

Heuristic Algorithms

Achieved Results for Harmony Search

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FES	5×10^3	5×10^4	5×10^5
Best	7.4628	6.7555	6.2138
Median	49.6056	55.4842	51.1064
Worst	37.4628	23.2445	21.3173
v	6453.2818	13577.3599	18626.0746
Mean	51.4905	54.5777	50.2408
std	25.8178	23.0401	25.4078

Table 1: Error Values Problem pg01 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.3526	0.3526	0.2877
Median	0.6563	0.6586	0.6589
Worst	0.9285	0.9248	0.9221
v	0.0000	0.0000	0.0000
Mean	0.6455	0.6474	0.6334
std	0.0577	0.0578	0.0882

Table 2: Error Values Problem pg02 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.9805	0.9984	1.0003
Median	0.9352	0.9153	0.9379
Worst	1.0006	1.0006	1.0005
v	24.0401	49.6325	71.1728
Mean	1.0251	1.3136	1.2545
std	0.8199	2.5030	2.1269

Table 3: Error Values Problem pg03 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	462.9099	284.1233	74.1870
Median	3120.3808	3120.3808	2469.1898
Worst	55417.6156	55417.6156	54384.2732
v	0.9313	3.7842	6.4357
Mean	3269.6959	3118.8102	2836.7263
std	1301.7405	1318.4355	1467.0824

Table 4: Error Values Problem pg04 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	101.1785	1195.1433	413.7731
Median	1626.2138	1712.4386	1601.2256
Worst	12479.4859	12479.4859	12756.5802
v	15287.5418	30294.2487	44694.8435
Mean	1827.5098	1919.6871	1810.0506
std	1052.5422	1133.1754	1147.1473

Table 5: Error Values Problem pg05 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	3871.7652	24.4819	4.2895
Median	25913.5705	29272.2483	25939.5762
Worst	291442.6419	307229.3343	542439.3968
v	44230.1429	96623.7415	150782.3817
Mean	46510.0841	49175.9752	56617.1840
std	69045.8472	65271.4250	89665.6351

Table 6: Error Values Problem pg06 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	59.5054	147.2485	147.2485
Median	1748.3955	1797.0230	1675.3482
Worst	3660.7980	3660.7980	3660.7980
v	15753.2490	30447.7560	42486.9305
Mean	1741.8412	1773.7563	1649.0710
std	916.9713	897.7698	983.3748

Table 7: Error Values Problem pg07 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.0024	0.0005	0.0000
Median	0.0958	0.0960	0.0958
Worst	43.3347	43.3347	43.3347
v	239.7099	407.0192	564.1252
Mean	3.6318	3.2168	5.0206
std	13.6756	11.0337	25.6233

Table 8: Error Values Problem pg08 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	1.9500	1.9279	0.9388
Median	115970.9295	149701.5300	96061.7546
Worst	8549372.8320	9426896.7127	9426896.7127
v	14051.2646	24308.7651	33714.1883
Mean	1324540.1983	1142555.7329	926263.4281
std	2332727.3396	2100298.2598	1863969.2344

Table 9: Error Values Problem pg09 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	2335.0158	7675.6317	7402.0667
Median	9361.8983	9096.3359	8702.0004
Worst	33802.1668	33802.1668	33802.1668
v	573035.0426	839670.6790	2871108.4605
Mean	9507.4273	9212.6608	8909.3346
std	5391.3719	4703.0339	4405.6902

Table 10: Error Values Problem pg10 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.0266	0.1185	0.0002
Median	0.1784	0.1975	0.1909
Worst	2.6167	3.2193	3.2193
v	5.3226	11.6417	16.8146
Mean	0.2393	0.3178	0.2976
std	0.2420	0.3466	0.3215

Table 11: Error Values Problem pg11 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.0059	0.0000	0.0000
Median	0.1800	0.1738	0.1701
Worst	1.4780	1.4780	1.4780
v	1.3439	3.0588	4.8842
Mean	0.1873	0.1800	0.1757
std	0.1316	0.1099	0.1152

Table 12: Error Values Problem pg12 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.2697	0.9193	0.9024
Median	0.9201	0.9297	0.9544
Worst	21.6533	3761.8884	3761.8884
v	82.9258	159.9628	234.3295
Mean	1.7627	64.8564	43.8112
std	3.8828	485.4003	396.3454

