Classification Report

	precision	recall	f1-score	support
0	0.88	0.88	0.88	1578
1	0.47	0.48	0.48	358
accuracy			0.80	1936
macro avg	0.68	0.68	0.68	1936
weighted avg	0.81	0.80	0.81	1936

Accuracy
Accuracy: 0.8042355371900827

Optimal Win Ranges Summary

	feature	optimal_win_range_start	optimal_win_range_end
0	DM_ADX_PLOT	-1.600767	-0.111497
1	ZIGZAG_LOW_percent_away	-3.413403	-2.329866
2	ZIGZAG_LOW_percent_away	-1.078456	0.508697
3	ZIGZAG_LOW_percent_away	6.399477	6.796265
4	ZIGZAG_LOW_percent_away	7.101487	7.834020
5	ZIGZAG_LOW_percent_away	8.932818	9.528000
6	AWESOME	-5.105035	-3.390072
7	AWESOME	-1.145029	0.860958
8	AWESOME	4.114191	5.278287
9	VWAP_CLOUD_LOW_binary	-1.696919	-1.614951
10	VWAP_CLOUD_LOW_binary	-0.795273	-0.055152
11	VWAP_CLOUD_LOW_binary	0.523445	0.711489
12	500P_BOLL_UPPER_percent_away	-4.690767	-4.348058
13	500P_BOLL_UPPER_percent_away	-2.448880	-1.413613
14	500P_BOLL_UPPER_percent_away	-0.885271	0.199974
15	500P_BOLL_UPPER_percent_away	0.328490	1.328057
16	500P_BOLL_UPPER_percent_away	2.006335	2.441861
17	AROON UP	-1.501663	-1.325946
18	AROON UP	-1.169056	0.286886
19	AROON UP	1.156058	1.633004
20	144_SMA_binary	-1.052598	-0.856980
21	144_SMA_binary	-0.327181	0.316728
22	144_SMA_binary	0.811886	0.983052
23	DM_DI_MINUS	-3.346628	-3.017970
24	DM_DI_MINUS	-1.558341	-0.939690
25	DM_DI_MINUS	0.094616	2.530554
26	DM_DI_MINUS	2.665883	3.303867
27	DM_DI_MINUS	4.309174	5.865467
28	VWAP_CLOUD_HIGH_binary	-0.595615	-0.460480
29	VWAP_CLOUD_HIGH_binary	0.471949	1.493568
30	VWAP_CLOUD_HIGH_binary	1.898972	2.104377
31	ADX	-1.600767	-0.111497

Loss Mitigation Analysis

	count	mean	std	min	25%	50%	75%	max
ACCUM_DIST	1844.0	-0.027273	1.018411e+00	-2.613689e+00	-3.045890e-16	-3.045890e-16	-3.0	
ADX	1844.0	0.451230	1.106578e+00	-1.457241e+00	-3.466147e-01	2.546082e-01	1.077821	
AROON DOWN	1844.0	-0.195972	1.043075e+00	-1.400035e+00	-1.400035e+00	-7.567790e-02	8	
AROON UP	1844.0	0.048587	1.013861e+00	-1.501663e+00	-1.053719e+00	7.374295e-01	7.37	
ATR	1844.0	-0.225088	9.755841e-01	-2.025179e+00	-1.021272e+00	-3.929272e-01	3.437530	
AWESOME	1844.0	0.159228	1.251918e+00	-2.055042e+00	-1.119273e+00	4.299388e-01	1.32	
CCI	1844.0	-0.161039	1.138851e+00	-1.823532e+00	-1.308181e+00	-5.436814e-01	1.058466	
CHAIKIN	1844.0	-0.061883	1.143938e+00	-9.614552e+00	-5.593257e-01	-4.103033e-02	4.6847	
CMO	1844.0	-0.095116	9.131091e-01	-2.921544e+00	-7.612070e-01	-4.666156e-01	8.099472	
DISPARITY_INDEX	1844.0	-0.078456	7.891349e-01	-1.775997e+00	-5.859770e-01	9.032749e-03	6	
DM_ADX_PLOT	1844.0	0.451230	1.106578e+00	-1.457241e+00	-3.466147e-01	2.546082e-01	1.	
DM_DI_MINUS	1844.0	-0.065959	9.864610e-01	-3.518774e+00	-6.698092e-01	-7.276536e-02	5.8	
DM_DI_PLUS	1844.0	-0.040339	9.577475e-01	-3.492918e+00	-6.448551e-01	-2.341376e-02	5.92	
DYNAMIC_MOMENTUM	1844.0	-0.039612	8.584113e-01	-3.393896e+00	-6.674484e-01	-1.288528e-0		
FISHER_TRANSFORM	1844.0	-0.136732	1.077240e+00	-2.115390e+00	-1.350305e+00	-2.158702e-0		
LIN_REG_SLOPE	1844.0	-0.085885	9.184728e-01	-2.071842e+00	-9.207600e-01	-2.580157e-01	9.	
MACD_AVG	1844.0	0.139723	1.223198e+00	-2.330208e+00	-9.535808e-01	4.063089e-01	1.19	
MACD_DEFAULT	1844.0	0.130530	1.204684e+00	-2.383792e+00	-1.008541e+00	3.891843e-01	1	
MACD_DIFF	1844.0	-0.154241	1.235625e+00	-2.235230e+00	-1.226977e+00	-4.136530e-01	9.64	
MFI	1844.0	-0.018645	1.017321e+00	-2.696376e+00	-7.205630e-01	-2.420156e-02	6.956508	
MOMENTUM	1844.0	-0.077651	8.694241e-01	-3.146296e+00	-5.080836e-01	-5.080836e-01	5.47	
OBV	1844.0	-0.018278	1.029364e+00	-2.638204e+00	0.000000e+00	0.000000e+00	0.00000	
PFE	1844.0	0.142145	1.134975e+00	-2.030880e+00	-1.029500e+00	4.368080e-01	1.259371	
RIND	1844.0	-0.184429	1.043482e+00	-1.985528e+00	-9.906099e-01	-2.251726e-01	5.66858	
RSI_AVERAGE	1844.0	-0.020442	8.420854e-01	-2.961118e+00	-5.831727e-01	-2.141843e-03	5.2	
RSI_DEFAULT	1844.0	-0.078664	7.878467e-01	-2.511769e+00	-5.639835e-01	-1.266916e-01	3.88	
RSS	1844.0	-0.043642	9.960258e-01	-2.670873e+00	-7.441621e-01	-5.369210e-02	6.338594	
RVI	1844.0	0.131291	1.214644e+00	-2.420784e+00	-9.830254e-01	3.864606e-01	1.184270	
R_SQUARED	1844.0	0.288979	9.776435e-01	-1.725333e+00	-3.664408e-01	6.187561e-01	1.09	
STOCH_FAST_D	1844.0	-0.158723	1.162078e+00	-1.996935e+00	-1.361164e+00	-3.594070e-01	9	
STOCH_FAST_K	1844.0	-0.157535	1.107685e+00	-1.595154e+00	-1.321500e+00	-5.337155e-01	1	
TRIX_DEFAULT	1844.0	-0.016759	3.470388e-18	-1.675946e-02	-1.675946e-02	-1.675946e-02	-1.6	
TRIX_SIGNAL	1844.0	-0.019302	6.940776e-18	-1.930245e-02	-1.930245e-02	-1.930245e-02	-1.930	
VOLUME	1844.0	-0.012426	1.050465e+00	-5.570170e-01	-4.872367e-01	-3.782051e-01	4.1566	
VOLUME_DOWN	1844.0	0.026310	1.027897e+00	-3.846933e-01	-3.846933e-01	-3.262925e-01	-7	
VOLUME_UP	1844.0	-0.041507	1.051447e+00	-3.490695e-01	-3.490695e-01	-3.490695e-01	-1.96	
VORTEX_MINUS	1844.0	-0.060452	9.537512e-01	-4.081266e+00	-6.691615e-01	6.200378e-02	7.	
VORTEX_PLUS	1844.0	0.092091	9.624318e-01	-2.931111e+00	-7.336417e-01	-1.151990e-03	7.3	
VROC	1844.0	-0.059364	9.217970e-01	-6.463782e-01	-5.221478e-01	-3.574348e-01	4.39569	
WILLIAMS_%R	1844.0	-0.157535	1.107685e+00	-1.595153e+00	-1.321498e+00	-5.337141e-01	1.	
144_SMA_percent_away	1844.0	-0.012154	1.113583e+00	-3.698894e+00	-6.908266e-01	5.619446e-02		
500P_BOLL_LOWER_percent_away	1844.0	-0.035897	1.020809e+00	-2.740862e+00	-7.172180e-01	-1.0618		
500P_BOLL_UPPER_percent_away	1844.0	-0.050899	1.076527e+00	-4.044749e+00	-5.638177e-01	1.64928		
618_EMA_percent_away	1844.0	-0.047753	1.031795e+00	-3.414011e+00	-6.651945e-01	4.506836e-02		
ACCUM_DIST_percent_away	1844.0	0.016582	1.006323e+00	-1.187219e+00	-5.448470e-01	2.912345e-		
APZ_LOW_percent_away	1844.0	-0.223567	1.221169e+00	-7.137749e+00	-7.861410e-01	-5.153112e-0		
APZ_UP_percent_away	1844.0	-0.171482	1.217567e+00	-7.077618e+00	-7.185393e-01	-4.310925e-01		
CP+_C_percent_away	1844.0	-0.042019	9.938719e-01	-2.657638e+00	-6.580667e-01	6.782036e-02	5	
CP+_R1_percent_away	1844.0	-0.042410	9.923436e-01	-2.615050e+00	-6.584386e-01	4.407719e-02		
CP+_R2_percent_away	1844.0	-0.042628	9.909096e-01	-2.610125e+00	-6.762679e-01	8.710146e-03		
CP+_R3_percent_away	1844.0	-0.042648	9.896331e-01	-2.610563e+00	-7.056239e-01	1.003519e-03		
CP+_R4_percent_away	1844.0	-0.041367	9.872507e-01	-2.530905e+00	-6.993215e-01	-5.756546e-02		
CP+_R5_percent_away	1844.0	-0.035436	9.889657e-01	-2.531330e+00	-7.123387e-01	-6.208317e-02		
CP+_R6_percent_away	1844.0	-0.024999	9.966097e-01	-2.293185e+00	-6.699963e-01	-8.757638e-02		
CP+_S1_percent_away	1844.0	-0.041482	9.954455e-01	-2.687801e+00	-6.847784e-01	7.127718e-02	5	
CP+_S2_percent_away	1844.0	-0.040832	9.970204e-01	-2.706886e+00	-7.152585e-01	8.003357e-02	5	
CP+_S3_percent_away	1844.0	-0.040093	9.985570e-01	-2.716533e+00	-7.121234e-01	8.583340e-02	5	
CP+_S4_percent_away	1844.0	-0.037588	1.002721e+00	-2.703119e+00	-7.378454e-01	8.914152e-02		
CP+_S5_percent_away	1844.0	-0.033416	1.007728e+00	-2.609603e+00	-8.533073e-01	5.318530e-02		
CP+_S6_percent_away	1844.0	-0.028653	1.011712e+00	-2.451612e+00	-9.050799e-01	3.702320e-02		
LIN_REG_percent_away	1844.0	-0.189871	1.178494e+00	-6.767848e+00	-7.298219e-01	-4.553666e-01		
LIN_REG_INTERCEPT_percent_away	1844.0	-0.213468	1.219204e+00	-5.683649e+00	-1.056916e+00	-4.268		
MA_ENVELOPES_LOWER_percent_away	1844.0	-0.214167	1.232911e+00	-6.529696e+00	-9.049865e-01	-5.4		

