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MSSV: 17520618
Môn: Mạng neural và thuật giải di truyền
Lớp: CS410.N11

BÁO CÁO
BT3: Differential Evolution (DE) & Cross Entropy Method (CEM)

Hàm SPHERE:
+Dimension = 2

Popsize N/λ	DE	CEM
32	3.2096e-06 (2.4864e-06)	4.3568e-05 (3.3639e-05)
64	5.0739e-06 (2.2251e-06)	3.4915e-05 (2.34107e-05)
128	4.7170e-06 (3.08587e-06)	3.7315e-05 (2.6598e-05)
256	4.3118e-06 (3.36306e-06)	3.1773e-05 (2.6873e-05)
512	4.9558e-06 (2.1514e-06)	2.7816e-05 (1.9142e-05)
1024	5.0067e-06 (2.65160e-06)	2.30174e-05 (2.0721e-05)

+Dimension = 10

Popsize N/λ	DE	CEM
32	8.6529e-06 (1.1899e-06)	0.0285 (0.0113)
64	7.8851e-06 (1.4552e-06)	0.0054 (0.0014)
128	8.2301e-06 (1.3337e-06)	0.0040 (0.0014)
256	7.8411e-06 (1.8094e-06)	0.0029 (0.0007)
512	8.0621e-06 (1.6456e-06)	0.0027 (0.0006)
1024	8.5864e-06 (1.1933e-06)	0.0018 (0.0004)

Hàm ZAKHAROV:
+Dimension = 2

Popsize N/λ	DE	CEM
32	4.3322e-06 (3.2963e-06)	4.9420e-05 (3.2038e-05)
64	5.4485e-06 (3.0685e-06)	2.0080e-05 (1.7191e-05)
128	4.3892e-06 (2.5644e-06)	3.3997e-05 (2.7761e-05)
256	6.4085e-06 (3.2864e-06)	3.7344e-05 (2.7137e-05)
512	3.9855e-06 (2.0888e-06)	2.8422e-05 (2.0090e-05)
1024	5.3937e-06 (2.6843e-06)	3.8663e-05 (3.6876e-05)

+Dimension = 10

Popsize N/λ	DE	CEM
32	9.0360e-06 (6.8500e-07)	5.8298 (3.6373)
64	8.3946e-06 (1.5562e-06)	0.2475 (0.1256)
128	8.5838e-06 (1.0091e-06)	0.0319 (0.0135)
256	8.5444e-06 (8.9108e-07)	0.0098 (0.0045)
512	7.7963e-06 (1.2670e-06)	0.0061 (0.0018)
1024	0.0077 (0.0016)	0.0047 (0.0014)

Hàm ROSENBROCK:
+Dimension = 2

Popsize N/λ	DE	CEM
32	5.1654e-06 (2.8877e-06)	4.4163e-05 (3.4332e-05)
64	4.5394e-06 (1.8242e-06)	3.9320e-05 (1.5844e-05)
128	4.2958e-06 (3.3667e-06)	4.0641e-05 (2.0618e-05)
256	4.5884e-06 (2.3851e-06)	4.7658e-05 (2.1526e-05)
512	3.0928e-06 (1.9658e-06)	4.8279e-05 (3.6700e-05)
1024	5.0543e-06 (2.9299e-06)	3.9174e-05 (3.0915e-05)

+Dimension = 10

Popsize N/λ	DE	CEM
32	9.1276e-06 (7.3923e-07)	4.4302 (1.1519)
64	8.3649e-06 (9.2298e-07)	2.4308 (1.1611)
128	7.7648e-06 (1.4879e-06)	1.8967 (1.4332)
256	8.9256e-06 (5.6171e-07)	1.8936 (1.5892)
512	0.0001 (3.9038e-05)	1.2085 (1.2135)
1024	0.3296 (0.0415)	1.9446 (1.8584)

Hàm MICHALEWICZ:
+Dimension = 2

Popsize N/λ	DE	CEM
32	-1.2555 (0.3100)	-1.8013 (4.1178e-08)
64	-1.3518 (0.2027)	-1.8013 (1.7609e-08)
128	-1.7026 (0.0763)	-1.8013 (2.5846e-09)
256	-1.6919 (0.0901)	-1.8013 (5.5406e-09)
512	-1.7205 (0.0479)	-1.8013 (8.4583e-10)
1024	-1.7584 (0.0551)	-1.8013 (3.6770e-10)

+Dimension = 10

Popsize N/λ	DE	CEM
32	-3.0967 (0.3996)	-8.9181 (0.2995)
64	-3.3337 (0.3726)	-9.0756 (0.3389)
128	-3.2719 (0.1982)	-9.2572 (0.1424)
256	-3.6990 (0.2363)	-9.3654 (0.1192)
512	-4.0628 (0.3501)	-9.4249 (0.1734)
1024	-4.2028 (0.4557)	-9.4906 (0.1250)

Hàm ACKLEY:
+Dimension = 2

Popsize N/λ	DE	CEM
32	5.8060e-06 (2.6627e-06)	0.6363 (1.2408)
64	5.5803e-06 (2.6951e-06)	1.3010 (1.2796)
128	5.2898e-06 (2.0469e-06)	0.7805 (1.1781)
256	6.8979e-06 (2.1180e-06)	0.5212 (1.0294)
512	6.4256e-06 (2.3064e-06)	0.8752 (1.3575)
1024	7.3728e-06 (2.5180e-06)	0.7760 (1.1809)

+Dimension = 10

Popsize N/λ	DE	CEM
32	8.7311e-06 (5.1625e-07)	1.5854 (1.0455)
64	9.3508e-06 (5.7721e-07)	2.4678 (0.5327)
128	8.8057e-06 (9.5728e-07)	2.2319 (0.5602)
256	9.1374e-06 (8.1403e-07)	2.4995 (0.5538)
512	9.3884e-06 (8.1510e-07)	2.2006 (0.9425)
1024	8.9492e-06 (6.4486e-07)	1.9895 (0.7928)