Table 13: Error Values Problem pg13 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	186.0244	186.0244	218.1271
Median	640.7399	670.7961	669.4217
Worst	281.5542	281.5542	281.5542
v	549.3654	1148.6564	1680.6380
Mean	625.3396	656.1622	642.2004
std	133.3014	139.5427	160.6654

Table 14: Error Values Problem pg14 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	5.1435	1.3050	2.6431
Median	30.0614	30.0614	28.9898
Worst	1952.7367	1952.7367	1955.7352

v	982.3995	1906.0042	2738.0684
Mean	46.0877	44.7792	43.4297
std	46.2527	40.6379	41.1349

Table 15: Error Values Problem pg15 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.5988	0.4017	0.3119
Median	0.9540	0.9647	0.9156
Worst	5.9643	17.6472	21.5659
v	282541.0824	448009.2909	618036.2765
Mean	1.3328	1.6309	1.7188
std	1.8176	3.0308	3.6242

Table 16: Error Values Problem pg16 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	2894.7710	1923.3847	477.6732
Median	6207.7392	7110.6749	5984.5739
Worst	40511.8250	44496.3205	44496.3205
v	7473.2840	15031.1210	21139.3687
Mean	7367.1487	9351.9432	8043.1433
std	5818.0876	7551.1269	7348.4178

Table 17: Error Values Problem pg17 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	2.1306	2.1306	1.3938
Median	12.7344	12.7344	12.1106
Worst	53.5670	53.5670	53.5670
v	15868.0546	32241.6900	46672.7646
Mean	18.1825	19.1353	17.9716
std	16.7215	17.0583	16.5837

Table 18: Error Values Problem pg18 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	176.3800	176.3800	83.5577
Median	9014.9207	10071.6045	8812.9095
Worst	25795.5709	27595.8405	27595.8405
v	0.0000	0.0000	0.0000
Mean	10763.9432	10657.3712	9518.6290
std	6711.0403	6295.6632	6127.5905

Table 19: Error Values Problem pg19 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	2.3775	1.6641	1.7928
Median	13.9637	14.0153	14.0387
Worst	18.7977	19.2899	20.3884
v	372.5808	744.6046	1080.9807
Mean	13.4996	14.0194	13.6350
std	2.8694	3.1388	4.0482

Table 20: Error Values Problem pg20 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	419.7872	419.7872	93.5768
Median	380.8611	353.2030	277.3817
Worst	1158.6347	1189.5421	1189.5421
v	6175.5310	13937.0259	19574.5071
Mean	356.3902	351.7531	338.1361
std	188.8894	230.9163	236.2408

Table 21: Error Values Problem pg21 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	65.5104	65.5104	207.1046
Median	10876.5517	9929.0339	9142.5026
Worst	20124.4745	20124.4745	20124.4745
v	10276092734.9307	20424153500.3376	28446088579.5284
Mean	10342.2866	8973.3606	8736.7511
std	6082.5257	6008.8004	5972.2692

Table 22: Error Values Problem pg22 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	542.3697	640.3108	113.0409
Median	1074.2023	1414.0194	1314.0519
Worst	4142.9793	4142.9793	4142.9793
v	1421.4599	2924.8939	4194.8951
Mean	1557.1415	1640.3503	1572.1789
std	1237.1756	1232.4922	1227.3820

Table 23: Error Values Problem pg23 using Harmony Search

FES	5×10^3	5×10^4	5×10^5
Best	0.0247	0.0035	0.0032
Median	2.2576	2.1493	2.0569
Worst	6.5111	6.5111	6.5111
v	1.3727	2.8359	5.2315
Mean	2.2422	2.1665	2.0346
std	0.9922	0.9255	1.0439

Table 24: Error Values Problem pg24 using Harmony Search

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg01	7.4628	49.6056	37.4628	51.4905	25.8178	0.0000	0.0000	-1.0000
50000	pg01	6.7555	55.4842	23.2445	54.5777	23.0401	0.0333	0.0000	-1.0000
500000	pg01	4.0032	51.1064	21.3173	50.2408	25.4078	0.1000	0.0000	-1.0000

Table 25: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg02	0.3526	0.6563	0.9285	0.6455	0.0577	1.0000	0.0000	-1.0000
50000	pg02	0.3526	0.6586	0.9248	0.6474	0.0578	1.0000	0.0000	-1.0000
500000	pg02	0.2877	0.6589	0.9221	0.6334	0.0882	1.0000	0.0000	-1.0000