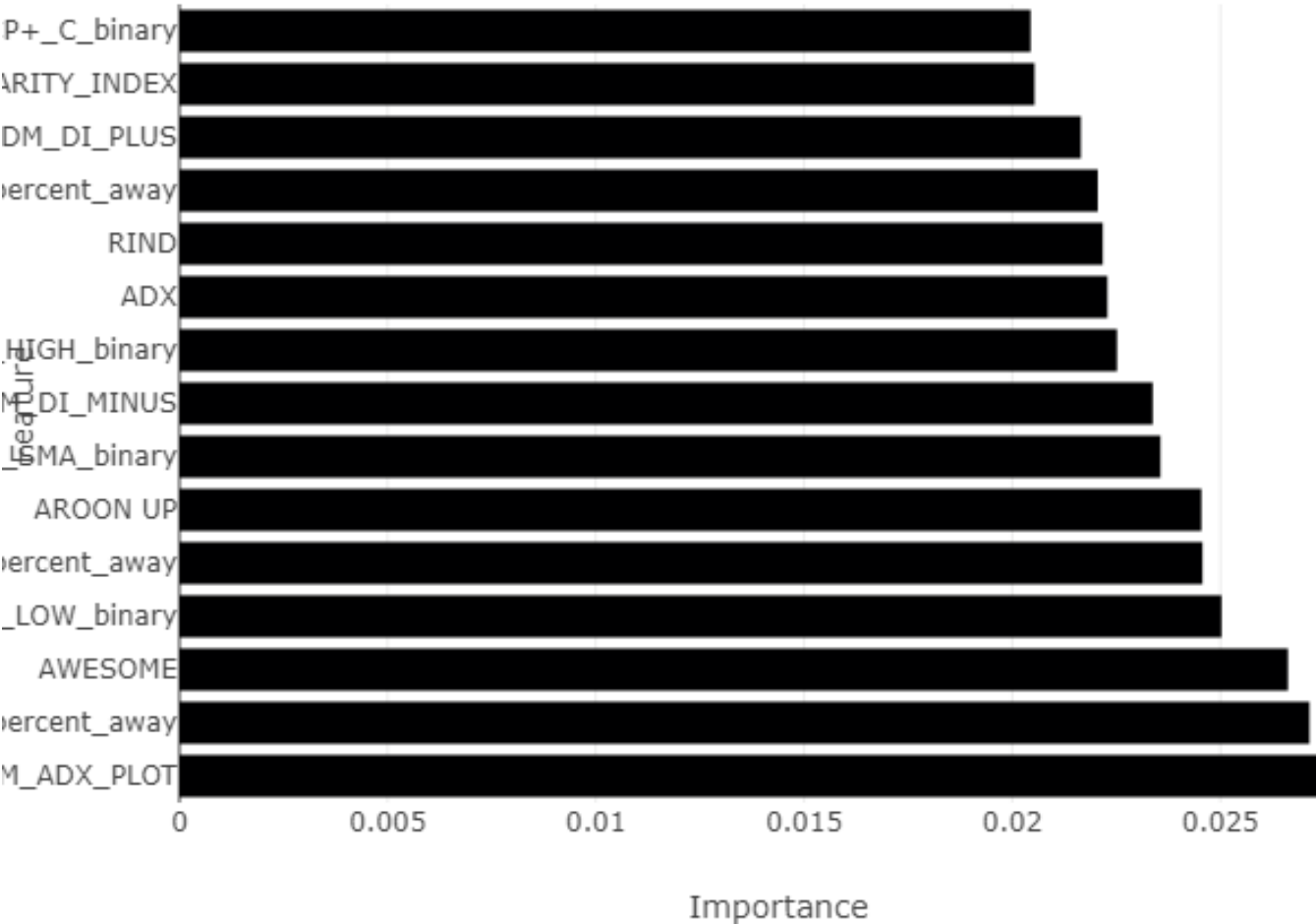Loss Mitigation Analysis

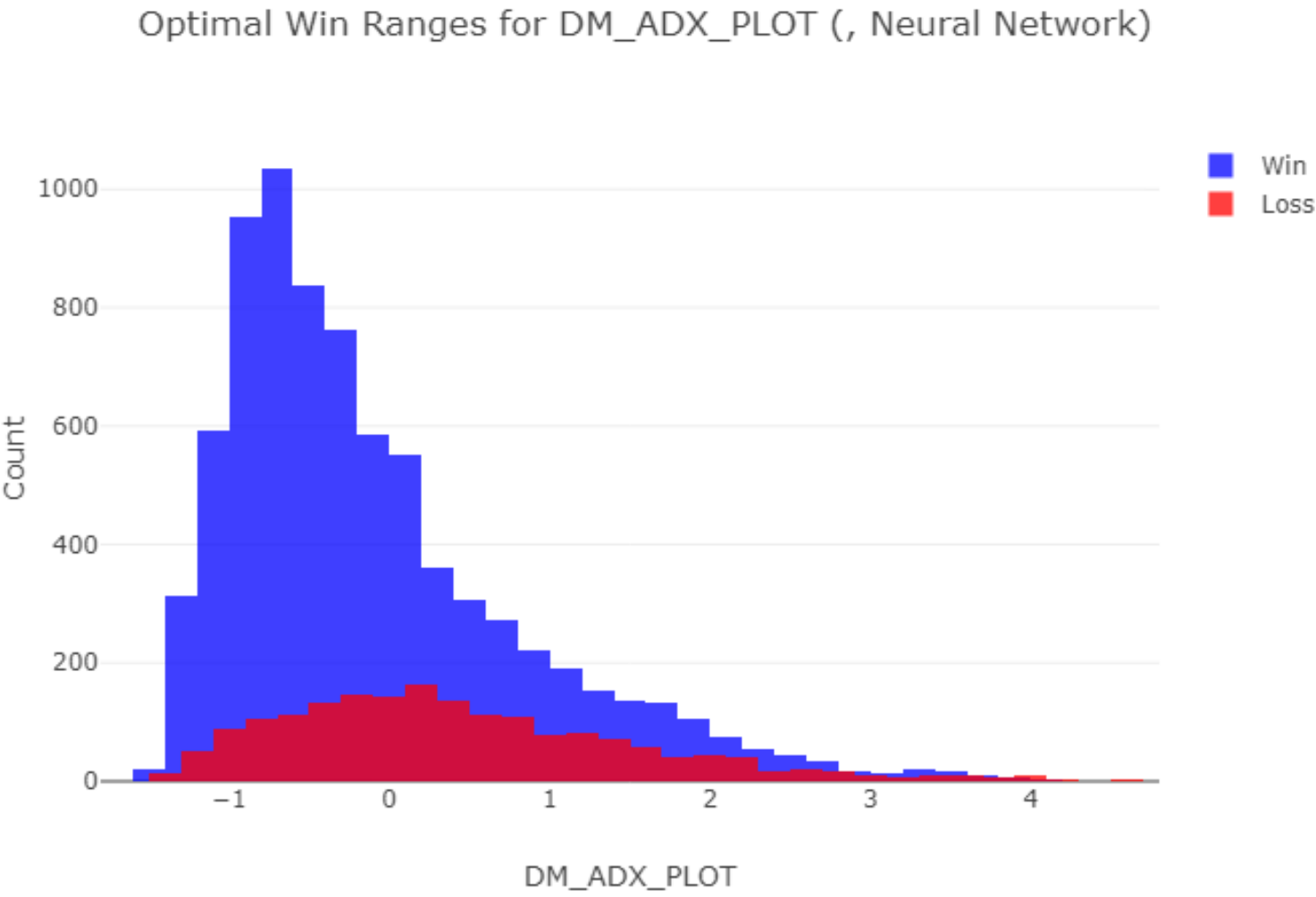|						
MA_ENVELOPES_MID_percent_away	1844.0	-0.214159	1.232934e+00	-6.531244e+00	-9.046182e-01	-5.503
MA_ENVELOPES_UPPER_percent_away	1844.0	-0.214173	1.232901e+00	-6.529717e+00	-9.055749e-01	-5.50
OBV_percent_away	1844.0	-0.000838	9.612162e-01	-1.157053e+00	-5.491684e-01	0.000000e+00 0
VROC_percent_away	1844.0	0.001550	6.655408e-02	-1.258430e-14	-1.258430e-14	-1.258430e-14 -1
VWAP_percent_away	1844.0	-0.031782	9.252601e-01	-3.185986e+00	-4.830327e-01	9.967465e-02 4
VWAP_CLOUD_HIGH_percent_away	1844.0	0.003287	9.447962e-01	-4.141993e+00	-2.939608e-01	5.3508
VWAP_CLOUD_LOW_percent_away	1844.0	-0.073914	8.882048e-01	-1.125895e+00	-5.310723e-01	-5.0321
VWAP_L1_percent_away	1844.0	-0.040022	9.264032e-01	-2.605133e+00	-5.934237e-01	-2.077507e-01
VWAP_U1_percent_away	1844.0	-0.024139	9.324867e-01	-3.312018e+00	-3.831197e-01	2.457210e-01
VWAP_U2_percent_away	1844.0	-0.017406	9.402105e-01	-3.365086e+00	-4.092149e-01	2.759693e-01
ZIGZAG_HIGH_percent_away	1844.0	-0.343847	1.275456e+00	-8.018329e+00	-5.904840e-01	-3.235910e-
ZIGZAG_LOW_percent_away	1844.0	0.162567	1.381108e+00	-5.717827e+00	-5.626171e-01	2.683743e-
ZLEMA_13_percent_away	1844.0	-0.185109	1.218666e+00	-7.432760e+00	-6.673621e-01	-3.464916e-01
ZLEMA_233_percent_away	1844.0	0.016373	1.063199e+00	-3.300673e+00	-6.264570e-01	7.219490e-0
144_SMA_binary	1844.0	0.035647	1.009029e+00	-1.052598e+00	-1.052598e+00	9.830523e-01 9.8
500P_BOLL_LOWER_binary	1844.0	-0.003234	1.011907e+00	-1.706948e+00	-1.666973e+00	6.015816e
500P_BOLL_UPPER_binary	1844.0	0.001877	1.008635e+00	-6.459195e-01	-6.459195e-01	-6.459195e-0
618_EMA_binary	1844.0	-0.012185	1.003599e+00	-1.050493e+00	-1.050493e+00	9.636826e-01 9.6
ACCUM_DIST_binary	1844.0	0.024932	1.034903e+00	-3.979504e-01	-3.979504e-01	-3.979504e-01 0
APZ_LOW_binary	1844.0	-0.018940	1.109960e+00	-9.664393e+00	1.423905e-01	1.423905e-01 1.4
APZ_UP_binary	1844.0	-0.088142	5.735187e-01	-1.251838e-01	-1.251838e-01	-1.251838e-01 -1.25
CP+_C_binary	1844.0	-0.038702	9.996626e-01	-9.601088e-01	-9.601088e-01	-9.601088e-01 1.047
CP+_R1_binary	1844.0	-0.032004	9.906114e-01	-7.395103e-01	-7.395103e-01	-7.395103e-01 1.355
CP+_R2_binary	1844.0	-0.028924	9.835996e-01	-5.825791e-01	-5.825791e-01	-5.825791e-01 -5.82
CP+_R3_binary	1844.0	-0.013599	9.885633e-01	-4.770908e-01	-4.770908e-01	-4.770908e-01 -4.770
