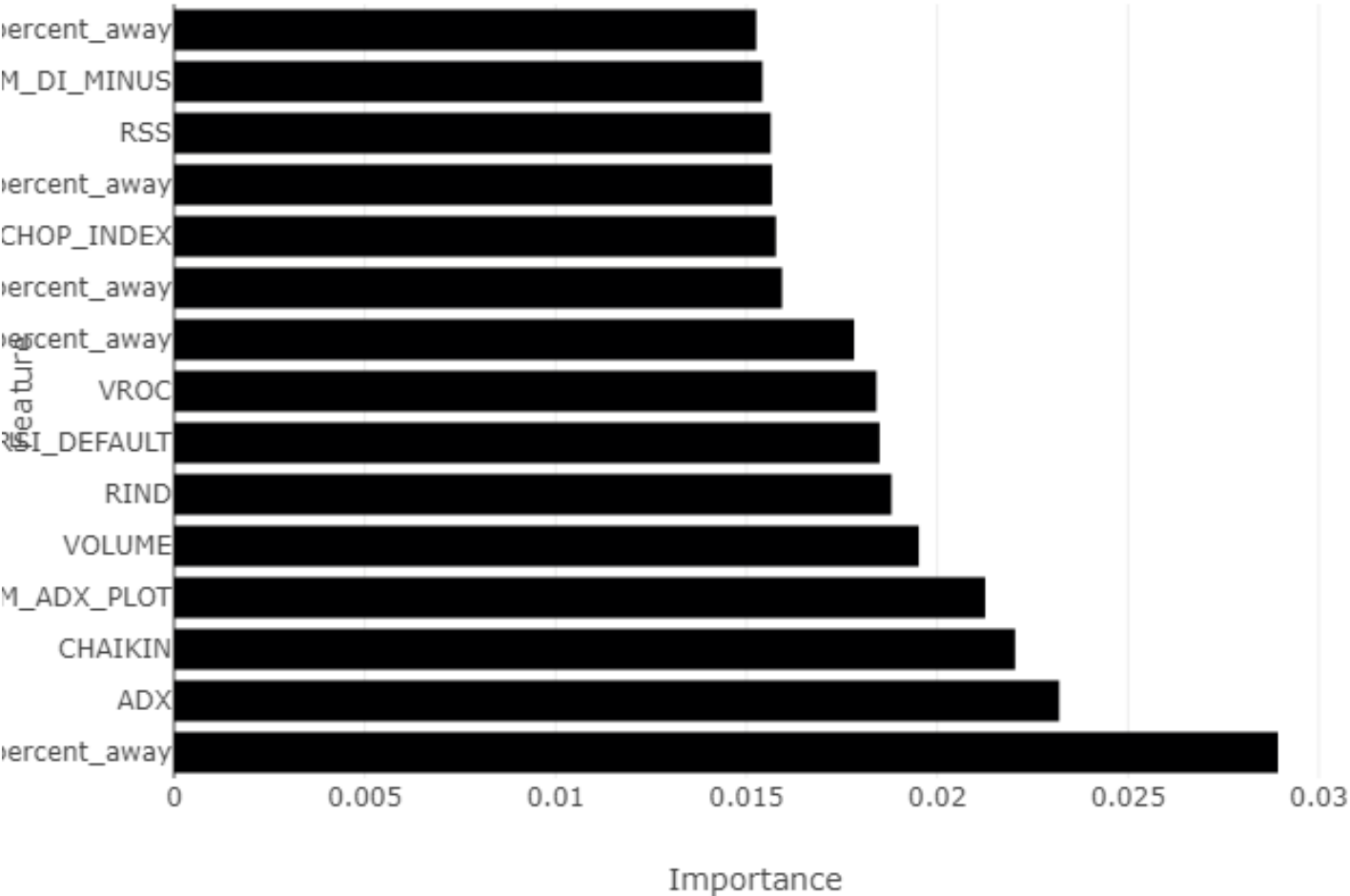
# Feature Importance Heatmap

# Correlation Matrix of Top Indicators



|  | ADX | CHAIKIN | DM_ADX_PLOT | ATR | CCI | AWESOME | CMO | DISPARITY_INDEX | AROON UP | AROON DOWN |
|---|---|---|---|---|---|---|---|---|---|---|
| ADX | 1 | -0.02051078 | 1 | -0.6258115 | -0.01655101 | 0.01349855 | -0.04326625 | 0.08519332 |  |  |
| CHAIKIN | -0.02051078 | 1 | -0.02051078 | 0.1176139 | 0.4242976 | 0.407289 | 0.3251604 | -0.08923245 |  |  |
| _ADX_PLOT | 1 | -0.02051078 | 1 | -0.6258115 | -0.01655101 | 0.01349855 | -0.04326625 | 0.08519332 |  |  |
| ATR | -0.6258115 | 0.1176139 | -0.6258115 | 1 | 0.03719672 | 0.0138639 | 0.003043659 | 0.176577 |  |  |
| CCI | -0.01655101 | 0.4242976 | -0.01655101 | 0.03719672 | 1 | 0.8903765 | 0.710211 | -0.1602307 |  |  |
| AWESOME | 0.01349855 | 0.407289 | 0.01349855 | 0.0138639 | 0.8903765 | 1 | 0.6060014 | -0.09387697 |  |  |
| CMO | -0.04326625 | 0.3251604 | -0.04326625 | 0.003043659 | 0.710211 | 0.6060014 | 1 | -0.0894798 |  |  |
| RITY_INDEX | 0.08519332 | -0.08923245 | 0.08519332 | 0.176577 | -0.1602307 | -0.09387697 | -0.0894798 | 1 |  |  |
| AROON UP |  |  |  |  |  |  |  |  |  |  |
| OON DOWN |  |  |  |  |  |  |  |  |  |  |

Distribution of ADX for Winning and Losing Trades


Distribution of ADX for Winning and Losing Trades

# KDE Plot with Optimal Win Ranges for ADX



KDE Plot with Optimal Win Ranges for ADX

Mean Indicator Values for Losses



Mean Indicator Values for Losses