

COMP SCI 5401 FS2017 Assignment 1c

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Self-Adaptive EA Strategy Parameter

In this experiment, mutation rate was used as the self-adaptive EA strategy parameter. If the average or best fitness for the current population decreased compared to the previous population, then the mutation rate doubles, with 1 being the max possible value. If the average or best fitness increases or stays the same, then the mutation rate goes back to its original value from the configuration file. The purpose of the change in mutation rate is to increase exploration.

Self-Adaptive Performance

As can be seen from Figure 1, Figure 2, and Figure 2, although having self-adaptive mutation rate, increases the mean fitness value, there is no statistical difference between using the self-adaptive mutation rate strategy employed vs not using it. This is likely due to the fact that mutation resets anytime a non-decrease in fitness happens. Another appropriate strategy would be to involve the current evaluation number in the equation, such that the higher the evaluation number, the lower the mutation rate. This would increase exploration in the beginning, but decrease it as the EA narrows down on a solution.

Figures 4 and 5 show graphs for using self-adaptive mutation rate and not. Figures 6 and 7 show the corresponding pictures.

Penalty Coefficient

The penalty algorithm used was, for every overlap that occurred, 1 would be subtracted from the fitness value. Figures 8, 9, 10 show that using a constant 1 as the penalty coefficient is better than having other values as the penalty. Highlighting dataset 2, a very high difference between the mean values is seen. By using a lower penalty coefficient, there is over a 90 point difference in mean fitness value, almost double that of dataset 1.

Figures 11 and 12 show the related plots for input 1. Figures 13 and 14 show the related pictures for input 1

NOTE

Appendix A contains a graph and the corresponding configuration file for every combination of inputs for Inputs 1,2, and 3.

Additional F and t tests not shown in this report can be found in `./report/t_test`.

Bonus 1

The code for bonus 1 can be found in the `helper_function.py` file in the `program_files/` directory, line 1120.

Figure 1: Self Adaptive Mutation Rate F and t tests for Input 1

Self-Adaptive Mutation Rate - Input 1 FALSE TRUE
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-42.1292	-42.0225
Variance	2323.367	2323.782
Observations	1200	1200
df	1199	1199
F	0.999821	
P(F<=f) one-tail	0.498767	
F Critical one-tail	0.909334	

M(1) < M(2) and F > F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-42.1292	-42.0225
Variance	2323.367	2323.782
Observations	1200	1200
Pooled Variance	2323.574	
Hypothesized Mean Difference	0	
df	2398	
t Stat	-0.0542	
P(T<=t) one-tail	0.478389	
t Critical one-tail	1.645489	
P(T<=t) two-tail	0.956778	
t Critical two-tail	1.960954	

t Stat < t Critical => No Statistical Difference

Figure 2: Self Adaptive Mutation Rate F and t tests for Input 2

Self-Adaptive Mutation Rate - Input 2 FALSE TRUE
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-125.317	-124.458
Variance	14112.69	14096.98
Observations	960	960
df	959	959
F	1.001114	
P(F<=f) one-tail	0.493124	
F Critical one-tail	1.112136	

M(1) < M(2) and F < F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-125.317	-124.458
Variance	14112.69	14096.98
Observations	960	960
Hypothesized Mean Difference	0	
df	1918	
t Stat	-0.15834	
P(T<=t) one-tail	0.437102	
t Critical one-tail	1.645648	
P(T<=t) two-tail	0.874205	
t Critical two-tail	1.961202	
t Critical two-tail	1.961615	

t Stat < t Critical => No significant difference

Figure 3: Self Adaptive Mutation Rate F and t tests for Input 3

Self-Adaptive Mutation Rate - Input 3 FALSE TRUE
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-592.114	-592.66
Variance	61174.27	60927.88
Observations	960	960
df	959	959
F	1.004044	
P(F<=f) one-tail	0.475093	
F Critical one-tail	1.112136	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-592.114	-592.66
Variance	61174.27	60927.88
Observations	960	960
Pooled Variance	61051.07	
Hypothesized Mean Difference	0	
df	1918	
t Stat	0.048491	
P(T<=t) one-tail	0.480665	
t Critical one-tail	1.645648	
P(T<=t) two-tail	0.96133	
t Critical two-tail	1.961202	