CP+_R4_binary	1844.0	-0.043311	9.268154e-01	-2.867971e-01	-2.867971e-01	-2.867971e-01 -2.867
CP+_R5_binary	1844.0	0.020362	1.133260e+00	-7.133208e-02	-7.133208e-02	-7.133208e-02 -7.13
CP+_R6_binary	1844.0	0.000000	0.000000e+00	0.000000e+00	0.000000e+00	0.000000e+00 0.0
CP+_S1_binary	1844.0	-0.027749	1.004725e+00	-1.197329e+00	-1.197329e+00	8.367968e-01 8.3
CP+_S2_binary	1844.0	-0.039237	1.012277e+00	-1.372600e+00	-1.372600e+00	7.310964e-01 7.3
CP+_S3_binary	1844.0	-0.054853	1.021654e+00	-1.512930e+00	-1.512930e+00	6.628080e-01 6.6
CP+_S4_binary	1844.0	-0.033993	1.023507e+00	-1.934949e+00	5.172109e-01	5.172109e-01 5.17
CP+_S5_binary	1844.0	0.018535	9.755540e-01	-3.134746e+00	3.201853e-01	3.201853e-01 3.20
CP+_S6_binary	1844.0	0.017266	9.304089e-01	-7.916921e+00	1.263117e-01	1.263117e-01 1.263
LIN_REG_binary	1844.0	-0.138505	1.012935e+00	-9.923751e-01	-9.923751e-01	-9.923751e-01 1.09
LIN_REG_INTERCEPT_binary	1844.0	-0.144537	1.017583e+00	-9.968940e-01	-9.968940e-01	-9.968940e-
MA_ENVELOPES_LOWER_binary	1844.0	0.000000	0.000000e+00	0.000000e+00	0.000000e+00	0.0000
MA_ENVELOPES_MID_binary	1844.0	-0.144309	1.015263e+00	-9.907398e-01	-9.907398e-01	-9.907398e
MA_ENVELOPES_UPPER_binary	1844.0	0.000000	0.000000e+00	0.000000e+00	0.000000e+00	0.00000
OBV_binary	1844.0	-0.000705	9.825066e-01	-4.038218e-01	-4.038218e-01	-4.038218e-01 6.4218
VROC_binary	1844.0	0.009506	4.082061e-01	-1.751510e-14	-1.751510e-14	-1.751510e-14 -1.751
VWAP_binary	1844.0	-0.046218	9.980927e-01	-9.522755e-01	-9.522755e-01	-9.522755e-01 1.061
VWAP_CLOUD_HIGH_binary	1844.0	-0.116782	9.670079e-01	-5.956147e-01	-5.956147e-01	-5.956147e-
VWAP_CLOUD_LOW_binary	1844.0	-0.065526	1.082332e+00	-1.696919e+00	-1.696919e+00	7.114885e
VWAP_L1_binary	1844.0	-0.034312	1.012346e+00	-2.247417e+00	-8.059012e-01	6.356148e-01 6.3
VWAP_U1_binary	1844.0	-0.039653	9.816842e-01	-6.037807e-01	-6.037807e-01	-6.037807e-01 1.5
VWAP_U2_binary	1844.0	-0.062825	9.018202e-01	-3.103492e-01	-3.103492e-01	-3.103492e-01 -3.1
ZIGZAG_HIGH_binary	1844.0	-0.053737	9.360243e-01	-2.801447e-01	-2.801447e-01	-2.801447e-01 -2
ZIGZAG_LOW_binary	1844.0	-0.036998	1.080293e+00	-3.584554e+00	3.200567e-01	3.200567e-01
ZLEMA_13_binary	1844.0	-0.135204	1.004148e+00	-1.001229e+00	-1.001229e+00	-1.001229e+00 1
ZLEMA_233_binary	1844.0	0.059164	1.015257e+00	-1.053227e+00	-1.053227e+00	1.000724e+00 1