Table 26: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg03	0.0172	0.9352	1.0006	1.0251	0.8199	0.0000	0.0000	-1.0000
50000	pg03	0.0172	0.9153	1.0006	1.3136	2.5030	0.0000	0.0000	-1.0000
500000	pg03	0.0172	0.9379	1.0005	1.2545	2.1269	0.0333	0.0000	-1.0000

Table 27: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg04	462.9099	3120.3808	55417.6156	3269.6959	1301.7405	0.9333	0.0000	-1.0000
50000	pg04	284.1233	3120.3808	55417.6156	3118.8102	1318.4355	0.7667	0.0000	-1.0000
500000	pg04	74.1870	2469.1898	54384.2732	2836.7263	1467.0824	0.8000	0.0000	-1.0000

Table 28: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg05	101.1785	1626.2138	12479.4859	1827.5098	1052.5422	0.0000	0.0000	-1.0000
50000	pg05	101.1785	1712.4386	12479.4859	1919.6871	1133.1754	0.0000	0.0000	-1.0000
500000	pg05	101.1785	1601.2256	12756.5802	1810.0506	1147.1473	0.0000	0.0000	-1.0000

Table 29: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg06	85.8521	25913.5705	291442.6419	46510.0841	69045.8472	0.0333	0.0000	-1.0000
50000	pg06	24.4819	29272.2483	307229.3343	49175.9752	65271.4250	0.0333	0.0000	-1.0000
500000	pg06	4.2895	25939.5762	542439.3968	56617.1840	89665.6351	0.1667	0.0000	-1.0000

Table 30: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg07	59.5054	1748.3955	3660.7980	1741.8412	916.9713	0.0000	0.0000	-1.0000
50000	pg07	59.5054	1797.0230	3660.7980	1773.7563	897.7698	0.0333	0.0000	-1.0000
500000	pg07	59.5054	1675.3482	3660.7980	1649.0710	983.3748	0.0333	0.0000	-1.0000

Table 31: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg08	0.0024	0.0958	43.3347	3.6318	13.6756	0.0333	0.0000	-1.0000
50000	pg08	0.0005	0.0960	43.3347	3.2168	11.0337	0.1000	0.0000	-1.0000
500000	pg08	0.0000	0.0958	43.3347	5.0206	25.6233	0.2000	0.0333	13957012.0000

Table 32: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg09	1.9500	115970.9295	8549372.8320	1324540.1983	2332727.3396	0.0333	0.0000	-1.0000
50000	pg09	1.9279	149701.5300	9426896.7127	1142555.7329	2100298.2598	0.0333	0.0000	-1.0000
500000	pg09	0.9388	96061.7546	9426896.7127	926263.4281	1863969.2344	0.1667	0.0000	-1.0000

Table 33: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg10	1084.5695	9361.8983	33802.1668	9507.4273	5391.3719	0.0000	0.0000	-1.0000
50000	pg10	287.6622	9096.3359	33802.1668	9212.6608	4703.0339	0.0000	0.0000	-1.0000
500000	pg10	287.6622	8702.0004	33802.1668	8909.3346	4405.6902	0.0333	0.0000	-1.0000

Table 34: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg11	0.0051	0.1784	2.6167	0.2393	0.2420	0.0000	0.0000	-1.0000
50000	pg11	0.0026	0.1975	3.2193	0.3178	0.3466	0.0333	0.0000	-1.0000

500000	pg11	0.0002	0.1909	3.2193	0.2976	0.3215	0.1667	0.0000	-1.0000
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Table 35: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg12	0.0013	0.1800	1.4780	0.1873	0.1316	0.3333	0.0000	-1.0000
50000	pg12	0.0000	0.1738	1.4780	0.1800	0.1099	0.3000	0.0333	1459395.0000
500000	pg12	0.0000	0.1701	1.4780	0.1757	0.1152	0.3667	0.1333	3452603.7500

Table 36: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg13	0.0046	0.9201	21.6533	1.7627	3.8828	0.0000	0.0000	-1.0000
50000	pg13	0.0046	0.9297	3761.8884	64.8564	485.4003	0.0000	0.0000	-1.0000
500000	pg13	0.0046	0.9544	3761.8884	43.8112	396.3454	0.0000	0.0000	-1.0000