t Stat < t Critical => No significant Difference

Figure 4: Input 1 Self-Adaptive Mutation Rate False

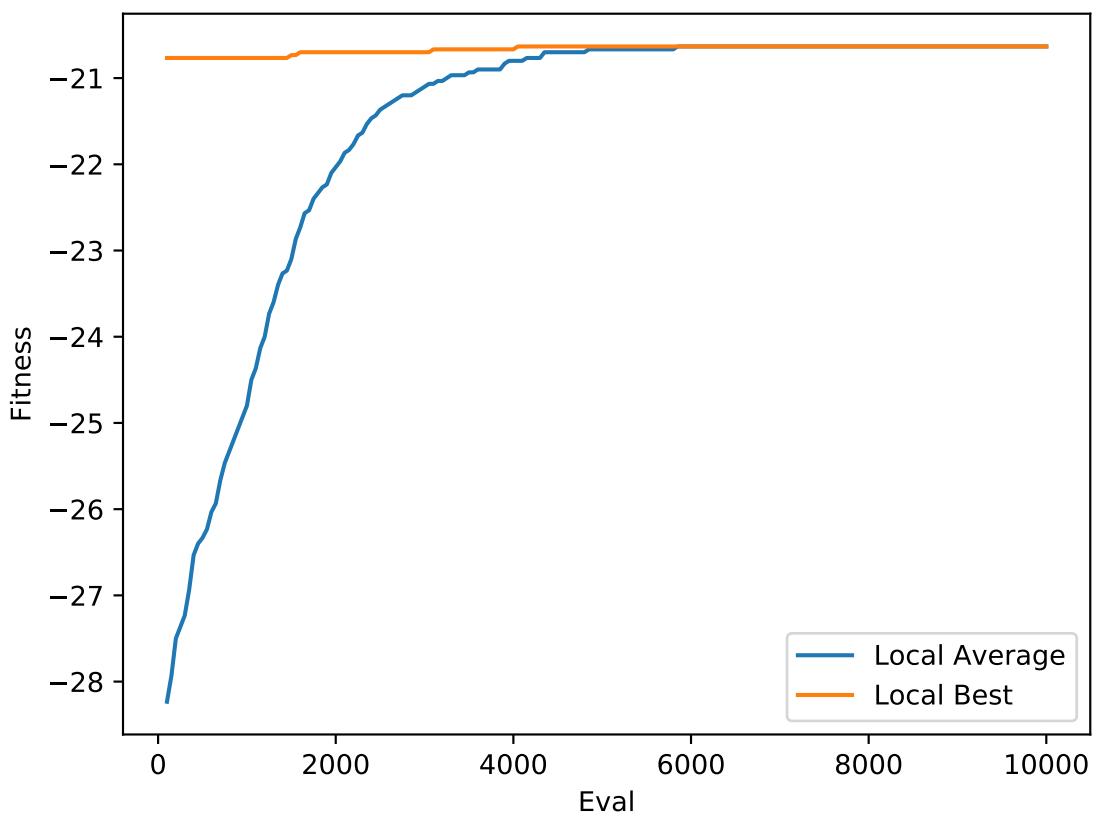


Figure 5: Input 1 Self-Adaptive Mutation Rate True

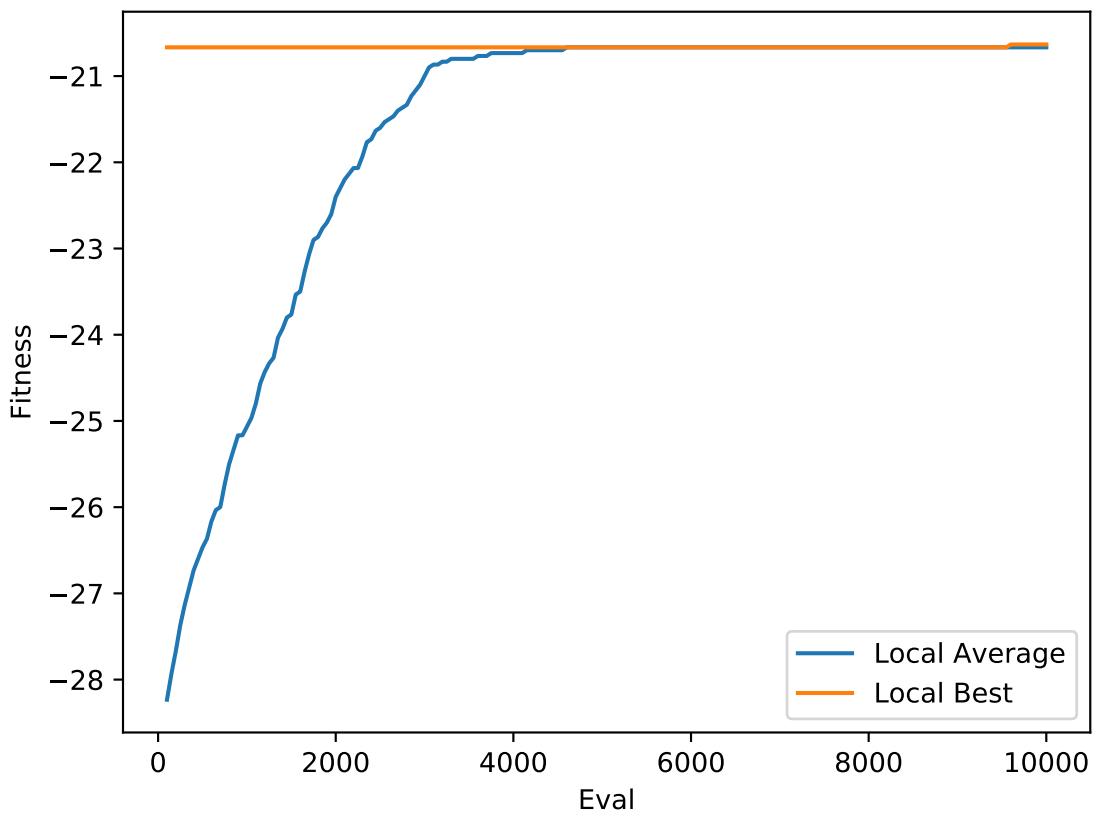


Figure 6: Input 1 Self-Adaptive Mutation Rate False Picture

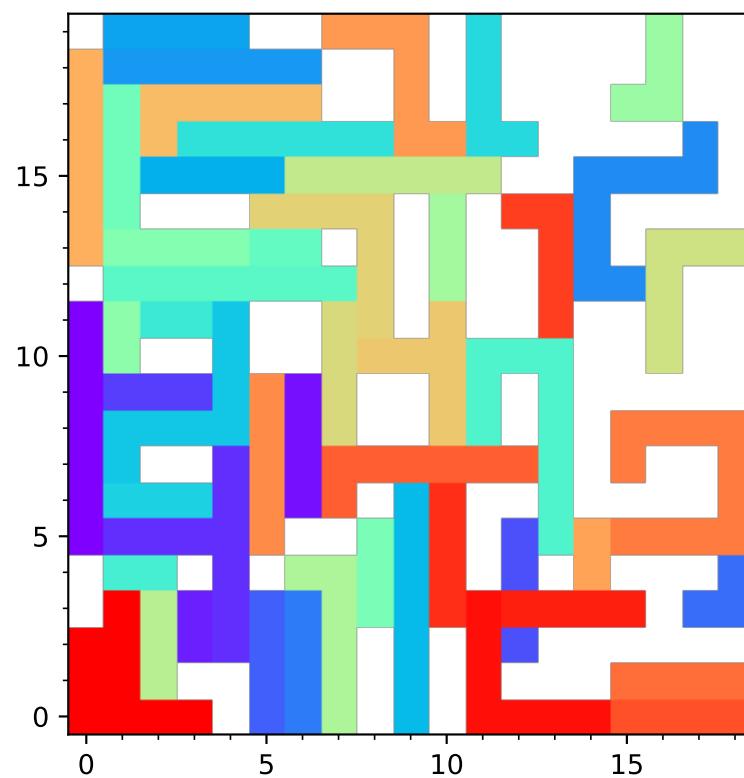


Figure 7: Input 1 Self-Adaptive Mutation Rate True Picture

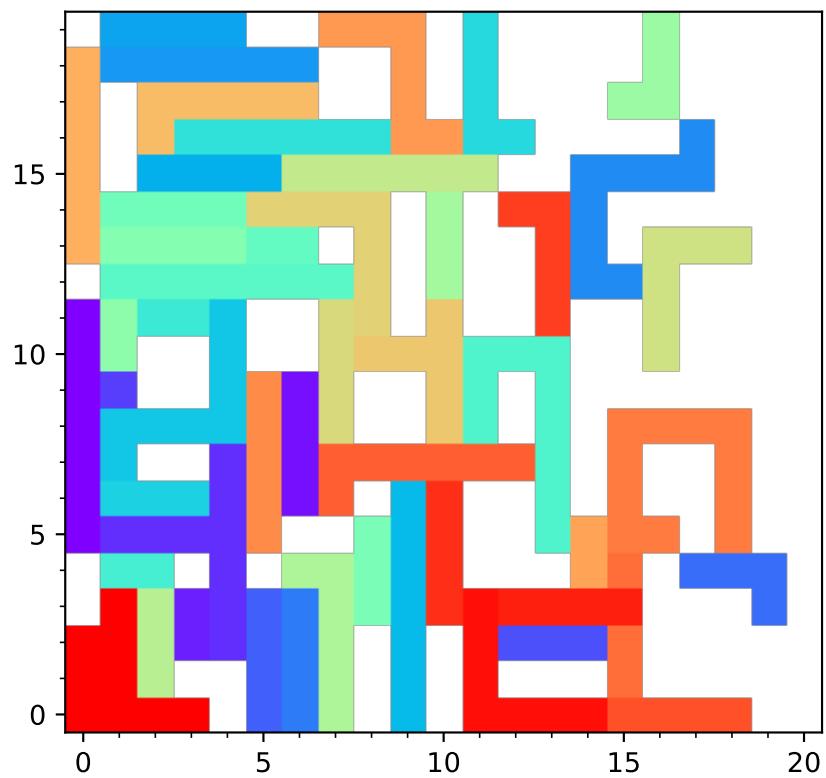


Figure 8: F and t tests for using Different Penalty Coefficients for Input 1

Self-Adaptive Penalty Coefficient - Input 1	FALSE	TRUE
F-Test Two-Sample for Variances		

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-38.209	-47.876
Variance	2031.832	2705.218
Observations	1440	960
df	1439	959
F	0.751079	
P(F<=f) one-tail	4.86E-07	
F Critical one-tail	0.908043	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-38.209	-47.876
Variance	2031.832	2705.218
Observations	1440	960
Pooled Variance	2301.13	
Hypothesized Mean Difference	0	
df	2398	
t Stat	4.83652	
P(T<=t) one-tail	7.03E-07	
t Critical one-tail	1.645489	
P(T<=t) two-tail	1.41E-06	
t Critical two-tail	1.960954	

t Stat < t Critical => No Self Adaptive Coefficient is better

Figure 9: F and t tests for using Different Penalty Coefficients for Input 2

Self-Adaptive Penalty Coefficient - Input 2	FALSE	TRUE
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-102.007	-193.529
Variance	10520.66	18577.72
Observations	1440	480
df	1439	479
F	0.566305	
P(F<=f) one-tail	8.88E-16	
F Critical one-tail	0.886373	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-102.007	-193.529
Variance	10520.66	18577.72
Observations	1440	480
Pooled Variance	12532.82	
Hypothesized Mean Difference	0	
df	1918	
t Stat	15.51149	
P(T<=t) one-tail	1.64E-51	
t Critical one-tail	1.645648	
P(T<=t) two-tail	3.27E-51	
t Critical two-tail	1.961202	

t Stat > t Critical => No Self-Adaptive Penalty Coefficient Better

Figure 10: F and t tests for using Different Penalty Coefficients for Input 3

	FALSE	TRUE
F-Test Two-Sample for Variances		
		<i>Variable 1</i> <i>Variable 2</i>
Mean	-512.478	-832.113
Variance	55807.06	20.91842
Observations	1440	480
df	1439	479
F	2667.842	
P(F<=f) one-tail	0	
F Critical one-tail	1.133139	

M(1) > M(2) and F > F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	Variable 2
Mean	-512.478	-832.113
Variance	55807.06	20.91842
Observations	1440	480
Hypothesized Mean Difference	0	
df	1442	
t Stat	51.31516	
P(T<=t) one-tail	0	
t Critical one-tail	1.645911	
P(T<=t) two-tail	0	
t Critical two-tail	1.96161	
t Critical two-tail	1.961202	

