|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supplementary file 11.** AUC results (mean and standard deviation) of the psychological characteristics related to sport performance data set (DS 4) for the four base classifiers in isolation and after applying in them the resampling. ensemble (Classic, Boosting-based, Bagging-based and Class-balanced ensembles) and cost-sensitive learning techniques selected | | | | | | | | | | |
| **Technique** | **Base classifiers** | | | | | | | | | |
| **C4.5** | | **ADTree** | | **SMO** | | **KNN** | | **RF** | |
| **AUC** | | **AUC** | | **AUC** | | **AUC** | | **AUC** | |
| None | 0.500 | ±0.000 | 0.435 | ±0.122 | 0.492 | ±0.015 | 0.457 | ±0.105 | 0.379 | ±0.101 |
|  | Resampling Techniques | | | | | | | | | |
| SMOTE | 0.458 | ±0.126 | 0.471 | ±0.135 | 0.490 | ±0.102 | 0.448 | ±0.116 | 0.417 | ±0.126 |
| ROS | 0.422 | ±0.122 | 0.441 | ±0.128 | 0.451 | ±0.090 | 0.458 | ±0.107 | 0.384 | ±0.104 |
| RUS | 0.494 | ±0.050 | 0.448 | ±0.132 | 0.450 | ±0.102 | 0.474 | ±0.126 | 0.408 | ±0.120 |
| ENN | 0.500 | ±0.000 | 0.450 | ±0.131 | 0.490 | ±0.023 | 0.477 | ±0.116 | 0.403 | ±0.111 |
|  | Classic Ensembles | | | | | | | | | |
| ADB1 | 0.419 | ±0.121 | 0.458 | ±0.114 | 0.463 | ±0.103 | 0.487 | ±0.105 | - | - |
| M1 | 0.427 | ±0.125 | 0.446 | ±0.119 | 0.440 | ±0.121 | 0.414 | ±0.095 | - | - |
| BAG | 0.455 | ±0.115 | 0.431 | ±0.116 | 0.405 | ±0.112 | 0.468 | ±0.110 | - | - |
| Decorate | 0.487 | ±0.137 | 0.467 | ±0.121 | 0.492 | ±0.015 | 0.383 | ±0.120 | - | - |
|  | Boosting-based Ensembles | | | | | | | | | |
| SBO | 0.451 | ±0.126 | 0.449 | ±0.123 | 0.452 | ±0.128 | 0.467 | ±0.122 | - | - |
| RUSB | 0.427 | ±0.121 | 0.435 | ±0.121 | 0.439 | ±0.128 | 0.464 | ±0.126 | - | - |
|  | Bagging-based Ensembles | | | | | | | | | |
| OBAG | 0.417 | ±0.109 | 0.434 | ±0.117 | 0.440 | ±0.121 | 0.456 | ±0.113 | - | - |
| UBAG | 0.429 | ±0.113 | 0.430 | ±0.118 | 0.412 | ±0.119 | 0.474 | ±0.117 | - | - |
| SBAG | 0.436 | ±0.115 | 0.457 | ±0.119 | 0.459 | ±0.120 | 0.445 | ±0.115 | - | - |
|  | Cost-sensitive Classification | | | | | | | | | |
| MetaCost | 0.500 | ±0.000 | 0.417 | ±0.118 | 0.480 | ±0.029 | 0.465 | ±0.105 | - | - |
| CS-Classifier | 0.500 | ±0.000 | 0.433 | ±0.121 | 0.463 | ±0.047 | 0.457 | ±0.105 | - | - |
|  | Class-balanced Ensembles with a Cost-sensitive Classifier | | | | | | | | | |
| CS-OBAG | 0.426 | ±0.109 | 0.436 | ±0.118 | 0.434 | ±0.121 | 0.456 | ±0.113 | - | - |
| CS-UBAG | 0.437 | ±0.115 | 0.427 | ±0.117 | 0.427 | ±0.120 | 0.471 | ±0.115 | - | - |
| CS-SBAG | 0.447 | ±0.118 | 0.456 | ±0.120 | 0.448 | ±0.120 | 0.443 | ±0.116 | - | - |