

Algoritmo Genético

Disciplina: Inteligência Artificial

Docente: Luciana Balieiro

Discente: Camila Lopes

Parâmetros:

Quantidade de indivíduos	Taxa de cruzamento	Taxa de mutação	Quantidade de interações
20	90%	30%	100

Resultado utilizando o cruzamento polarizado:

#	X	F(x)
1	-0.9873512700709551, 1.0188341058833341	2.1143876265843744
2	-2.007990885980091, 0.0014080206281636507	4.045022390192191
3	-0.001235688020273449, -1.0003727495438766	1.0010759924146662
4	-0.0002499871592181335, -0.9350389559839184	1.695792175903975
5	-0.9306194295342003, 0.9813628052836036	2.832837082751947
6	-0.9909947218288326, -2.093874752894401	7.072046510981334
7	2.031762260325319, -1.0330793358352304	5.609006373153594
8	-0.9662719856731509, 1.0662022777186406	3.1468952143844007
9	-0.0006868080219687888, -1.8622058024338464	6.987490725129783
10	1.950869648753017, 4.2794129629944586e-05	4.278584453186202
11	-0.9487962425871894, -2.0168998992408302	5.5375019716032945
12	-0.00023383037329917727, 0.9138624868380053	2.264336994578585
13	-1.0115926816234049, -0.9882626569106335	2.053680123755875
14	0.0005064669880108586, 0.9184264286459991	2.1285499051323207
15	-0.9824396533268942, 0.9245746614530743	2.982932587443493
16	-2.022875142426208, -0.9609129879757587	5.418551507842167
17	-2.0421882307082604, -1.0147921592300584	5.592771081925431
18	-0.0012810142628486999, -1.9564202889215379	4.200454755545195
19	2.127691269582068, 1.0462072918275427	9.089629688528088
20	0.9348647177162215, 1.9682320456293234	5.7722904043914145
21	0.938969908584683, 0.9523047171244793	2.960489356670184
22	-0.0016551979323157946, -1.9641446607751205	4.111104607163529
23	-0.9908943110564893, -1.8429225011740935	8.88220030485618
24	1.953500540373055, 0.00046240569368358566	4.239980542340362
25	-1.0447280247871604, 0.996896180576313	2.479469765353514
26	0.9871441469719607, 0.00016299235599619545	1.0070646771411802

27	-2.0059790775208093, -0.000189981282199339	4.031015032491016
28	-1.1282059349811582, 0.9920830490047678	5.342240044130493
29	0.9526995724420849, -0.0009295174473486021	1.346198133004819
30	-0.9948996393237759, -0.0006631502261523117	0.9950469937199671
Média		0.0331682331239989

Resultado utilizando o cruzamento2, neste método é sorteado um “ponto de corte” para copiar as dimensões:

#	X	F(x)
1	0.927881501470365, 1.002145510052741	2.875372842864003
2	2.40973999422419e-06, -2.7688524466038963e-6	2.6730155866516725e-09
3	-2.0737284153586915, -0.9797459356377702	6.395065492490708
4	-1.9067522453404868, -0.9452681461292283	6.782547737612504
5	1.9567197931576121, 0.8985634351805356	6.966859386629206
6	-0.920108133094204, 6.359976652755033e-08	2.080261066860807
7	-2.8013395652739004e-06, - 2.2912553500698205e-06	2.5984121521105408e-09
8	1.944080726821169, 2.935633803183295e-09	4.390364400222726
9	-1.8722373367089995, 1.5228238986709029e-07	6.5580058354072825
10	-1.0187899619767533, -2.450324354143179e-07	1.1075438530206227
11	-6.483381235524116e-08, -2.114657689141768	6.956460294294338
12	0.9569815504791817, 0.9929629163596531	2.2746350921644414
13	-1.938643764983119, -0.9627911020504962	5.6912955746950775
14	1.0121535861412765, -4.7605867986863075e-09	1.0535974335601566
15	-0.9645560034426497, 1.6440018306271545e-07	1.1773242014123824
16	1.0278702369418342, 1.0070233424802861	2.233281402843062
17	0.969690072539465, -1.0932352434237025	3.983635713377854
18	-2.731410057333244e-07, -1.0478419659645537	1.5463825504167978
19	-0.9859746439718231, 1.0176007044389066	2.10754796190135
20	-2.7785422415999953e-07, -1.0059855403921079	1.0190779798949805
21	-9.438644980837486e-08, 0.895102700476639	2.8957053618179813
22	-0.9528598971941094, 0.9612104313576131	2.5628475548376066
23	-1.411009862424612e-07, -1.1284491270995636	4.357218718341263
24	-1.1723206535748716e-07, 2.048695357688354	4.661576243831313
25	-0.9083421131217728, -0.8940595967136122	5.372224450093523
26	-1.0700755121859375e-06, -2.0517681411405864	4.7341039614783185

