








| Workflow  | Rank  | HGSC  | CCOC  | ENOC  | LGSC  | MUC  |
|---|---|---|---|---|---|--|
| <div>All</div> | <div>All</div> | <div>All</div> | <div>All</div> | <div>All</div> | <div>All</div> | <div>All</div> |
| sequential | 1 | 0.919 | 0.889 | 0.905 | 0.955 | 0.955 |
| hybrid_xgb | 2 | 0.938 | 0.907 | 0.853 | 0.79 | 0.92 |
| smote_xgb | 3 | 0.944 | 0.915 | 0.858 | 0.792 | 0.914 |
| hybrid_rf | 4 | 0.937 | 0.896 | 0.879 | 0.731 | 0.92 |
| smote_rf | 5 | 0.925 | 0.899 | 0.872 | 0.687 | 0.917 |
| up_xgb | 6 | 0.931 | 0.9 | 0.848 | 0.695 | 0.921 |
| up_mr | 7 | 0.937 | 0.888 | 0.864 | 0.917 | 0.906 |
| hybrid_mr | 8 | 0.928 | 0.901 | 0.873 | 0.861 | 0.911 |
| smote_mr | 9 | 0.927 | 0.889 | 0.877 | 0.827 | 0.913 |
| two_step | 10 | 0.919 | 0.893 | 0.819 | 0.924 | 0.908 |
| hybrid_svm | 11 | 0.933 | 0.885 | 0.867 | 0.874 | 0.89 |
| none_svm | 12 | 0.907 | 0.898 | 0.841 | 0.631 | 0.902 |
| smote_svm | 13 | 0.915 | 0.869 | 0.822 | 0.764 | 0.877 |
| down_rf | 14 | 0.899 | 0.902 | 0.821 | 0.887 | 0.9 |
| down_mr | 15 | 0.892 | 0.878 | 0.812 | 0.893 | 0.889 |
| down_svm | 16 | 0.882 | 0.862 | 0.855 | 0.936 | 0.882 |
| up_rf | 17 | 0.892 | 0.898 | 0.812 | 0.636 | 0.881 |
| up_svm | 18 | 0.911 | 0.869 | 0.801 | 0.761 | 0.87 |
| none_rf | 19 | 0.876 | 0.896 | 0.786 | 0.566 | 0.908 |
| down_xgb | 20 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| none_mr | 21 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| none_xgb | 22 | 0.528 | 0.601 | 0.5 | 0.5 | 0.5 |