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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **METHODS** | **EVALUATION METRICS** | | | | | | | |
| MCC | G-MEAN | ROC | SENSITIVITY | SPECIFICITY | PRECISION | ACCURACY | F1-SCORE |
| NO SAMPLING | 37.515 | 42.997 | 66.952 | 35.969 | **97.935** | 47.791 | **92.702** | 38.739 |
| SMOTE | 47.922 | 74.528 | 78.844 | 71.552 | 86.137 | 47.063 | 85.400 | 50.666 |
| ADASYN | 46.809 | 74.382 | 78.919 | 73.133 | 84.705 | 44.518 | 84.452 | 49.775 |
| RUS | 44.611 | 74.977 | 78.242 | 79.687 | 76.797 | 41.442 | 77.091 | 47.516 |
| NC | 42.733 | 51.484 | 70.720 | 47.028 | 94.412 | 49.557 | 92.067 | 45.433 |
| CNN | 37.983 | 49.905 | 69.623 | 49.756 | 89.490 | 42.273 | 88.285 | 41.628 |
| SMOTE-ENN | 46.615 | 75.300 | 79.088 | 75.755 | 82.420 | 44.276 | 82.609 | 49.412 |
| SMOTE-TOMEK | 48.111 | 74.617 | 79.045 | 71.787 | 86.303 | 47.028 | 85.574 | 50.764 |
| OVER-BAGGING | 42.325 | 51.665 | 69.128 | 41.887 | 96.370 | **54.982** | 92.117 | 44.593 |
| SMOTE-BAGGING | 44.463 | 56.839 | 71.123 | 46.885 | 95.361 | 53.819 | 91.757 | 47.720 |
| BALANCED-BAGGING | 45.823 | 75.662 | 78.169 | 71.092 | 85.245 | 44.184 | 83.909 | 49.237 |
| OVER-BOOSTING | 47.590 | 69.911 | 76.193 | 62.021 | 90.366 | 49.660 | 88.606 | 51.650 |
| RUSBOOST | 41.037 | 68.597 | 74.313 | 62.245 | 86.382 | 43.113 | 84.640 | 46.212 |
| EASY ENSEMBLE | 44.325 | 78.674 | 80.425 | **82.604** | 78.246 | 39.554 | 78.687 | 47.105 |
| BRF | 47.031 | 79.244 | 81.044 | 81.776 | 80.312 | 42.065 | 80.514 | 49.095 |
| iBRF | **53.042** | **79.923** | **82.260** | 78.931 | 85.589 | 48.709 | 85.880 | **55.002** |