Confusion Matrix

Feature Importance

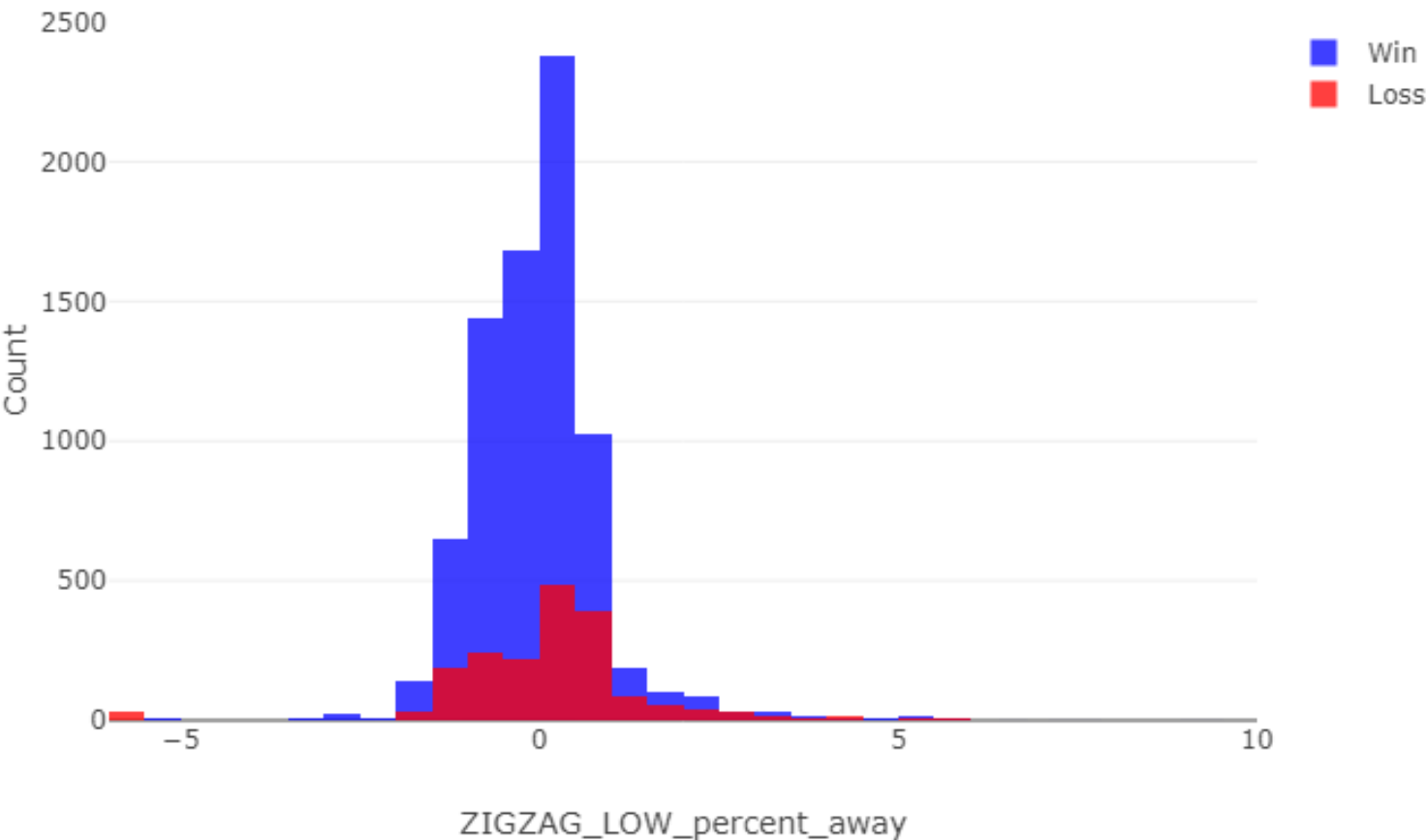| Feature	
P+_C_binary	
ARITY_INDEX	
DM_DI_PLUS	
ercent_away	
RIND	
ADX	
HIGH_binary	
DI_MINUS	
SMA_binary	
AROON UP	
ercent_away	
LOW_binary	
AWESOME	
ercent_away	
M_ADX_PLOT	
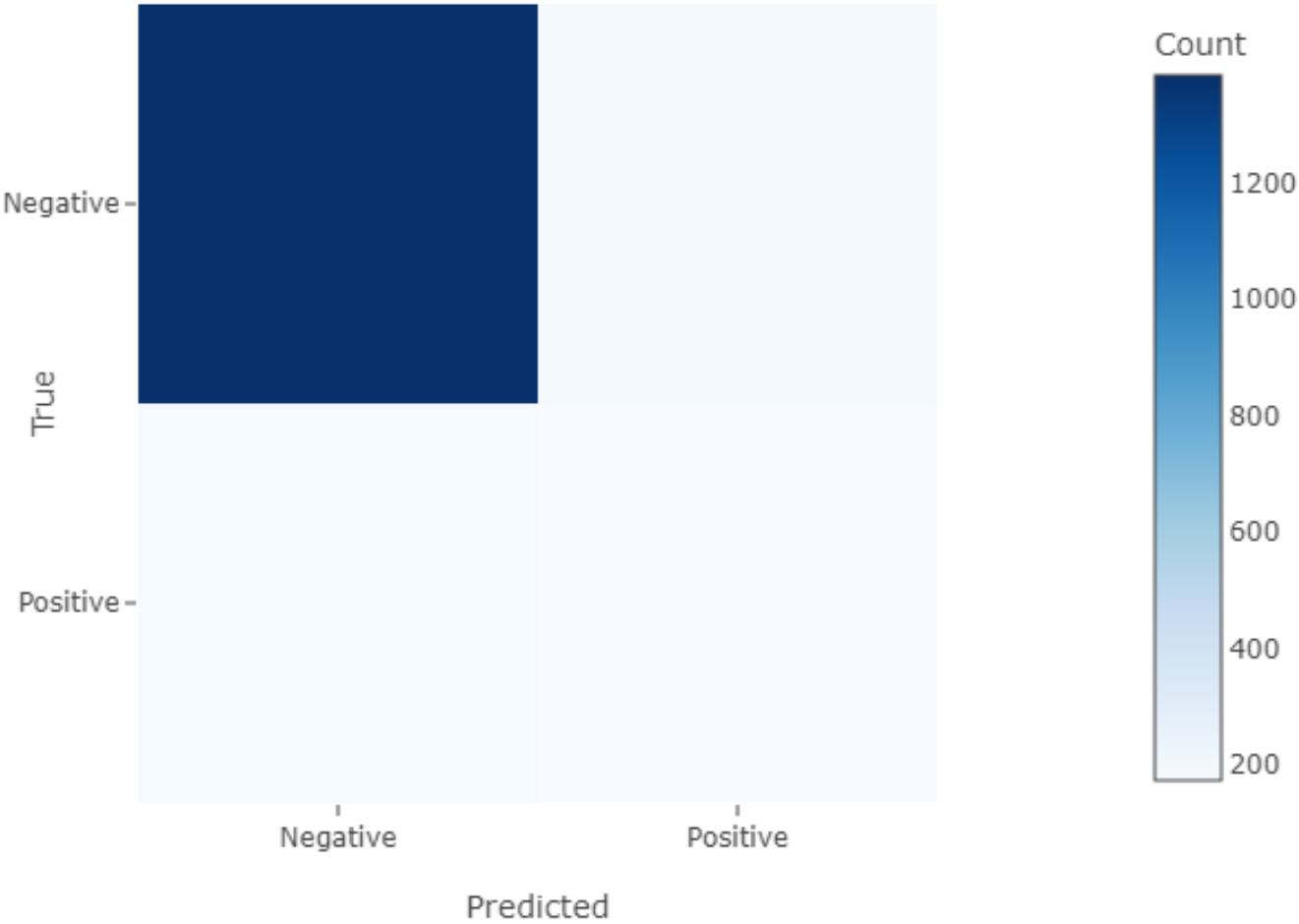
Importance

Optimal Win Ranges for DM_ADX_PLOT (, Neural Network)

Optimal Win Ranges for ZIGZAG_LOW_percent_away (, Neural Network)