t Stat > t Critical => False is better

Figure 11: Input 1 Self-Adaptive Penalty Coefficient False

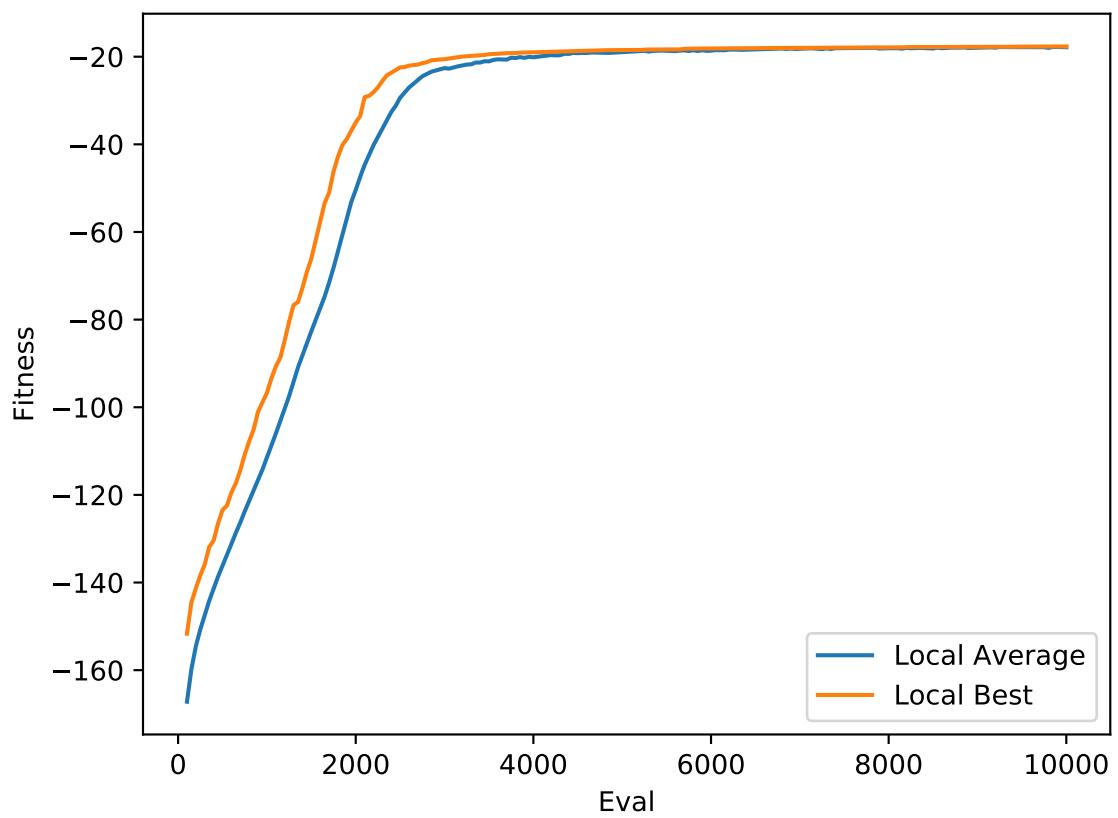


Figure 12: Input 1 Self-Adaptive Penalty Coefficient True

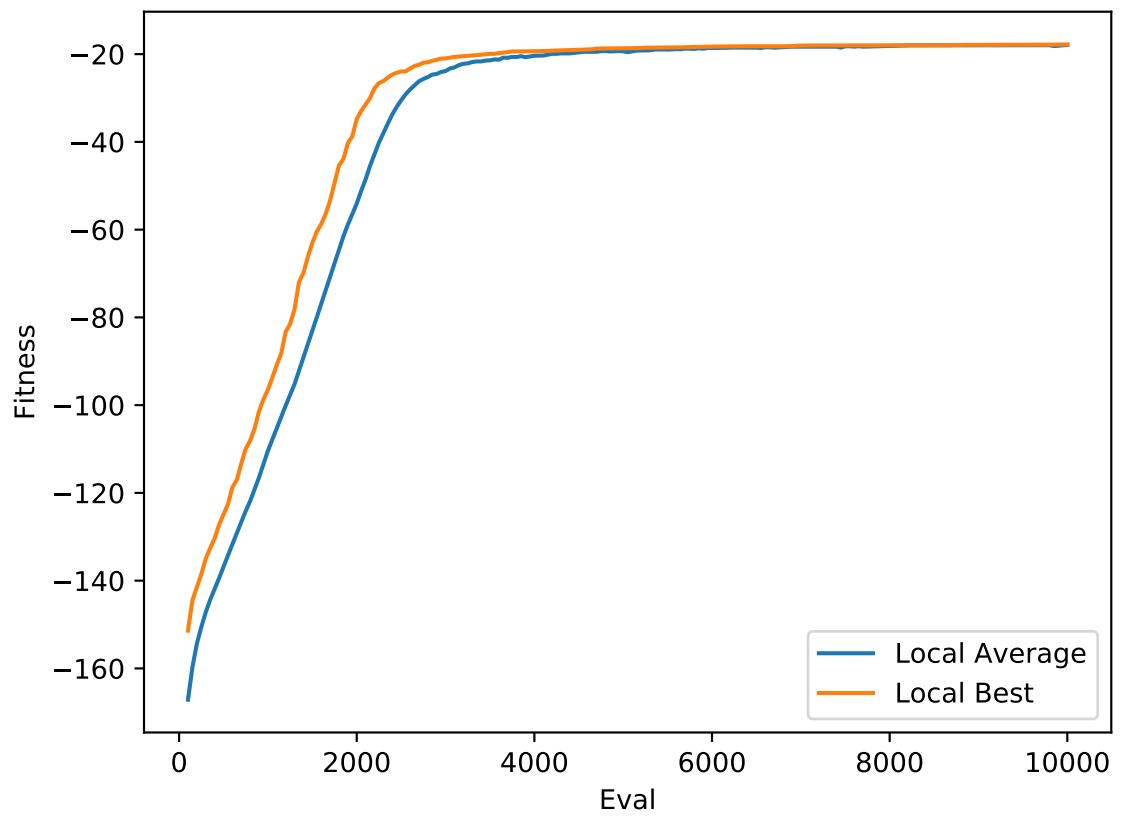


Figure 13: Input 1 Self-Adaptive Penalty Coefficient False Picture

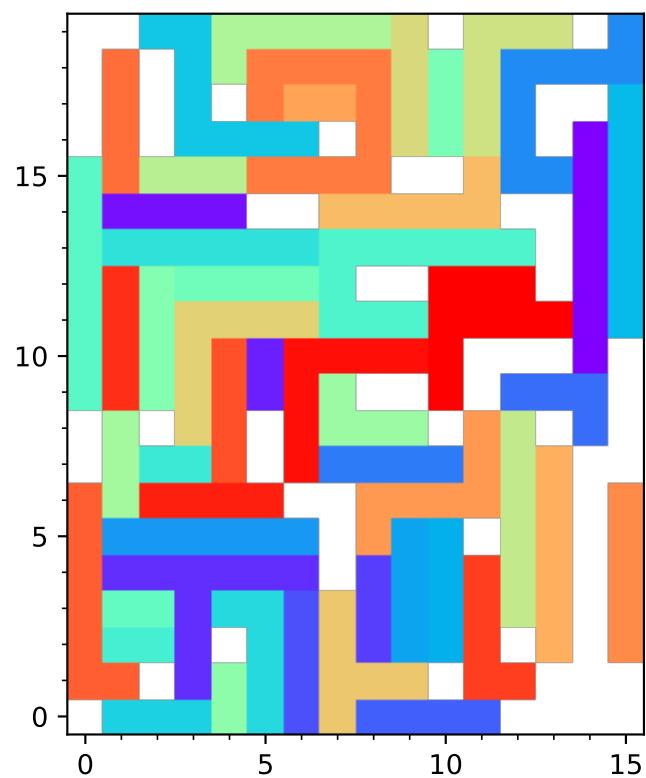
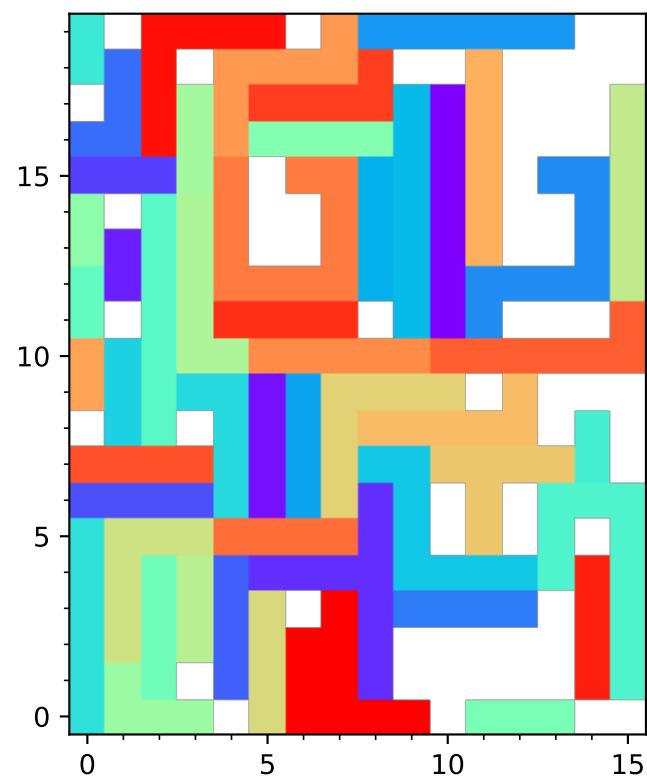


Figure 14: Input 1 Self-Adaptive Penalty Coefficient True Picture



The self-adaptive strategy employed was to decrease the penalty coefficient by 25% as long as the best board in the population had a 0 penalty value. If the best board in the population was an invalid board, i.e., had a penalty value, then the penalty coefficient would be reset to the original value specified in the configuration file. In the given test cases, the initial value was kept at 1 since this was the best value found for a starting value.

Figures 15 and 16 shows that it is better to *not* employ a self-adaptive penalty coefficient.

Bonus 2

The second self-adaptive parameter is offspring count. The code for bonus 2 can be found in the *helper_function.py* file in the *program_files/* directory, line 1137.

The self-adaptive strategy employed is similar to the aforementioned self-adaptive mutation rate. When average or best fitness decreases, the offspring count is multiplied by 1.5 to increase the number of children. This is done to increase exploration by having more children. When the fitness value remains constant or increases, the offspring count resets to the original value.

Figures 17 and 18 shows that there is no significant difference between using this self-adaptive parameter and not using it.

A slightly modified self-adaptive offspring count might see better results, where the number of evaluations currently conducted to included in the equation. This is planned for future research.

Figures 19 and Figure 20 show that there is no significant difference between using the combination of these two self-adaptive methods and not using them.

Bonus 3

The two chosen multi-ary variation parameters are PMX and order crossover. The code for this can be found in the *helper_function.py* file in the *program_files/* directory, line 773 and 815, respectively.

The two chosen unary variation operators are move and flip. Move moves a shape to a random location and flip rotates a shape. The code for this can be found in the *helper_function.py* file in the *program_files/* directory, line 987 and 920, respectively.

According to Figures 21 and 22, there is no significant difference between PMX and order crossover. This matched the original hypothesis that both would produce similar results. Both of these algorithms combine the two parents in similar manners.