Table 37: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg14	186.0244	640.7399	281.5542	625.3396	133.3014	0.0000	0.0000	-1.0000
50000	pg14	186.0244	670.7961	281.5542	656.1622	139.5427	0.0000	0.0000	-1.0000
500000	pg14	186.0244	669.4217	281.5542	642.2004	160.6654	0.0000	0.0000	-1.0000

Table 38: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg15	4.3884	30.0614	1952.7367	46.0877	46.2527	0.0000	0.0000	-1.0000
50000	pg15	0.3714	30.0614	1952.7367	44.7792	40.6379	0.0000	0.0000	-1.0000
500000	pg15	0.0022	28.9898	1955.7352	43.4297	41.1349	0.0000	0.0000	-1.0000

Table 39: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg16	0.0050	0.9540	5.9643	1.3328	1.8176	0.0000	0.0000	-1.0000
50000	pg16	0.0050	0.9647	17.6472	1.6309	3.0308	0.0333	0.0000	-1.0000
500000	pg16	0.0050	0.9156	21.5659	1.7188	3.6242	0.1667	0.0000	-1.0000

Table 40: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg17	229.1311	6207.7392	40511.8250	7367.1487	5818.0876	0.0000	0.0000	-1.0000
50000	pg17	229.1311	7110.6749	44496.3205	9351.9432	7551.1269	0.0000	0.0000	-1.0000
500000	pg17	29.9285	5984.5739	44496.3205	8043.1433	7348.4178	0.0000	0.0000	-1.0000

Table 41: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg18	1.0020	12.7344	53.5670	18.1825	16.7215	0.0000	0.0000	-1.0000
50000	pg18	0.1687	12.7344	53.5670	19.1353	17.0583	0.0000	0.0000	-1.0000
500000	pg18	0.1687	12.1106	53.5670	17.9716	16.5837	0.0000	0.0000	-1.0000

Table 42: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg19	176.3800	9014.9207	25795.5709	10763.9432	6711.0403	1.0000	0.0000	-1.0000
50000	pg19	176.3800	10071.6045	27595.8405	10657.3712	6295.6632	1.0000	0.0000	-1.0000
500000	pg19	83.5577	8812.9095	27595.8405	9518.6290	6127.5905	1.0000	0.0000	-1.0000

Table 43: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg20	2.3775	13.9637	18.7977	13.4996	2.8694	0.0000	0.0000	-1.0000
50000	pg20	1.6641	14.0153	19.2899	14.0194	3.1388	0.0000	0.0000	-1.0000
500000	pg20	1.1950	14.0387	20.3884	13.6350	4.0482	0.0000	0.0000	-1.0000

Table 44: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg21	13.5536	380.8611	1158.6347	356.3902	188.8894	0.0000	0.0000	-1.0000
50000	pg21	9.7865	353.2030	1189.5421	351.7531	230.9163	0.0000	0.0000	-1.0000
500000	pg21	0.6622	277.3817	1189.5421	338.1361	236.2408	0.0000	0.0000	-1.0000

Table 45: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg22	65.5104	10876.5517	20124.4745	10342.2866	6082.5257	0.0000	0.0000	-1.0000
50000	pg22	11.4994	9929.0339	20124.4745	8973.3606	6008.8004	0.0000	0.0000	-1.0000
500000	pg22	11.4994	9142.5026	20124.4745	8736.7511	5972.2692	0.0000	0.0000	-1.0000

Table 46: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg23	89.3384	1074.2023	4142.9793	1557.1415	1237.1756	0.0000	0.0000	-1.0000
50000	pg23	7.0081	1414.0194	4142.9793	1640.3503	1232.4922	0.0000	0.0000	-1.0000
500000	pg23	7.0081	1314.0519	4142.9793	1572.1789	1227.3820	0.0000	0.0000	-1.0000

Table 47: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance

Max FES	Prob.	Best	Median	Worst	Mean	Std	FR	SR	SP
5000	pg24	0.0247	2.2576	6.5111	2.2422	0.9922	0.9667	0.0000	-1.0000
50000	pg24	0.0035	2.1493	6.5111	2.1665	0.9255	0.8667	0.0000	-1.0000
500000	pg24	0.0032	2.0569	6.5111	2.0346	1.0439	0.8667	0.0000	-1.0000

Table 48: Harmony Search. Number of FES to achieve the fixed accuracy level ($f(\mathbf{x}) - f(\mathbf{x}^*) \leq 0.0001$), Success Rate, Feasible Rate and Success Performance