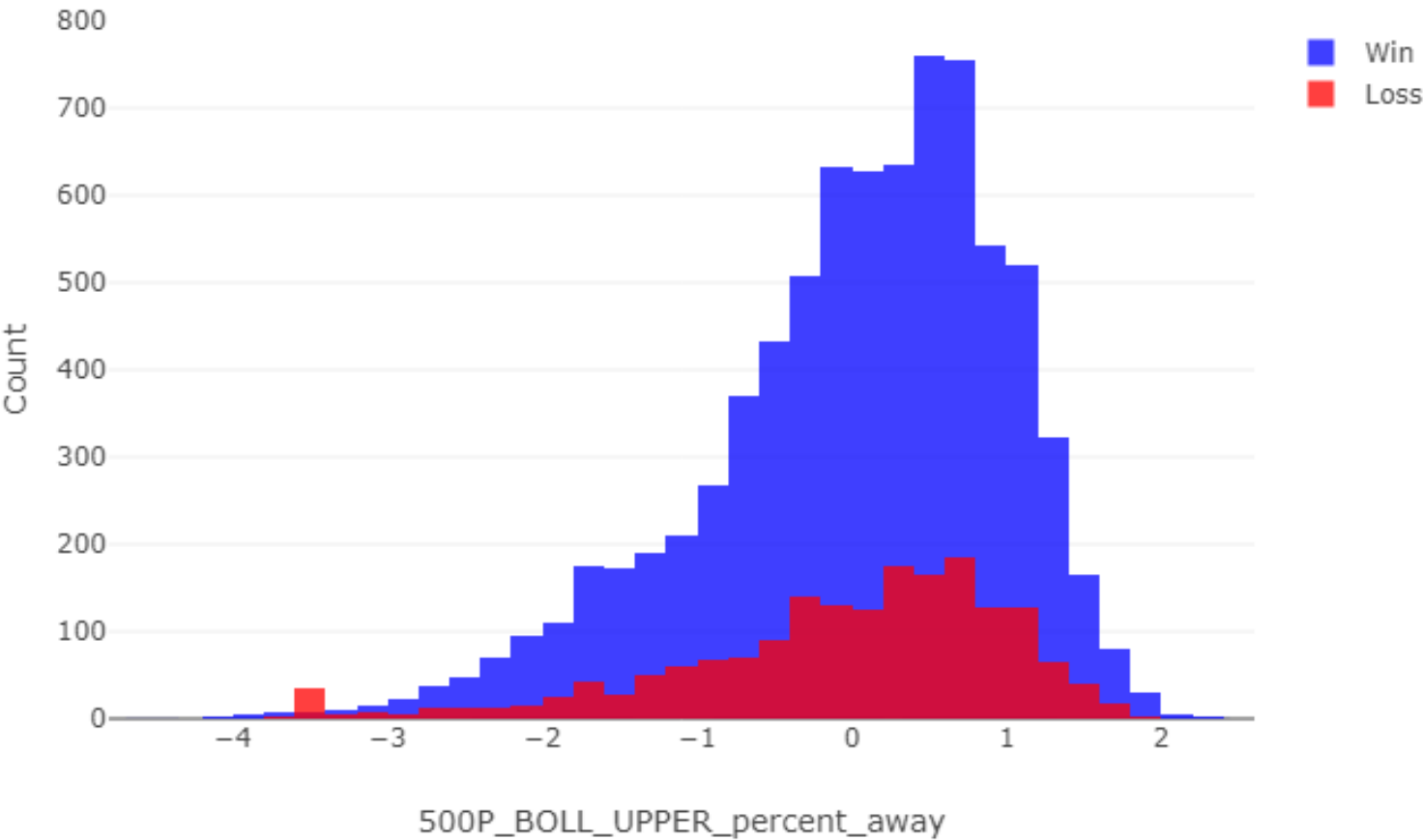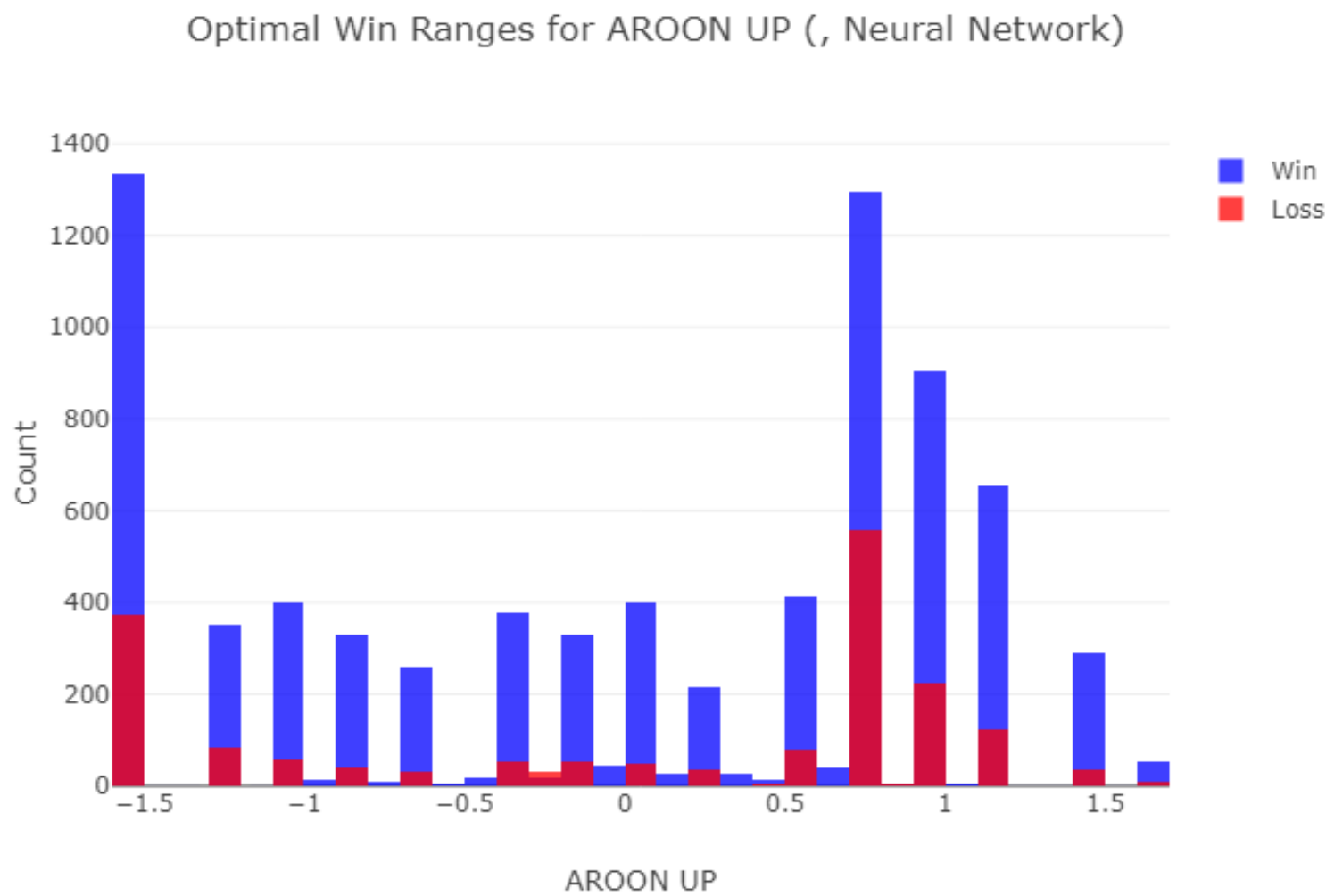Optimal Win Ranges for AWESOME (, Neural Network)