As can be seen from 23 and 24, there is no significant difference between using move and flip unary variation operations. This was a surprising result. It was believed that move would outperform flip because it would change the location on the shape, which would have a greater overall impact than merely rotating the shape.

Figure 25 and 26 indicate that there is no significant difference between using order crossover or with using PMX while using penalty functions.

Figure 27, 28, 29, and 30 indicate that there is no significant difference between using a self-adaptive penalty function and not using one with neither order crossover nor PMX.

Figures 31 and 32 show that there is no significant difference between Flip and Move unary operations in the context of penalty functions

Figures 33 and 34 show that there is no significant difference between Flip and Move unary operations in the context of penalty functions

Bonus 4

The code for bonus 4 can be found in the *board.py* file in the *program_files/* directory, line 240.

Figure 35 and 35 shows that the random algorithm outperforms the repair algorithm. This is odd considering the repair approach tries to place the shape up to n times going from the original placement to a left-down diagonal, which should be optimal. One possible explanation for this is because the random algorithm is quite good. It initially only looks at as much space as it believes it needs, and gradually increases

Figure 15: Self Adaptive Penalty Coefficient F and t tests for Input 1

Self-Adaptive Penalty Coefficient - Input 1	FALSE	TRUE
F-Test Two-Sample for Variances		

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-38.209	-47.876
Variance	2031.832	2705.218
Observations	1440	960
df	1439	959
F	0.751079	
P(F<=f) one-tail	4.86E-07	
F Critical one-tail	0.908043	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-38.209	-47.876
Variance	2031.832	2705.218
Observations	1440	960
Pooled Variance	2301.13	
Hypothesized Mean Difference	0	
df	2398	
t Stat	4.83652	
P(T<=t) one-tail	7.03E-07	
t Critical one-tail	1.645489	
P(T<=t) two-tail	1.41E-06	
t Critical two-tail	1.960954	

t Stat < t Critical => No Self Adaptive Coefficent is better

Figure 16: Self Adaptive Penalty Coefficient F and t tests for Input 2

	FALSE	TRUE
Self-Adaptive Penalty Coefficient - Input 2		
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-102.007	-193.529
Variance	10520.66	18577.72
Observations	1440	480
df	1439	479
F	0.566305	
P(F<=f) one-tail	8.88E-16	
F Critical one-tail	0.886373	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-102.007	-193.529
Variance	10520.66	18577.72
Observations	1440	480
Pooled Variance	12532.82	
Hypothesized Mean Difference	0	
df	1918	
t Stat	15.51149	
P(T<=t) one-tail	1.64E-51	
t Critical one-tail	1.645648	
P(T<=t) two-tail	3.27E-51	
t Critical two-tail	1.961202	

t Stat > t Critical => No Self-Adaptive Penalty Coefficient Better

Figure 17: Self Adaptive Offspring Count F and t tests for Input 1

Self-Adaptive Offspring Count - Input 1 FALSE TRUE
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-42.0433	-42.1083
Variance	2334.292	2312.861
Observations	1200	1200
df	1199	1199
F	1.009266	
P(F<=f) one-tail	0.436577	
F Critical one-tail	1.099706	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-42.0433	-42.1083
Variance	2334.292	2312.861
Observations	1200	1200
Pooled Variance	2323.576	
Hypothesized Mean Difference	0	
df	2398	
t Stat	0.03303	
P(T<=t) one-tail	0.486827	
t Critical one-tail	1.645489	
P(T<=t) two-tail	0.973653	
t Critical two-tail	1.960954	

t Stat < t Critical => No Statistical Difference

Figure 18: Self Adaptive Offspring Count F and t tests for Input 2

Self-Adaptive Offspring Count - Input 2
F-Test Two-Sample for Variances

	Variable 1	Variable 2
Mean	-123.749	-126.026
Variance	14213.17	13994.27
Observations	960	960
df	959	959
F	1.015642	
P(F<=f) one-tail	0.405067	
F Critical one-tail	1.112136	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-123.749	-126.026
Variance	14213.17	13994.27
Observations	960	960
Pooled Variance	14103.72	
Hypothesized Mean Difference	0	
df	1918	
t Stat	0.420081	
P(T<=t) one-tail	0.337237	
t Critical one-tail	1.645648	
P(T<=t) two-tail	0.674474	
t Critical two-tail	1.961202	

t Stat < t Critical => No significant difference

Figure 19: Self Adaptive Mutation Rate and Offspring Count, F and t tests for Input 1

Self-Adaptive Mutation Rate and Offspring Count - Input 1 False, False True, True
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-42.0863	-42.0654
Variance	2327.86	2317.357
Observations	2400	2400
df	2399	2399
F	1.004533	
P(F<=f) one-tail	0.455911	
F Critical one-tail	1.069486	

M(1) < M(2) and F < F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-42.0863	-42.0654
Variance	2327.86	2317.357
Observations	2400	2400
Hypothesized Mean Difference	0	
df	4798	
t Stat	-0.01497	
P(T<=t) one-tail	0.494026	
t Critical one-tail	1.645171	
P(T<=t) two-tail	0.988053	
t Critical two-tail	1.960459	

t Stat < t Critical => No significant difference

Figure 20: Self Adaptive Mutation Rate and Offspring Count, F and t tests for Input 2

Self-Adaptive Mutation Rate and Offspring Count - Input 2 False, False True, True
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-124.533	-125.242
Variance	14156.16	14038.92
Observations	1920	1920
df	1919	1919
F	1.008351	
P(F<=f) one-tail	0.427741	
F Critical one-tail	1.078008	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-124.533	-125.242
Variance	14156.16	14038.92
Observations	1920	1920
Pooled Variance	14097.54	
Hypothesized Mean Difference	0	
df	3838	
t Stat	0.185114	
P(T<=t) one-tail	0.426575	
t Critical one-tail	1.645251	
P(T<=t) two-tail	0.853149	
t Critical two-tail	1.960582	

t Stat < t Critical => No significant difference

Figure 21: Order Crossover/PMX F and t tests for Input 1

Recombination Algorithm - Input 1	Order Crossover PMX	
F-Test Two-Sample for Variances	Variable 1	Variable 2
Mean	-46.53333333	-39.1042
Variance	2410.144873	2243.793
Observations	960	1440
df	959	1439
F	1.074138607	
P(F<=f) one-tail	0.111304056	
F Critical one-tail	1.10126894	

M(1) < M(2) and F < F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	Variable 2
Mean	-46.53333333	-39.1042
Variance	2410.144873	2243.793
Observations	960	1440
Hypothesized Mean Difference	0	
df	2004	
t Stat	-3.683063529	
P(T<=t) one-tail	0.000118276	
t Critical one-tail	1.645614345	
P(T<=t) two-tail	0.000236553	
t Critical two-tail	1.961148456	

t Stat < t Critical => No Statistical Difference

Figure 22: Order Crossover/PMX F and t tests for Input 2

Recombination Algorithm - Input 2
F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-125.096	-124.679
Variance	13118.72	15091.23
Observations	960	960
df	959	959
F	0.869295	
P(F<=f) one-tail	0.015101	
F Critical one-tail	0.89917	

M(1) < M(2) and F < F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-125.096	-124.679
Variance	13118.72	15091.23
Observations	960	960
Hypothesized Mean Difference	0	
df	1909	
t Stat	-0.07686	
P(T<=t) one-tail	0.46937	
t Critical one-tail	1.645652	
P(T<=t) two-tail	0.93874	
t Critical two-tail	1.961207	
t Critical two-tail	1.961615	

t Stat < t Critical => No significant difference

Figure 23: Flip/Move F and t tests for Input 1

Mutation - Input 1
F-Test Two-Sample for Variances

	Flip	Move
	Variable 1	Variable 2
Mean	-67.1008	-17.0508
Variance	3392.102	1.506171
Observations	1200	1200
df	1199	1199
F	2252.136	
P(F<=f) one-tail	0	
F Critical one-tail	1.099706	

F > F Critical and Mean(var1) < Mean(Var2) => Equal Variance

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-67.1008	-17.0508
Variance	3392.102	1.506171
Observations	1200	1200
Pooled Variance	1696.804	
Hypothesized Mean Difference	0	
df	2398	
t Stat	-29.7621	
P(T<=t) one-tail	3.2E-166	
t Critical one-tail	1.645489	
P(T<=t) two-tail	6.3E-166	
t Critical two-tail	1.960954	

t stat < t Critical two-tail => No statistical Difference

Figure 24: Flip/Move F and t tests for Input 2

Mutation - Input 1	Flip	Move
F-Test Two-Sample for Variances		
		<i>Variable 1</i> <i>Variable 2</i>
Mean	-67.1008	-17.0508
Variance	3392.102	1.506171
Observations	1200	1200
df	1199	1199
F	2252.136	
P(F<=f) one-tail	0	
F Critical one-tail	1.099706	

