**Table 3.** F1-min of different algorithms and oversampling rate.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 100% | | | 200% | | | 300% | | |
|  | VAE | NDO | SMO | VAE | NDO | SMO | VAE | NDO | SMO |
| breast-w | **94.65** | 94.38 | 94.38 | **94.63** | 94.38 | 94.38 | **94.67** | 94.38 | 94.38 |
| vehicle | **58.22** | 55.66 | 56.26 | **58.12** | 56.63 | 56.45 | **58.78** | 56.27 | 56.45 |
| segment-challenge | **66.88** | 65.47 | 62.44 | **69.45** | 66.55 | 61.15 | **71.21** | 61.90 | 61.15 |
| Diabetes | 65.51 | 65.93 | **66.27** | **66.96** | 66.74 | 66.33 | **66.34** | 65.59 | 66.33 |
| Ionosphere | **87.00** | 82.34 | 80.54 | **85.89** | 82.63 | 82.71 | **84.26** | 81.44 | 82.71 |

**Table 4.** F1-maj of different algorithms and oversampling rate.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 100% | | | 200% | | | 300% | | |
|  | VAE | NDO | SMO | VAE | NDO | SMO | VAE | NDO | SMO |
| breast-w | **96.95** | 96.89 | 96.89 | **96.94** | 96.89 | 96.89 | **96.96** | 96.89 | 96.89 |
| vehicle | **74.50** | 72.06 | 72.35 | **75.90** | 71.98 | 71.87 | **77.82** | 71.73 | 71.90 |
| segment-challenge | 91.68 | **91.79** | 89.69 | **92.78** | 92.22 | 89.41 | **93.43** | 92.47 | 89.03 |
| Diabetes | 79.78 | 79.73 | **80.25** | 77.44 | **77.78** | 76.71 | **76.29** | 74.95 | 74.48 |
| Ionosphere | **93.70** | 89.62 | 87.79 | **93.42** | 89.84 | 88.56 | **92.82** | 90.07 | 89.45 |

**Table 5.** Gmean of different algorithms and oversampling rate.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 100% | | | 200% | | | 300% | | |
|  | VAE | NDO | SMO | VAE | NDO | SMO | VAE | NDO | SMO |
| breast-w | **96.50** | 96.35 | 96.35 | **96.50** | 96.35 | 96.35 | **96.55** | 96.35 | 96.35 |
| vehicle | **75.14** | 72.71 | 73.27 | **75.19** | 73.50 | 73.18 | **75.79** | 73.30 | 73.34 |
| segment-challenge | **90.34** | 89.55 | 88.91 | **91.40** | 89.23 | 89.36 | **91.88** | 89.41 | 89.01 |
| Diabetes | 73.15 | 73.57 | **73.84** | 74.04 | **74.07** | 73.01 | **73.35** | 73.24 | 73.03 |
| Ionosphere | **88.54** | 86.47 | 85.32 | **87.46** | 86.66 | 85.99 | 86.07 | 86.86 | **86.98** |