Optimal Win Ranges for VWAP_CLOUD_LOW_binary (, Neural Network)
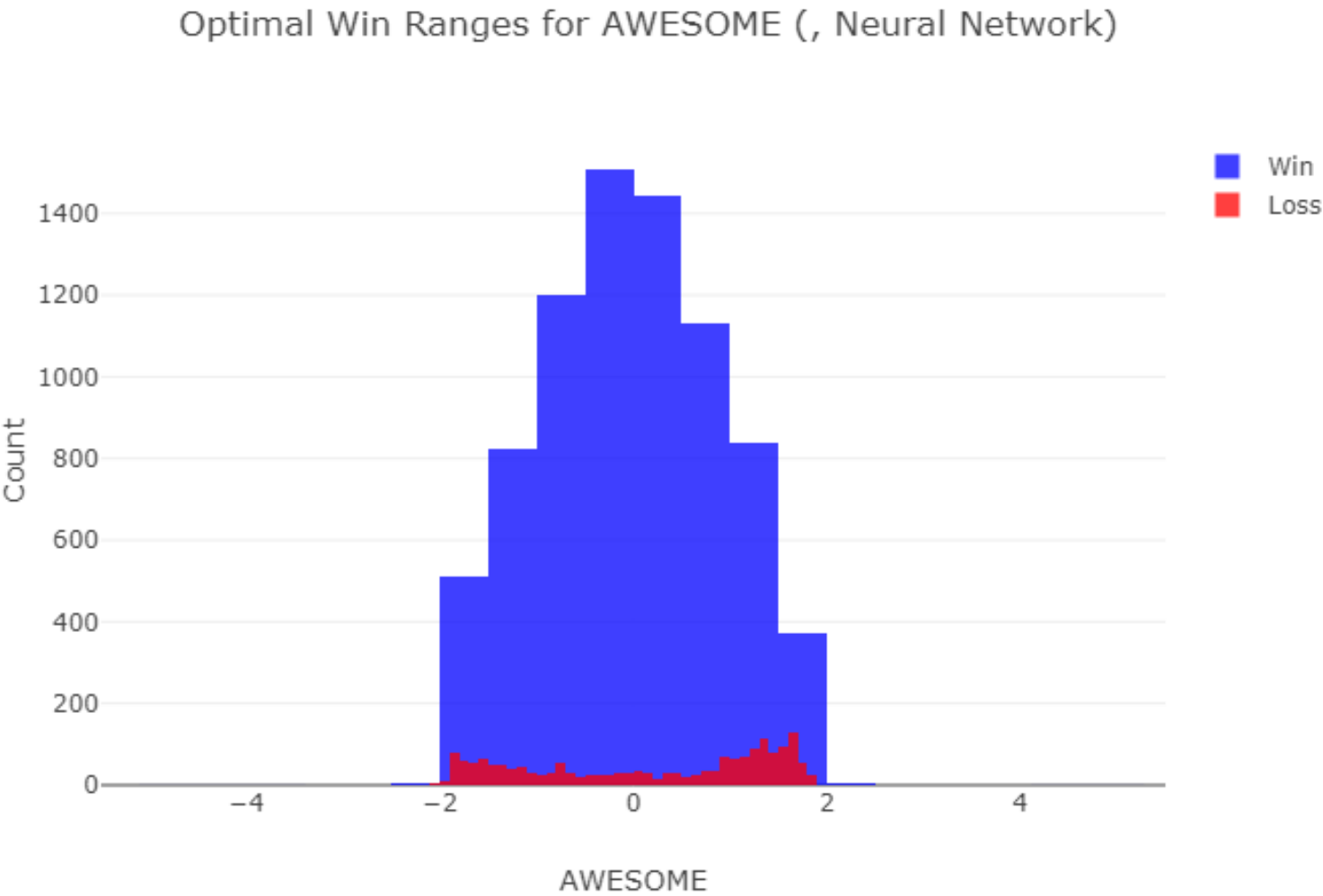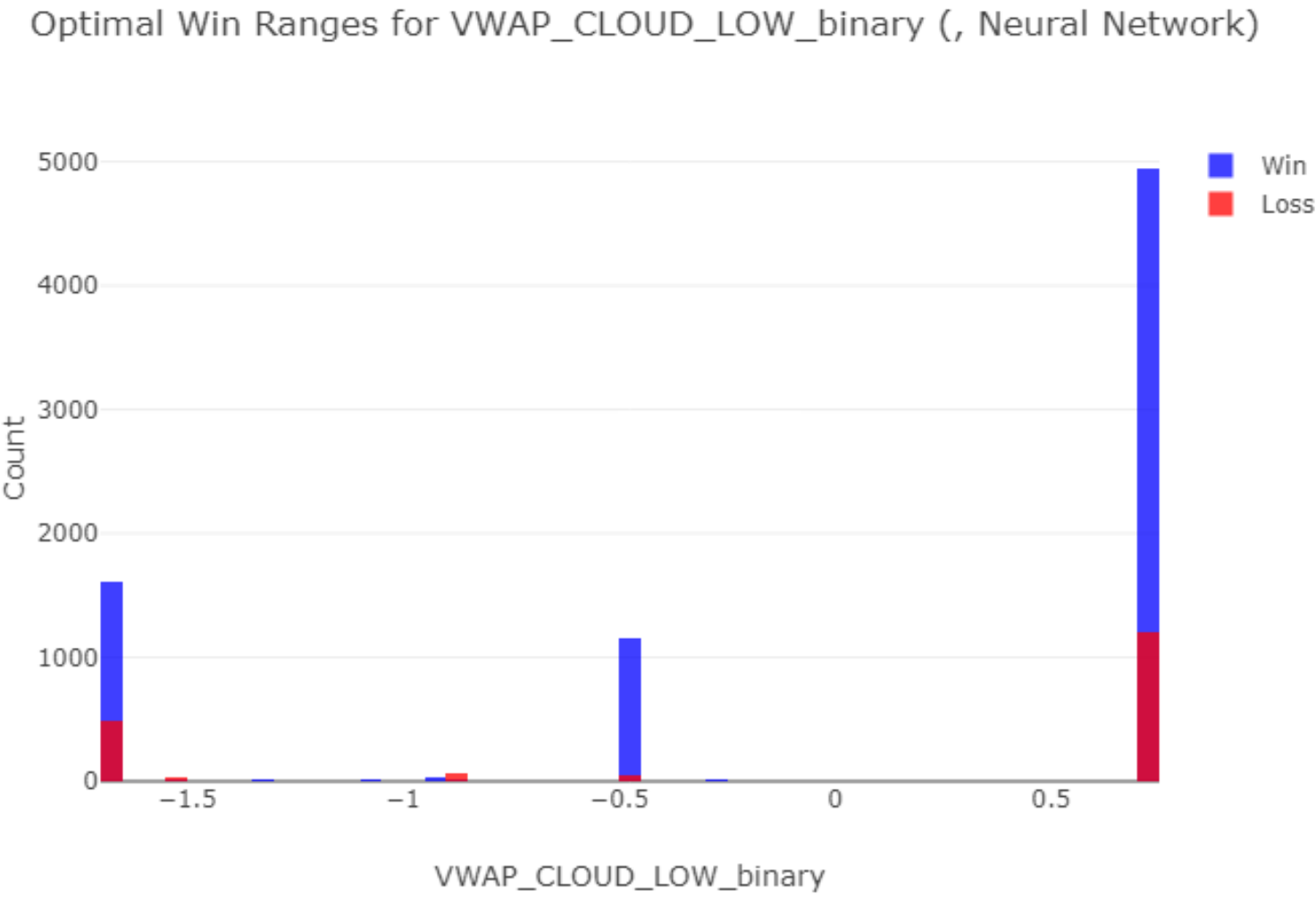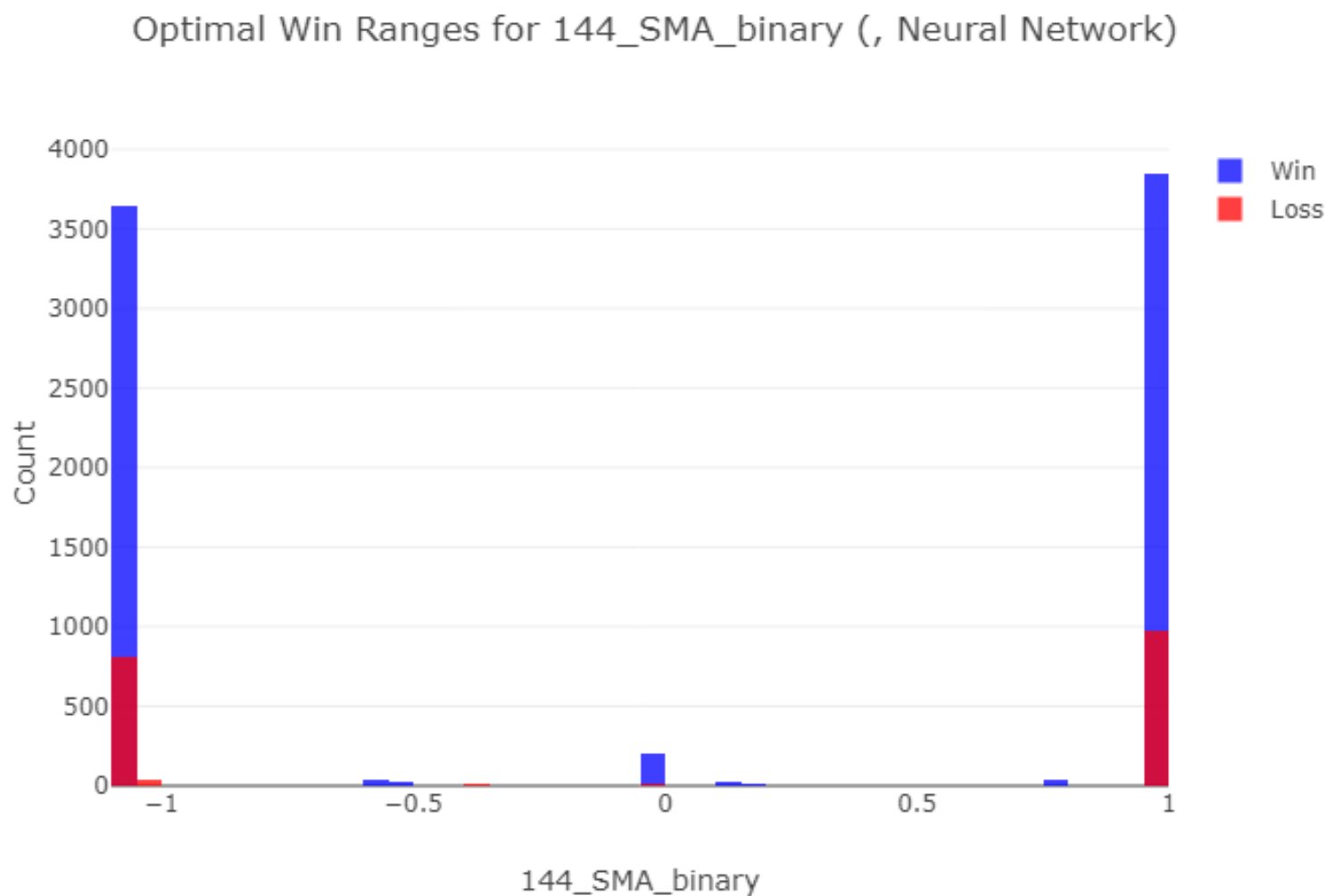
Optimal Win Ranges for 500P_BOLL_UPPER_percent_away (, Neural Network)