F > F Critical and Mean(var1) < Mean(Var2) => Equal Variance

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-67.1008	-17.0508
Variance	3392.102	1.506171
Observations	1200	1200
Pooled Variance	1696.804	
Hypothesized Mean Difference	0	
df	2398	
t Stat	-29.7621	
P(T<=t) one-tail	3.2E-166	
t Critical one-tail	1.645489	
P(T<=t) two-tail	6.3E-166	
t Critical two-tail	1.960954	

t stat < t Critical two-tail => No statistical Difference

Figure 25: Order Crossover/PMX with Penalty Function F and t tests for Input 1

Order Crossover vs PMX with Penalty Function
F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-74.8083	-81.2292
Variance	3245.469	4067.859
Observations	240	240
df	239	239
F	0.797832	
P(F<=f) one-tail	0.04074	
F Critical one-tail	0.80798	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-74.8083	-81.2292
Variance	3245.469	4067.859
Observations	240	240
Pooled Variance	3656.664	
Hypothesized Mean Difference	0	
df	478	
t Stat	1.16316	
P(T<=t) one-tail	0.122672	
t Critical one-tail	1.648048	
P(T<=t) two-tail	0.245345	
t Critical two-tail	1.964939	

t Stat < t Critical => No significant difference

Figure 26: Order Crossover/PMX with Penalty Function F and t tests for Input 2

Order Crossover vs PMX with Penalty Function - Input 2		Order Cros PMX	
F-Test Two-Sample for Variances			
		Variable 1	Variable 2
Mean		-194.421	-194.458
Variance		16767.67	20564.91
Observations		240	240
df		239	239
F		0.815353	
P(F<=f) one-tail		0.057639	
F Critical one-tail		0.80798	

M(1) > M(2) and F > F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

		Variable 1	Variable 2
Mean		-194.421	-194.458
Variance		16767.67	20564.91
Observations		240	240
Hypothesized Mean Difference		0	
df		473	
t Stat		0.003007	
P(T<=t) one-tail		0.498801	
t Critical one-tail		1.648081	
P(T<=t) two-tail		0.997602	
t Critical two-tail		1.964992	
t Critical two-tail		1.964939	

t Stat < t Critical => No significant difference

Figure 27: Order Crossover with Self-Adaptive Penalty Function F and t tests for Input 1

Order Crossover with Self-Adaptive Penalty Function TRUE FALSE
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-46.4646	-46.6021
Variance	2407.093	2418.219
Observations	480	480
df	479	479
F	0.995399	
P(F<=f) one-tail	0.479886	
F Critical one-tail	0.860312	

M(1) > M(2) and F > F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-46.4646	-46.6021
Variance	2407.093	2418.219
Observations	480	480
Hypothesized Mean Difference	0	
df	958	
t Stat	0.043367	
P(T<=t) one-tail	0.482709	
t Critical one-tail	1.646446	
P(T<=t) two-tail	0.965418	
t Critical two-tail	1.962443	

t Stat < t Critical => No significant difference

Figure 28: Order Crossover with Self-Adaptive Function F and t tests for Input 2

Order Crossover with Self-Adaptive Penalty Function - Input 2 TRUE FALSE
 F-Test Two-Sample for Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-124.454	-125.738
Variance	13151.24	13112.77
Observations	480	480
df	479	479
F	1.002934	
P(F<=f) one-tail	0.487221	
F Critical one-tail	1.162369	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-124.454	-125.738
Variance	13151.24	13112.77
Observations	480	480
Pooled Variance	13132	
Hypothesized Mean Difference	0	
df	958	
t Stat	0.173492	
P(T<=t) one-tail	0.431151	
t Critical one-tail	1.646446	
P(T<=t) two-tail	0.862301	
t Critical two-tail	1.962443	

t Stat < t Critical => No significant difference

Figure 29: PMX with Self-Adaptive Penalty Function F and t tests for Input 1

	TRUE	FALSE
PMX with Self-Adaptive Penalty Function		
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-39.0611	-39.1472
Variance	2249.557	2241.147
Observations	720	720
df	719	719
F	1.003753	
P(F<=f) one-tail	0.479981	
F Critical one-tail	1.13062	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-39.0611	-39.1472
Variance	2249.557	2241.147
Observations	720	720
Pooled Variance	2245.352	
Hypothesized Mean Difference	0	
df	1438	
t Stat	0.03448	
P(T<=t) one-tail	0.48625	
t Critical one-tail	1.645914	
P(T<=t) two-tail	0.972499	
t Critical two-tail	1.961615	

t Stat < t Critical => No significant difference

Figure 30: PMX with Self-Adaptive Function F and t tests for Input 2

	TRUE	FALSE
PMXr with Self-Adaptive Penalty Function - Input 2		
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-124.463	-124.896
Variance	15072.15	15141.71
Observations	480	480
df	479	479
F	0.995406	
P(F<=f) one-tail	0.479918	
F Critical one-tail	0.860312	

M(1) > M(2) and F > F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	Variable 2
Mean	-124.463	-124.896
Variance	15072.15	15141.71
Observations	480	480
Hypothesized Mean Difference	0	
df	958	
t Stat	0.054618	
P(T<=t) one-tail	0.478227	
t Critical one-tail	1.646446	
P(T<=t) two-tail	0.956454	
t Critical two-tail	1.962443	
t Critical two-tail	1.962443	

t Stat < t Critical => No significant difference

Figure 31: Flip/Move with Penalty Function F and t tests for Input 1

Mutation with Penalty Function F-Test Two-Sample for Variances	Flip	Move
	Variable 1	Variable 2
Mean	-138.129	-17.9083
Variance	75.58576	1.681939
Observations	240	240
df	239	239
F	44.93966	
P(F<=f) one-tail	4E-130	
F Critical one-tail	1.237654	

M(1) < M(2) and F > F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-138.129	-17.9083
Variance	75.58576	1.681939
Observations	240	240
Pooled Variance	38.63385	
Hypothesized Mean Difference	0	
df	478	
t Stat	-211.878	
P(T<=t) one-tail	0	
t Critical one-tail	1.648048	
P(T<=t) two-tail	0	
t Critical two-tail	1.964939	

t Stat < t Critical => No significant Difference

Figure 32: Flip/Move with Penalty Function F and t tests for Input 2

Mutation with Penalty Function F-Test Two-Sample for Variances	Flip	Move
	Variable 1	Variable 2
Mean	-330.208	-58.6708
Variance	95.52127	216.4979
Observations	240	240
df	239	239
F	0.441211	
P(F<=f) one-tail	2.28E-10	
F Critical one-tail	0.80798	

$M(1) < M(2)$ and $F < F$ Critical \Rightarrow Unequal

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	Variable 2
Mean	-330.208	-58.6708
Variance	95.52127	216.4979
Observations	240	240
Hypothesized Mean Difference	0	
df	416	
t Stat	-238.147	
P(T<=t) one-tail	0	
t Critical one-tail	1.648525	
P(T<=t) two-tail	0	
t Critical two-tail	1.965683	
t Critical two-tail	1.964939	

t Stat < t Critical \Rightarrow No significant Difference

Figure 33: Flip/Move with Self-Adaptive Penalty Function F and t tests for Input 1

Mutation with Self-Adaptive Penalty Function - Input 1	Flip	Move
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-138.038	-17.4083
Variance	73.50068	1.707043
Observations	240	240
df	239	239
F	43.0573	
P(F<=f) one-tail	5.3E-128	
F Critical one-tail	1.237654	

M(1) < M(2) and F > F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-138.038	-17.4083
Variance	73.50068	1.707043
Observations	240	240
Pooled Variance	37.60386	
Hypothesized Mean Difference	0	
df	478	
t Stat	-215.49	
P(T<=t) one-tail	0	
t Critical one-tail	1.648048	
P(T<=t) two-tail	0	
t Critical two-tail	1.964939	

t Stat < t Critical => No significant Difference

Figure 34: Flip/Move with Self-Adaptive Penalty Function F and t tests for Input 2

Mutation with Self-Adaptive Penalty Function - Input 2	Flip	Move
F-Test Two-Sample for Variances		
Mean	-329.475	-55.2042
Variance	92.1249	95.86191
Observations	240	240
df	239	239
F	0.961017	
P(F<=f) one-tail	0.379409	
F Critical one-tail	0.80798	

M(1) < M(2) and F > F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-329.475	-55.2042
Variance	92.1249	95.86191
Observations	240	240
Pooled Variance	93.9934	
Hypothesized Mean Difference	0	
df	478	
t Stat	-309.9	
P(T<=t) one-tail	0	
t Critical one-tail	1.648048	
P(T<=t) two-tail	0	
t Critical two-tail	1.964939	

t Stat < t Critical => No significant Difference

as it finds it impossible to place given the allotted space. The repair function seems to place it in a slightly worse off position (even though, logically, they both should seem random).

Figure 37 and 38 shows that repair the is significantly better then the penalty function. This is possibly due to the EA wasting time on impossible board states. By giving more time to possible board states, the EA is able to find a more suitable answer. Penalty functions are used to increase the amount of exploring done, however, the explored space is invalid, and in this case, it costs the EA time and resources that could be better allocated by searching through valid space.

Figure 39 and 40 shows that random is significantly better than the penalty method. This can also be shown since random is superior to repair and repair is superior to penalty.

