Table 1: Features ordered by their importance for the Extremely Randomized Trees (ERT) algorithm, considering the mean and standard deviation, in parentheses, of the Gini score calculated considering the ten pre-trained ERT models.

Ranking	**Feature**	**Gini score**
1	stdev_phase_A_current	4.2000E-02 (2.6056E-03)
2	stdev_phase_C_current	4.1800E-02 (2.2051E-03)
3	stdev_phase_B_current	3.9100E-02 (2.3033E-03)
4	variance_phase_B_current	2.9300E-02 (1.2778E-03)
5	variance_phase_A_current	2.8300E-02 (1.7970E-03)
6	variance_phase_C_current	2.7800E-02 (2.3230E-03)
7	geometric_mean_phase_B_current	2.7400E-02 (1.6177E-03)
8	geometric_mean_phase_A_current	2.6000E-02 (2.1522E-03)
9	geometric_mean_phase_C_current	2.3800E-02 (2.1111E-03)
10	distance_phase_B_voltage	2.3100E-02 (8.7426E-04)
11	distance_phase_C_voltage	2.1900E-02 (8.3371E-04)
12	auc_phase_B_current	2.0600E-02 (1.4745E-03)
13	auc_phase_C_current	2.0300E-02 (2.3626E-03)
14	covariance_phase_A_C_current	1.9900E-02 (1.5607E-03)
15	covariance_phase_B_C_current	1.9600E-02 (1.0864E-03)
16	distance_phase_A_voltage	1.9500E-02 (6.5629E-04)
17	covariance_phase_A_B_current	1.9400E-02 (8.5223E-04)
18	auc_phase_A_current	1.9200E-02 (1.6199E-03)
19	energy_phase_C_voltage	1.8000E-02 (9.7622E-04)
20	variance_phase_A_voltage	1.7900E-02 (1.1498E-03)
21	variance_phase_B_voltage	1.7900E-02 (9.7280E-04)
22	energy_phase_A_voltage	1.7800E-02 (1.4003E-03)
23	energy_phase_B_voltage	1.7700E-02 (9.1380E-04)
24	variance_phase_C_voltage	1.7000E-02 (9.5077E-04)
25	rms_phase_C_current	1.6100E-02 (1.3401E-03)
26	rms_phase_B_current	1.5500E-02 (1.8063E-03)
27	rms_phase_B_voltage	1.5400E-02 (9.9355E-04)
28	rms_phase_A_voltage	1.5400E-02 (1.3677E-03)
29	stdev_phase_B_voltage	1.5300E-02 (1.1439E-03)
30	stdev_phase_A_voltage	1.5200E-02 (1.0014E-03)
31	rms_phase_A_current	1.5200E-02 (1.2586E-03)
32	stdev_phase_C_voltage	1.5000E-02 (6.2306E-04)
33	rms_phase_C_voltage	1.4800E-02 (9.1283E-04)
34	auc_phase_C_voltage	1.3400E-02 (8.4250E-04)
35	auc_phase_B_voltage	1.3000E-02 (6.8464E-04)
36	auc_phase_A_voltage	1.3000E-02 (1.0135E-03)
37	correlation_phase_A_B_voltage	1.0900E-02 (9.9020E-04)
38	correlation_phase_A_C_voltage	1.0500E-02 (7.5469E-04)
39	correlation_phase_B_C_voltage	1.0500E-02 (6.7458E-04)
40	energy_phase_C_current	1.0200E-02 (8.2585E-04)

Table 1: Continued from the previous page.