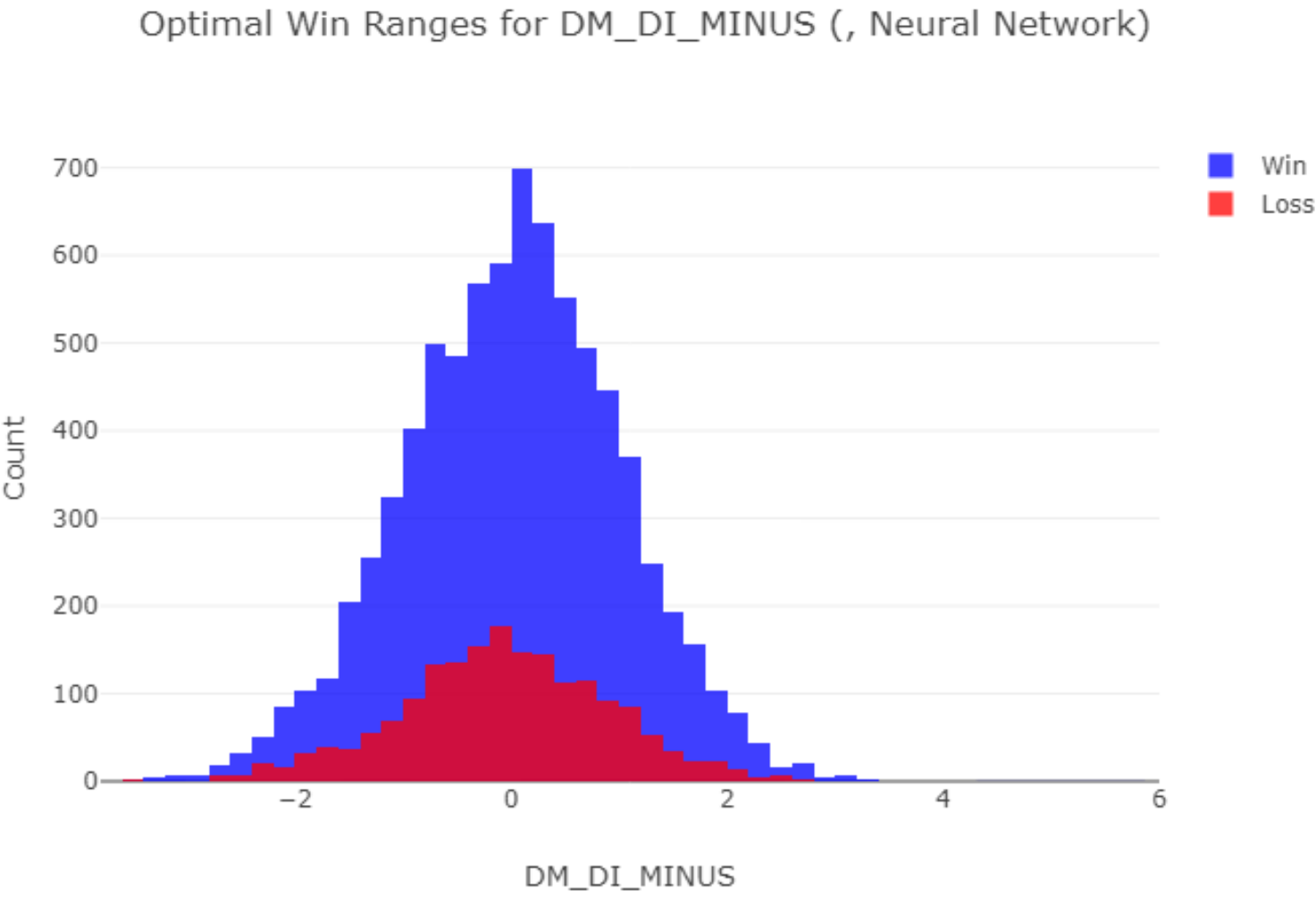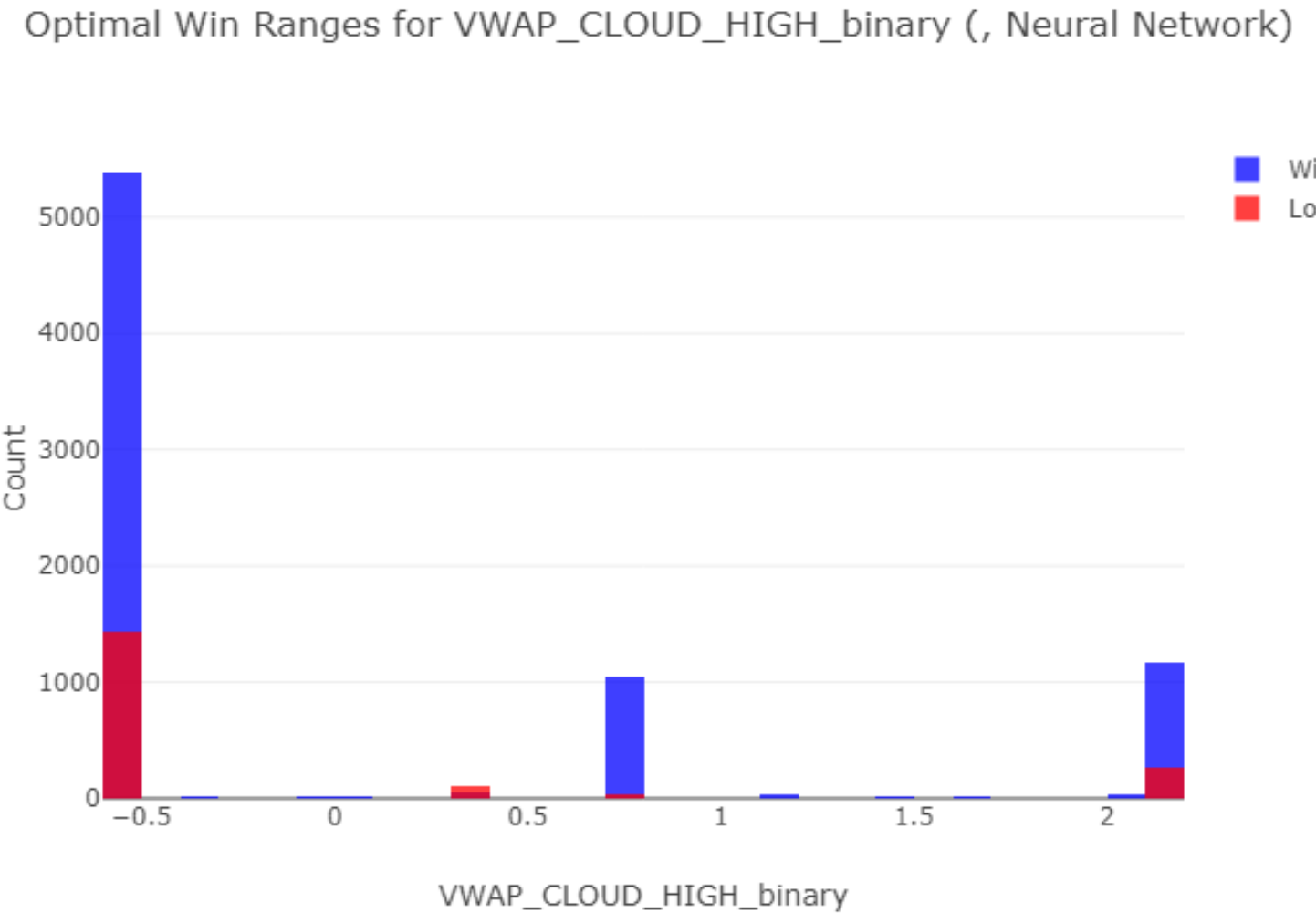# Optimal Win Ranges for AROON UP (, Neural Network)

Optimal Win Ranges for 144_SMA_binary (, Neural Network)

Optimal Win Ranges for DM_DI_MINUS (, Neural Network)