Appendix

Table 1: Figure 41 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1001
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 35: Random and Repair Algorithms F and t tests for Input 1

Placement Algorithm - Input 1	Random	Repair
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-17.8542	-18.5708
Variance	2.366742	4.178564
Observations	720	720
df	719	719
F	0.566401	
P(F<=f) one-tail	1.89E-14	
F Critical one-tail	0.88447	

F < F Critical and Mean(1) > Mean(2) => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	Variable 2
Mean	-17.8542	-18.5708
Variance	2.366742	4.178564
Observations	720	720
Hypothesized Mean Difference	0	
df	1336	
t Stat	7.516549	
P(T<=t) one-tail	5.13E-14	
t Critical one-tail	1.645995	
P(T<=t) two-tail	1.03E-13	
t Critical two-tail	1.961741	

t stat > t Critical => Reject => Random is better

Figure 36: Random and Repair Algorithms F and t tests for Input 2

Placement Algorithm - Input 2	Random	Repair
F-Test Two-Sample for Variances		
<i>Variable 1</i> <i>Variable 2</i>		
Mean	-55.0167	-57.7542
Variance	31.23981	65.93109
Observations	480	480
df	479	479
F	0.473825	
P(F<=f) one-tail	3.33E-16	
F Critical one-tail	0.860312	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-55.0167	-57.7542
Variance	31.23981	65.93109
Observations	480	480
Pooled Variance	48.58545	
Hypothesized Mean Difference	0	
df	958	
t Stat	6.084244	
P(T<=t) one-tail	8.45E-10	
t Critical one-tail	1.646446	
P(T<=t) two-tail	1.69E-09	
t Critical two-tail	1.962443	

t Stat > t Critical => Random is better

Figure 37: Repair and Penalty Algorithms F and t tests for Input 1

Placement Algorithm - Input 1	Repair	Penalty
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-18.5708	-77.8708
Variance	4.178564	3667.358
Observations	720	960
df	719	959
F	0.001139	
P(F<=f) one-tail	0	
F Critical one-tail	0.891039	

F < F Critical and M(1) > M(2) => Equal Variance

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-18.5708	-77.8708
Variance	4.178564	3667.358
Observations	720	960
Pooled Variance	2097.736	
Hypothesized Mean Difference	0	
df	1678	
t Stat	26.26192	
P(T<=t) one-tail	6.3E-128	
t Critical one-tail	1.645762	
P(T<=t) two-tail	1.3E-127	
t Critical two-tail	1.961379	

t Stat > t Critical => Repair is better

Figure 38: Repair and Penalty Algorithms F and t tests for Input 2

Placement Algorithm - Input 2	Repair	Penalty
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-57.7542	-193.39
Variance	65.93109	18764.77
Observations	480	960
df	479	959
F	0.003514	
P(F<=f) one-tail	0	
F Critical one-tail	0.876431	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	-57.7542	-193.39
Variance	65.93109	18764.77
Observations	480	960
Pooled Variance	12536.16	
Hypothesized Mean Difference	0	
df	1438	
t Stat	21.67035	
P(T<=t) one-tail	1.21E-90	
t Critical one-tail	1.645914	
P(T<=t) two-tail	2.42E-90	
t Critical two-tail	1.961615	

t Stat > t Critical => Repair is better

Figure 39: Random and Penalty Algorithms F and t tests for Input 1

Placement Algorithm - Input 1	Random	Penalty
F-Test Two-Sample for Variances		
	Variable 1	Variable 2
Mean	-17.8542	-77.8708
Variance	2.366742	3667.358
Observations	720	960
df	719	959
F	0.000645	
P(F<=f) one-tail	0	
F Critical one-tail	0.891039	

F < F Critical and M(1) > M(2) => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	Variable 2
Mean	-17.8542	-77.8708
Variance	2.366742	3667.358
Observations	720	960
Hypothesized Mean Difference	0	
df	961	
t Stat	30.69334	
P(T<=t) one-tail	4.8E-145	
t Critical one-tail	1.646441	
P(T<=t) two-tail	9.6E-145	
t Critical two-tail	1.962436	

t Stat > t Critical => Random is better

Figure 40: Random and Penalty Algorithms F and t tests for Input 2

	Random	Penalty
	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-55.0167	-193.39
Variance	31.23981	18764.77
Observations	480	960
df	479	959
F	0.001665	
P(F<=f) one-tail	0	
F Critical one-tail	0.876431	

M(1) > M(2) and F < F Critical => Equal

t-Test: Two-Sample Assuming Equal Variances

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	-55.0167	-193.39
Variance	31.23981	18764.77
Observations	480	960
Pooled Variance	12524.6	
Hypothesized Mean Difference	0	
df	1438	
t Stat	22.11791	
P(T<=t) one-tail	7.67E-94	
t Critical one-tail	1.645914	
P(T<=t) two-tail	1.53E-93	
t Critical two-tail	1.961615	

t Stat > t Critical => Random is better

Figure 41: Input 1

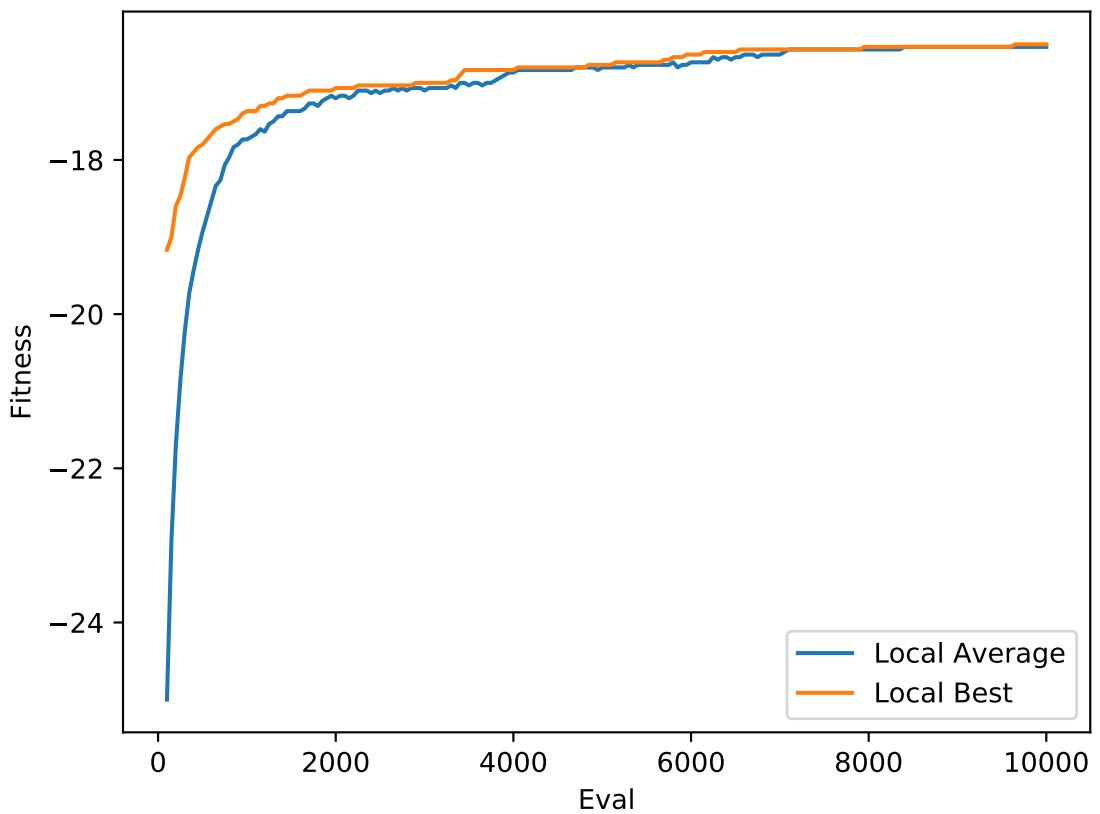


Table 2: Figure 42 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1002
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 3: Figure 43 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1003
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 42: Input 1

