Table 1: Classification outcomes of the MCs as benign or malignant (Unit: %).

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Classifiers | 5 fold | | | | 10 fold | | | | 15 fold | | | |
| Sens. | Spec. | Prec. | Accu. | Sens. | Spec. | Prec. | Accu. | Sens. | Spec. | Prec. | Accu. |
| Bagged  trees ensemble | 80.77 | 82.35 | 87.50 | 81.40 | 79.17 | 88.89 | 90.48 | 83.33 | 82.14 | 80.00 | 88.46 | 81.40 |
| Boosted  trees ensemble | 77.42 | 68.75 | 82.76 | 74.47 | 84.00 | 70.00 | 77.78 | 77.78 | 74.19 | 66.67 | 79.31 | 71.43 |
| RUSBoosted trees ensemble | 82.14 | 85.71 | 92.00 | 83.33 | 84.62 | 86.67 | 91.67 | 85.37 | 84.62 | 81.25 | 88.00 | 83.33 |
| Subspace discriminant ensemble | 88.24 | 90.91 | 88.24 | 89.74 | **94.12** | **92.48** | **88.89** | **92.11** | 86.96 | 83.33 | 86.96 | 85.37 |

Table 2: Comparative analysis with existing methods (Unit: %).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Methods | Sens. | Spec. | Prec. | Accu. |
| GLCM+NBC | 68.75 | 67.65 | 66.67 | 68.18 |
| WG+SVM | 80.00 | 85.71 | 86.96 | 82.61 |
| SWE+Ensemble(Proposed) | **94.12** | **92.48** | **88.89** | **92.11** |

|  |  |
| --- | --- |
| Classifiers | Computation Times ( mean + standard deviation) |
| Bagged trees ensemble | 0.04301 + 0.0260 |
| Boosted trees ensemble | 0.03410 + 0.0199 |
| RUSBoosted trees ensemble | 0.03494 + 0.0206 |
| Subspace discriminant ensemble | 0.03878 + 0.0232 |

SWT VS DWT (DWT features using 10 fold)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Classifiers | DWT | | | |
| Sens. | Spec. | Prec. | Accu. |
| Bagged  trees ensemble | 85.00 | 78.26 | 77.27 | 81.40 |
| Boosted  trees ensemble | 67.57 | 83.33 | 92.59 | 71.43 |
| RUSBoosted trees ensemble | 75.00 | 90.91 | 88.24 | 83.33 |
| Subspace discriminant ensemble | 87.50 | 82.35 | 87.50 | 85.37 |