27	-0.9507237633732553, 0.9552687472991499	2.6842604320595242
28	1.11978716716974, 2.039804970283012	8.427021829236526
29	-2.046947903977689, -1.0040302163960586	5.633205746462609
30	-2.071879308245593, 9.100936639812504e-07	5.295319164697833
Média		0.1765106388232611

Resultado utilizando o cruzamento3, neste método o filho é composto de 90% do valor do pai com o melhor fitness e 10% do pai com pior fitness:

#	X	F(x)
1	-1.4031181374333962e-08, 1.9756793305180544	4.019838218768442
2	-0.9970621251610552, 0.9963969198882223	1.9912058389732294
3	-0.9997986285560128, -0.9964494177657636	1.995005090810217
4	-0.9978382110116634, 1.7890741631092874e-08	0.9966035598608087
5	-0.9684772637654507, 0.9825502027721973	2.1589026777697704
6	-1.995009585733757, -0.9945392955677567	4.979972668777698
7	-6.0077350082660504e-09, -1.0389085680297037	1.3766729549695569
8	2.783097349041097e-09, -1.9105809744192292	5.187537042138407
9	-1.1327440429066913e-08, -1.0091000714262996	1.0346247966932793
10	-7.670402005715362e-09, -0.9546101041560546	1.315207093344405
11	-3.9941048838086145e-07, -5.853230828977674e-07	9.961809155356605e-11
12	1.9588495244818707, -3.5855893213247323e-09	4.169489673097303
13	0.9976405639647008, -1.9964802640780235	4.984764289494356
14	6.6574951479039156e-09, 0.9951284881989447	0.9949647777549444
15	-0.9917205979688776, -0.9551135822235597	2.304354125410157
16	3.6120474650216956e-09, -1.0867992195776957	2.6318073194476526
17	5.716266261672879e-09, 0.9700979426426466	1.1170662419062793
18	0.9772421127089413, -2.8604151882101356e-09	1.0570616636850048
19	-0.9945193764559536, -5.276299648060664e-09	0.9949973166861099
20	1.0024152523449321, -1.0019919461336797	2.0107588636761804
21	-0.9923299823525604, -0.9970739260784369	1.9921753789006473
22	1.3419770919695874e-06, 1.948162208444951e-06	1.110251446334587e-09
23	0.9507406281542894, -0.9792663027093826	2.422764174286904
24	2.0031094150759694, -1.012707397197107	5.071789557335174
25	-4.087067647053233e-06, 8.630362165984684e-06	1.809083371995257e-08

26	2.0219574690104642, 9.218624665931517e-09	4.183329886063035
27	-3.960887934843078e-06, -2.1706436262175406e-06	4.047262081030567e-09
28	1.0165321152205262, 0.9370611151806099	2.7371146262410164
29	0.9137009353712919, -6.714610805892265e-09	2.269264693604107
30	7.853861806255816e-07, 6.178322852567049e-07	1.9810642015727353e-10
Média		6.6035473385757845e-12