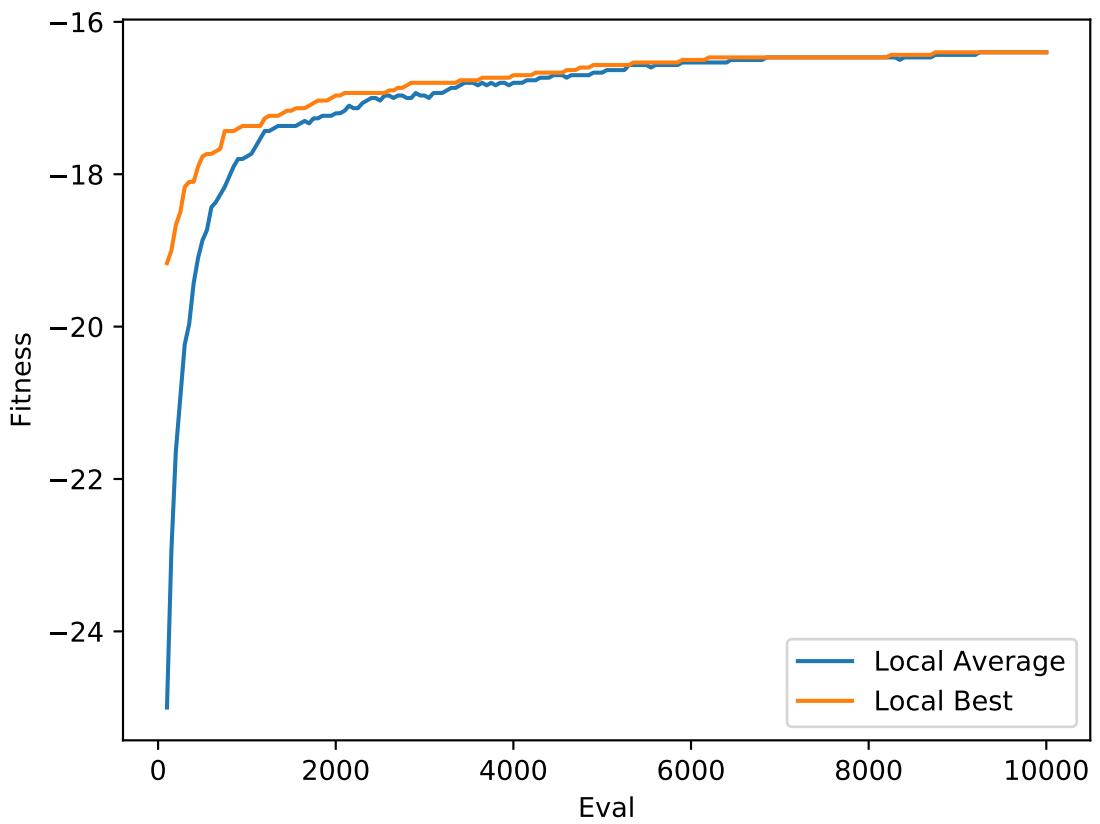


Figure 43: Input 1

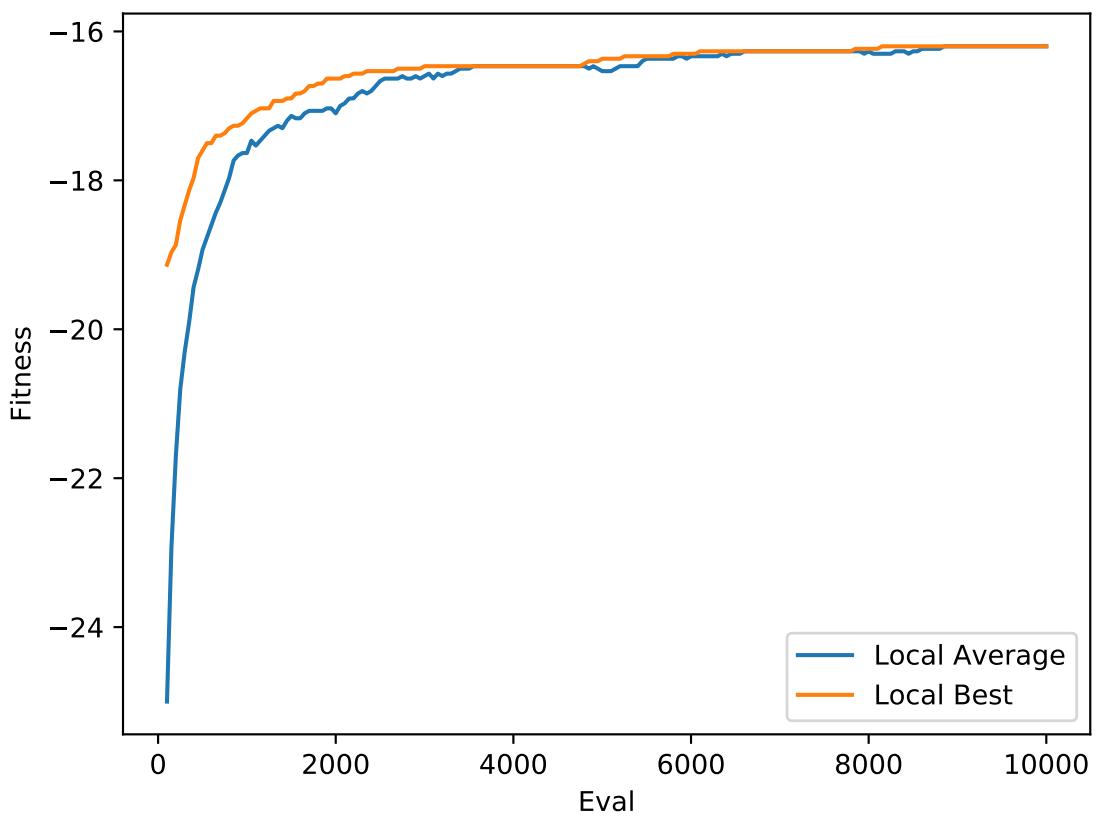


Table 4: Figure 44 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1004
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 5: Figure 45 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1005
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 44: Input 1

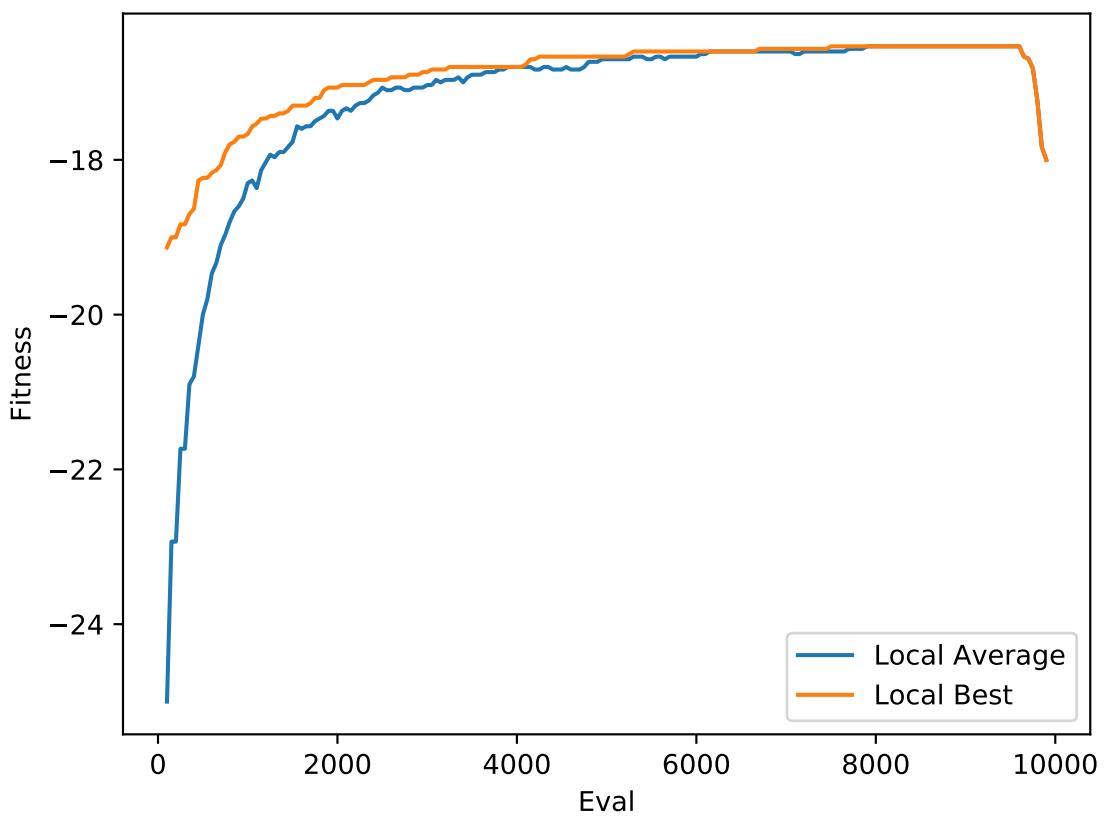


Figure 45: Input 1

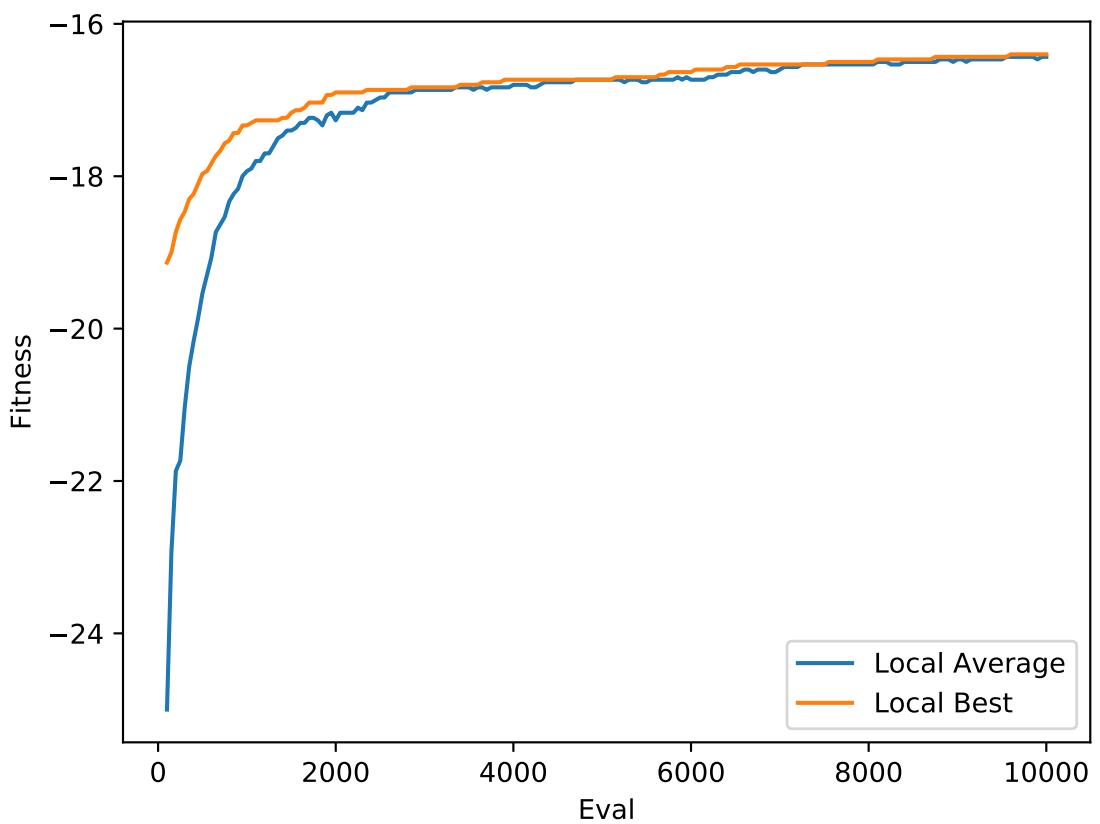


Table 6: Figure 46 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1006
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 7: Figure 47 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1007
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 46: Input 1

