Table S1 The standard deviation of different single-objective EAs over different datasets (“--” indicates the result is not successfully obtained)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Metric | Dataset | Shipp | Pomeroy | Nutt | Armstrong | Alizadeh | Gordon | Gisette | Leukemia | Arcene | Dexter |
| Ratio | FRGA | 0.004 | 0.004 | 0.004 | 0.004 | 0.005 | 0.004 | 0.002 | 0.002 | 0.004 | 0.003 |
| PSO | 0.060 | 0.009 | 0.010 | 0.016 | 0.021 | 0.018 | 0.031 | 0.041 | 0.041 | 0.093 |
| SaPSO | 0.010 | 0.034 | 0.008 | 0.015 | 0.035 | 0.008 | -- | 0.024 | -- | -- |
| NetG-DE | 0.022 | 0.013 | 0.016 | 0.013 | 0.028 | 0.019 | 0.014 | 0.034 | 0.034 | 0.032 |
| Net-PSO | 0.033 | 0.039 | 0.027 | 0.045 | 0.043 | 0.033 | 0.013 | 0.043 | 0.033 | 0.021 |
| NetG-PSO | 0.034 | 0.021 | 0.013 | 0.031 | 0.038 | 0.030 | 0.038 | 0.037 | 0.020 | 0.023 |
| Accuracy | FRGA | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.002 | 0.002 |
| PSO | 0.000 | 0.000 | 0.000 | 0.000 | 0.042 | 0.000 | 0.002 | 0.048 | 0.020 | 0.015 |
| SaPSO | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | -- | 0.000 | -- | -- |
| NetG-DE | 0.000 | 0.000 | 0.000 | 0.000 | 0.052 | 0.000 | 0.004 | 0.053 | 0.014 | 0.016 |
| Net-PSO | 0.000 | 0.000 | 0.000 | 0.000 | 0.053 | 0.000 | 0.004 | 0.042 | 0.020 | 0.026 |
| NetG-PSO | 0.000 | 0.000 | 0.000 | 0.000 | 0.042 | 0.000 | 0.007 | 0.042 | 0.000 | 0.022 |
| Fitness | FRGA | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| PSO | 0.018 | 0.003 | 0.003 | 0.005 | 0.028 | 0.006 | 0.009 | 0.035 | 0.023 | 0.023 |
| SaPSO | 0.003 | 0.010 | 0.002 | 0.005 | 0.010 | 0.002 | -- | 0.007 | -- | -- |
| NetG-DE | 0.007 | 0.004 | 0.005 | 0.004 | 0.030 | 0.006 | 0.003 | 0.028 | 0.013 | 0.005 |
| Net-PSO | 0.010 | 0.012 | 0.008 | 0.014 | 0.047 | 0.010 | 0.006 | 0.040 | 0.023 | 0.019 |
| NetG-PSO | 0.010 | 0.006 | 0.004 | 0.009 | 0.036 | 0.009 | 0.008 | 0.041 | 0.006 | 0.015 |

Table S2 The standard deviation of different multiobjective EAs over different datasets (“--” indicates the result is not successfully obtained)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | MODE | MOPSO | VGS-MOEA | NetG-MODE | Net-MOPSO | NetG-MOPSO |
| Shipp | 0.047 | 0.042 | 0.059 | 0.026 | 0.003 | 0.003 |
| Pomeroy | 0.051 | 0.023 | 0.026 | 0.019 | 0.002 | 0.002 |
| Nutt | 0.022 | 0.025 | 0.106 | 0.005 | 0.002 | 0.002 |
| Armstrong | 0.021 | 0.034 | 0.074 | 0.006 | 0.001 | **0.001** |
| Alizadeh | 0.036 | 0.033 | 0.017 | 0.012 | 0.008 | 0.001 |
| Gordon | 0.039 | 0.019 | 0.056 | 0.006 | 0.000 | **0.000** |
| Gisette | 0.031 | 0.022 | -- | 0.002 | 0.002 | **0.001** |
| Leukemia | 0.052 | 0.032 | 0.009 | 0.003 | 0.000 | 0.000 |
| Arcene | 0.017 | 0.025 | -- | 0.025 | 0.006 | 0.009 |
| Dexter | 0.029 | 0.024 | -- | 0.013 | 0.002 | 0.007 |