Ranking	Feature	Gini score
41	energy_phase_B_current	9.6700E-03 (9.5086E-04)
42	pk_pk_distance_phase_C_current	8.8800E-03 (1.1211E-03)
43	energy_phase_A_current	8.8100E-03 (1.0431E-03)
44	distance_phase_B_current	8.8100E-03 (1.1723E-03)
45	pk_pk_distance_phase_B_current	8.7700E-03 (1.2930E-03)
46	distance_phase_A_current	8.7600E-03 (7.7535E-04)
47	distance_phase_C_current	8.3400E-03 (9.7109E-04)
48	pk_pk_distance_phase_A_current	8.2100E-03 (9.9163E-04)
49	covariance_phase_A_C_voltage	8.0500E-03 (3.1886E-04)
50	covariance_phase_B_C_voltage	7.9600E-03 (4.2570E-04)
51	covariance_phase_A_B_voltage	7.8800E-03 (3.5044E-04)
52	maxFrequency_phase_C_current	6.9700E-03 (4.5325E-04)
53	min_phase_B_current	6.8400E-03 (1.7545E-03)
54	max_phase_C_current	6.7900E-03 (1.1355E-03)
55	max_phase_A_current	6.3000E-03 (1.2483E-03)
56	maxFrequency_phase_A_current	5.9600E-03 (4.9666E-04)
57	min_phase_A_current	5.6500E-03 (8.0015E-04)
58	min_phase_C_current	5.6500E-03 (7.3590E-04)
59	correlation_phase_A_C_current	5.4900E-03 (1.5362E-04)
60	correlation_phase_B_C_current	5.4700E-03 (1.9980E-04)
61	maxFrequency_phase_B_current	5.4200E-03 (4.3794E-04)
62	correlation_phase_A_B_current	5.3400E-03 (3.6046E-04)
63	max_phase_B_current	5.3000E-03 (5.3685E-04)
64	geometric_mean_phase_A_voltage	5.1000E-03 (4.7386E-04)
65	geometric_mean_phase_B_voltage	4.9100E-03 (5.4003E-04)
66	geometric_mean_phase_C_voltage	4.6300E-03 (2.8865E-04)
67	pk_pk_distance_phase_B_voltage	4.0900E-03 (8.0593E-04)
68	pk_pk_distance_phase_C_voltage	3.2300E-03 (5.6128E-04)
69	pk_pk_distance_phase_A_voltage	2.7600E-03 (4.2818E-04)
70	maxFrequency_phase_C_voltage	2.2100E-03 (2.0645E-04)
71	maxFrequency_phase_B_voltage	1.8800E-03 (1.5277E-04)
72	maxFrequency_phase_A_voltage	1.7900E-03 (1.3512E-04)
73	kurtosis_phase_A_current	9.7200E-04 (6.7805E-05)
74	kurtosis_phase_C_current	9.4900E-04 (6.3416E-05)
75	kurtosis_phase_B_current	8.7200E-04 (7.4582E-05)
76	max_phase_C_voltage	5.4300E-04 (1.6194E-04)
77	kurtosis_phase_B_voltage	5.2500E-04 (1.9223E-05)
78	max_phase_B_voltage	4.6800E-04 (7.5995E-05)
79	kurtosis_phase_A_voltage	4.1400E-04 (2.5856E-05)
80	min_phase_B_voltage	4.0500E-04 (1.8585E-04)
81	kurtosis_phase_C_voltage	3.9300E-04 (1.8621E-05)
82	min_phase_A_voltage	3.7900E-04 (1.2338E-04)

Table 1: Continued from the previous page.

Ranking	Feature	Gini score
83	min_phase_C_voltage	3.4400E-04 (1.6889E-04)
84	max_phase_A_voltage	3.1700E-04 (7.8298E-05)
85	harmonic_mean_phase_C_current	2.3400E-04 (1.3946E-04)
86	harmonic_mean_phase_B_current	1.8600E-04 (1.5282E-04)
87	harmonic_mean_phase_A_current	1.5300E-04 (1.0500E-04)
88	mean_phase_B_current	1.5000E-04 (2.5766E-05)
89	mean_phase_C_current	1.4900E-04 (3.3544E-05)
90	shannon_entropy_phase_B_current	1.4800E-04 (5.1165E-05)
91	shannon_entropy_phase_C_current	1.3300E-04 (3.0557E-05)
92	mean_phase_A_current	1.3200E-04 (2.8143E-05)
93	shannon_entropy_phase_A_current	9.8200E-05 (3.6484E-05)
94	median_phase_A_current	8.3000E-05 (2.8707E-05)
95	median_phase_C_current	7.7100E-05 (2.3456E-05)
96	median_phase_B_current	7.3700E-05 (1.7774E-05)
97	skewness_phase_C_current	6.4600E-05 (4.5346E-06)
98	median_phase_B_voltage	6.3500E-05 (2.5503E-06)
99	skewness_phase_A_current	6.3400E-05 (6.1738E-06)
100	median_phase_A_voltage	6.2900E-05 (3.8083E-06)
101	skewness_phase_B_current	6.2200E-05 (3.1106E-06)
102	shannon_entropy_phase_A_voltage	6.2000E-05 (3.2964E-06)
103	median_phase_C_voltage	6.1400E-05 (2.8213E-06)
104	shannon_entropy_phase_B_voltage	5.0900E-05 (2.6573E-06)
105	shannon_entropy_phase_C_voltage	4.9300E-05 (1.0120E-06)
106	skewness_phase_C_voltage	4.7600E-05 (3.6985E-06)
107	skewness_phase_A_voltage	4.7500E-05 (3.3593E-06)
108	skewness_phase_B_voltage	4.6600E-05 (3.6953E-06)
109	powerBandwidth_phase_C_voltage	4.1800E-05 (2.7130E-06)
110	powerBandwidth_phase_B_voltage	3.8800E-05 (2.5542E-06)
111	powerBandwidth_phase_A_voltage	3.4700E-05 (2.6729E-06)
112	harmonic_mean_phase_B_voltage	3.3500E-05 (9.5276E-07)
113	harmonic_mean_phase_A_voltage	3.2600E-05 (6.8064E-07)
114	harmonic_mean_phase_C_voltage	3.1800E-05 (9.5736E-07)
115	mean_phase_A_voltage	3.0500E-05 (6.2406E-06)
116	slope_phase_B_voltage	3.0500E-05 (3.0171E-06)
117	mean_phase_B_voltage	3.0400E-05 (3.3780E-06)
118	mean_phase_C_voltage	2.9200E-05 (2.3653E-06)
119	slope_phase_C_voltage	2.8700E-05 (3.4836E-06)
120	slope_phase_C_current	2.6300E-05 (2.0945E-06)
121	slope_phase_A_current	2.5700E-05 (1.6138E-06)
122	slope_phase_B_current	2.5500E-05 (8.6944E-07)
123	slope_phase_A_voltage	2.4800E-05 (1.6786E-06)
124	powerBandwidth_phase_C_current	4.5000E-06 (2.1050E-06)
125	powerBandwidth_phase_A_current	3.3700E-06 (1.0928E-06)
126	powerBandwidth_phase_B_current	2.9400E-06 (7.2434E-07)