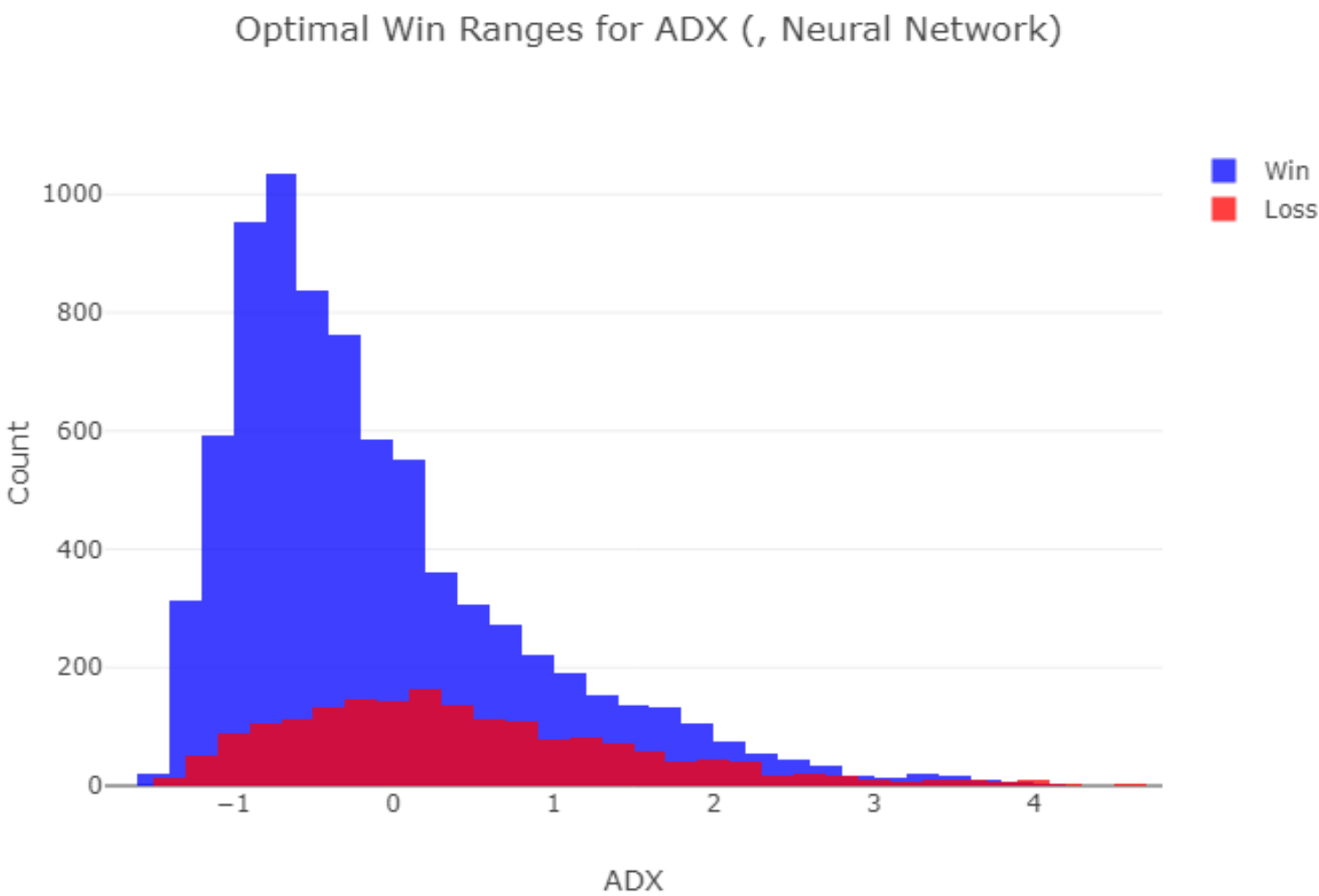Optimal Win Ranges for VWAP_CLOUD_HIGH_binary (, Neural Network)
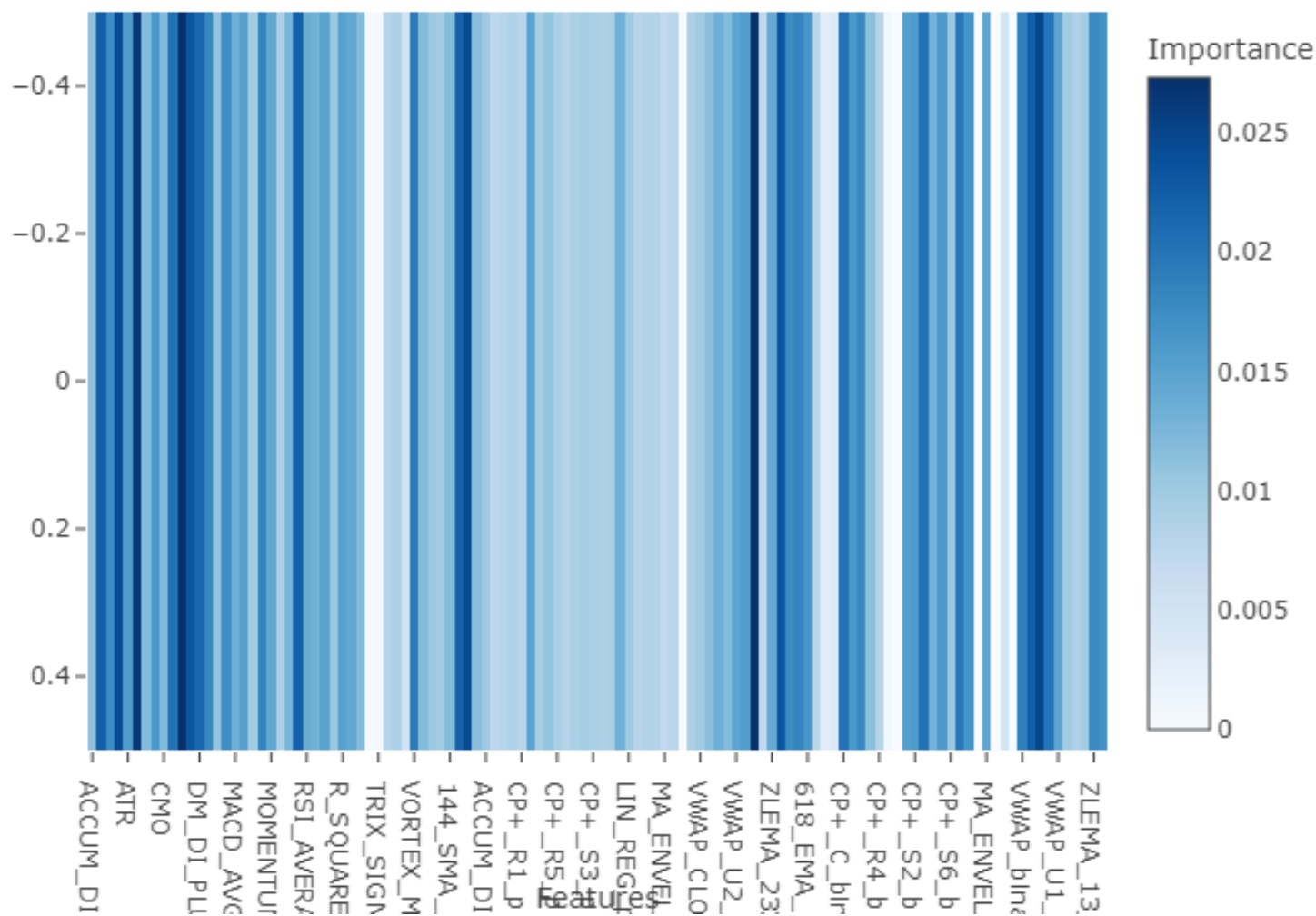
Optimal Win Ranges for ADX (, Neural Network)

Optimal Win Ranges for ADX (, Neural Network)

Feature Importance Heatmap

Correlation Matrix of Top Indicators

	AWESOME	AROON UP	ADX	DISPARITY_INDEX	AROON DOWN	CHAIKIN	ATR	CCI	CMO	ACCUM_DIST
AWESOME	1	0.6096135	0.04824906	−0.1544829	−0.6092648	−0.3356009	−0.009229446	−0.77044	−0.3340495	0.02690783
AROON UP	0.6096135	1	−0.03941779	−0.4114565	−0.6676964	−0.335268	0.08720847	−0.7028105	−0.05706205	0.03148618
ADX	0.04824906	−0.03941779	1	−431.2488μ	−0.1052911	−0.02038744	−0.229642	−0.03163279	0.002588617	−0.008523352
RITY_INDEX	−0.1544829	−0.4114565	−431.2488μ	1	0.4174096	0.285685	0.03197063	0.6326998	0.4642855	0.01059824
OON DOWN	−0.6092648	−0.6676964	−0.1052911	0.4174096	1	0.3373492	0.1250855	0.7072936	0.06055726	−0.01741076
CHAIKIN	−0.3356009	−0.335268	−0.02038744	0.285685	0.3373492	1	−0.001478841	0.4112132	0.1777303	−0.0277843
ATR	−0.009229446	0.08720847	−0.229642	0.03197063	0.1250855	−0.001478841	1	0.02693684	0.02006148	0.04125609
CCI	−0.77044	−0.7028105	−0.03163279	0.6326998	0.7072936	0.4112132	0.02693684	1	0.4954508	−0.01601257
CMO	−0.3340495	−0.05706205	0.002588617	0.4642855	0.06055726	0.1777303	0.02006148	0.4954508	1	0.00426568
CCUM_DIST	0.02690783	0.03148618	−0.008523352	0.01059824	−0.01741076	−0.0277843	0.04125609	−0.01601257	0.00426568	1

Distribution of ACCUM_DIST for Winning and Losing Trades
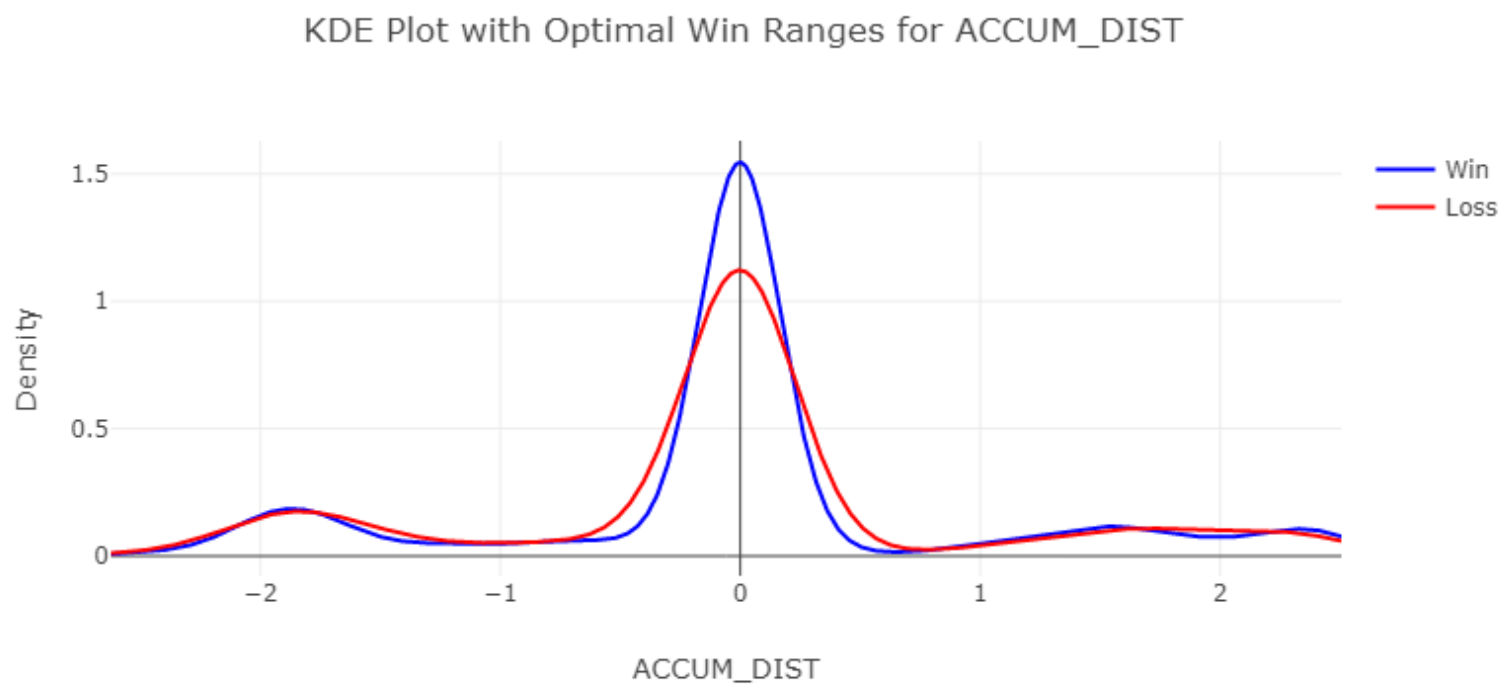

Distribution of ACCUM_DIST for Winning and Losing Trades

KDE Plot with Optimal Win Ranges for ACCUM_DIST

Mean Indicator Values for Losses