Table 2: Features ordered by their importance for the Extremely Randomized Trees (ERT) algorithm, considering the mean and standard deviation, in parentheses, of the Gini score calculated considering the ten pre-trained ERT models. Here, we grouped the features initially separated for each phase (A, B, or C) into a single feature.

Ranking	**Feature**	**Gini score**
1	stdev_current	4.0967E-02 (1.6197E-03)
2	variance_current	2.8467E-02 (7.6376E-04)
3	geometric_mean_current	2.5733E-02 (1.8148E-03)
4	distance_voltage	2.1500E-02 (1.8330E-03)
5	auc_current	2.0033E-02 (7.3711E-04)
6	covariance_current	1.9633E-02 (2.5166E-04)
7	energy_voltage	1.7833E-02 (1.5275E-04)
8	variance_voltage	1.7600E-02 (5.1962E-04)
9	rms_current	1.5600E-02 (4.5826E-04)
10	rms_voltage	1.5200E-02 (3.4641E-04)
11	stdev_voltage	1.5167E-02 (1.5275E-04)
12	auc_voltage	1.3133E-02 (2.3094E-04)
13	correlation_voltage	1.0633E-02 (2.3094E-04)
14	energy_current	9.5600E-03 (7.0150E-04)
15	pk_pk_distance_current	8.6200E-03 (3.5930E-04)
16	distance_current	8.6367E-03 (2.5813E-04)
17	covariance_voltage	7.9633E-03 (8.5049E-05)
18	maxFrequency_current	6.1167E-03 (7.8679E-04)
19	min_current	6.0467E-03 (6.8705E-04)
20	max_current	6.1300E-03 (7.5941E-04)
21	correlation_current	5.4333E-03 (8.1445E-05)
22	geometric_mean_voltage	4.8800E-03 (2.3643E-04)
23	pk_pk_distance_voltage	3.3600E-03 (6.7446E-04)
24	maxFrequency_voltage	1.9600E-03 (2.2113E-04)
25	kurtosis_current	9.3100E-04 (5.2374E-05)
26	max_voltage	4.4267E-04 (1.1511E-04)
27	kurtosis_voltage	4.4400E-04 (7.0930E-05)
28	min_voltage	3.7600E-04 (3.0610E-05)
29	harmonic_mean_current	1.9100E-04 (4.0731E-05)
30	mean_current	1.4367E-04 (1.0116E-05)
31	shannon_entropy_current	1.2640E-04 (2.5548E-05)
32	median_current	7.7933E-05 (4.7057E-06)
33	skewness_current	6.3400E-05 (1.2000E-06)
34	median_voltage	6.2600E-05 (1.0817E-06)
35	shannon_entropy_voltage	5.4067E-05 (6.9169E-06)
36	skewness_voltage	4.7233E-05 (5.5076E-07)
37	powerBandwidth_voltage	3.8433E-05 (3.5642E-06)
38	harmonic_mean_voltage	3.2633E-05 (8.5049E-07)
39	mean_voltage	3.0033E-05 (7.2342E-07)
40	slope_voltage	2.8000E-05 (2.9138E-06)
41	slope_current	2.5833E-05 (4.1633E-07)
42	powerBandwidth_current	3.6033E-06 (8.0575E-07)