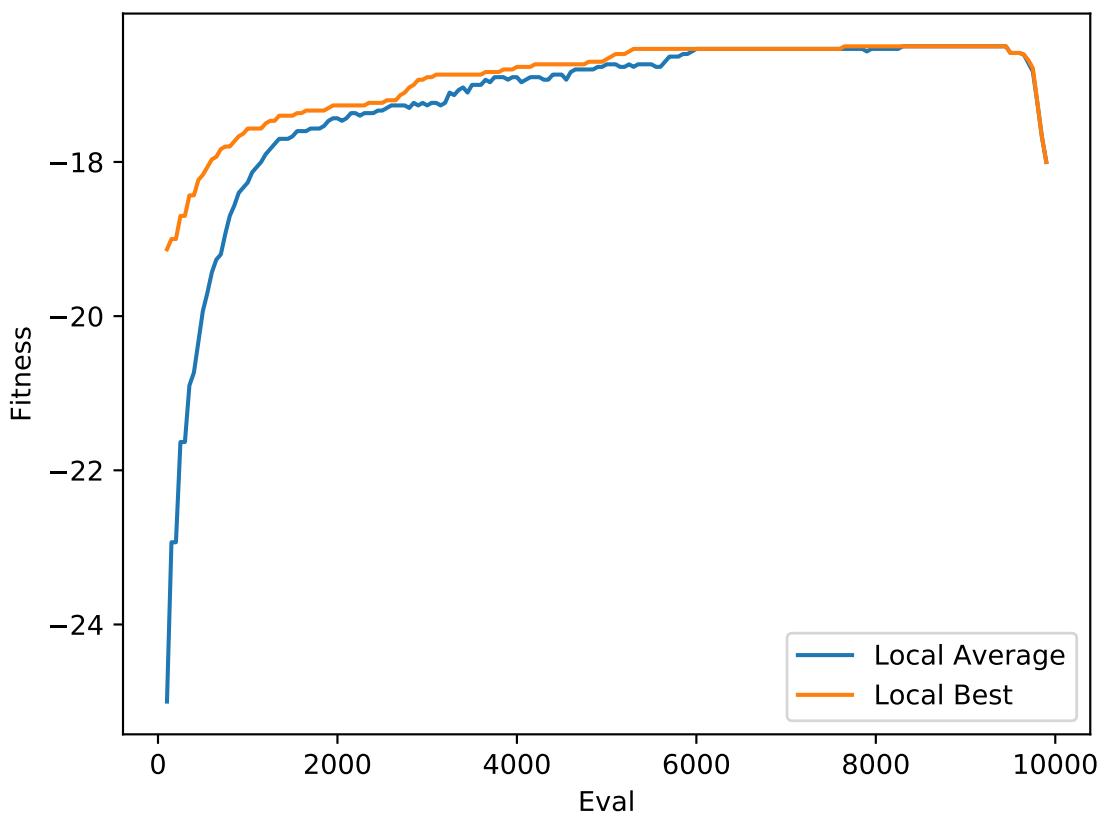


Figure 47: Input 1

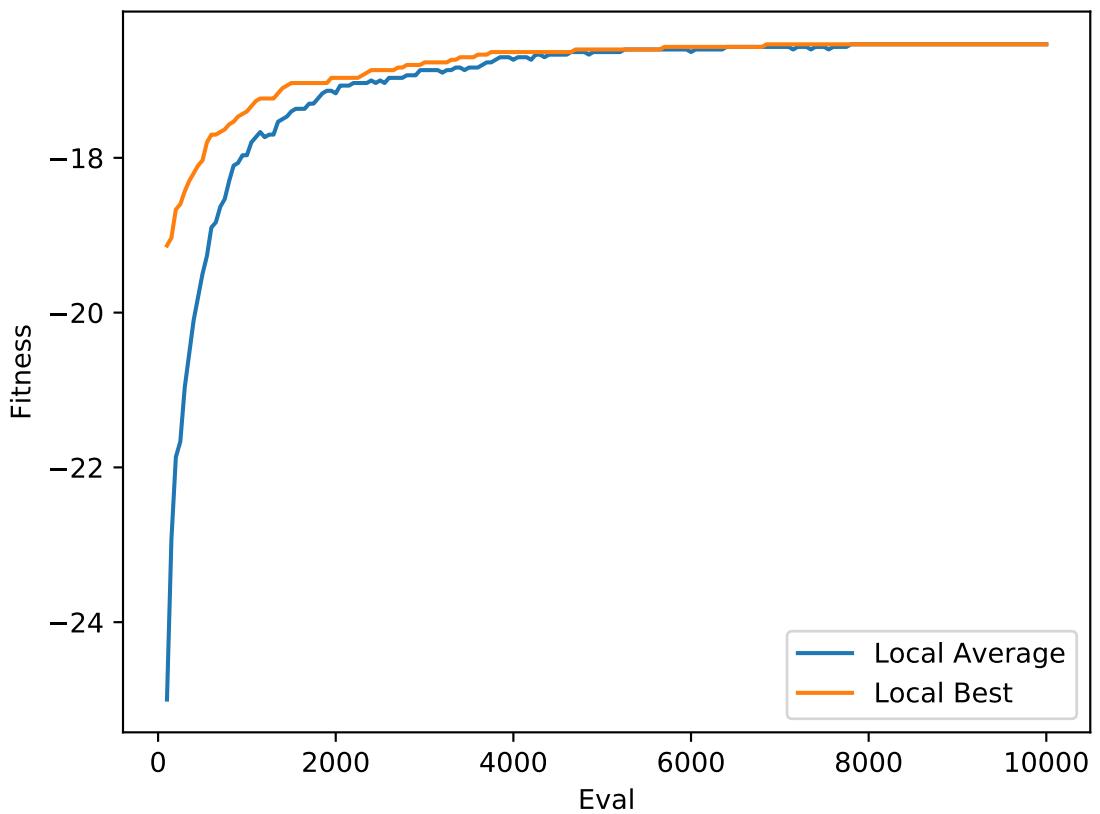


Table 8: Figure 48 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1008
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 9: Figure 49 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1009
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 48: Input 1

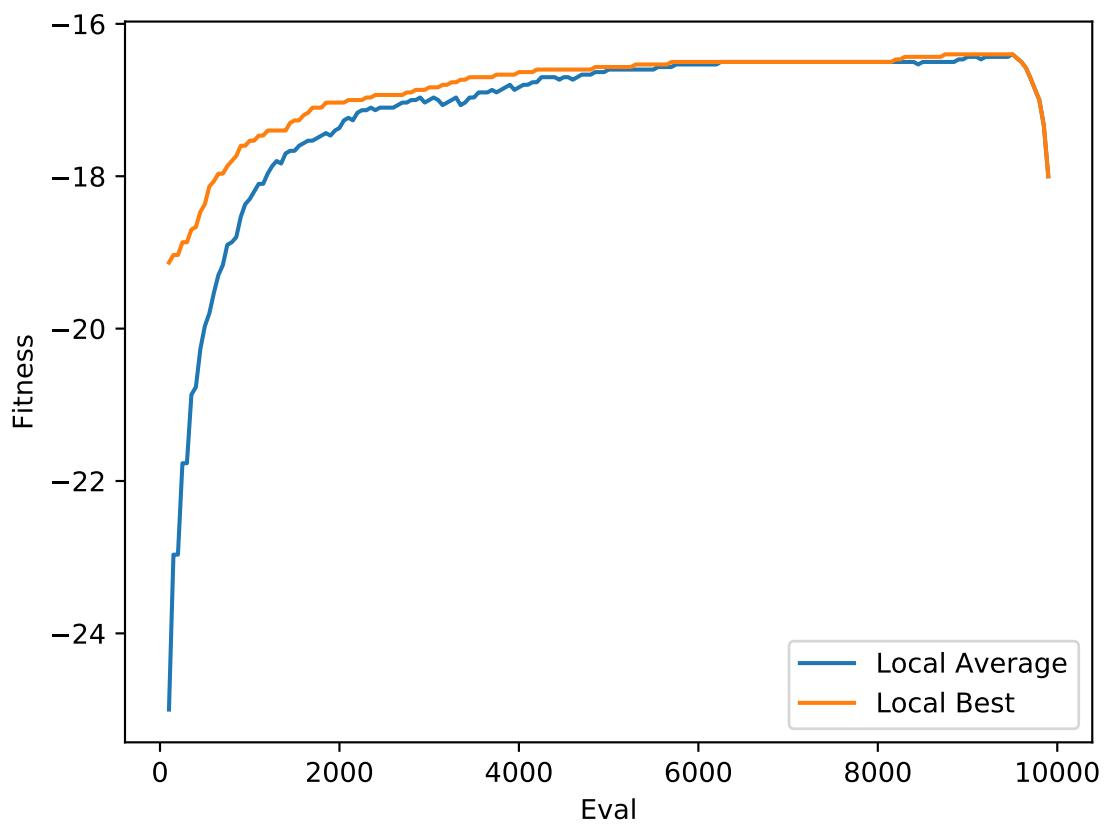


Figure 49: Input 1

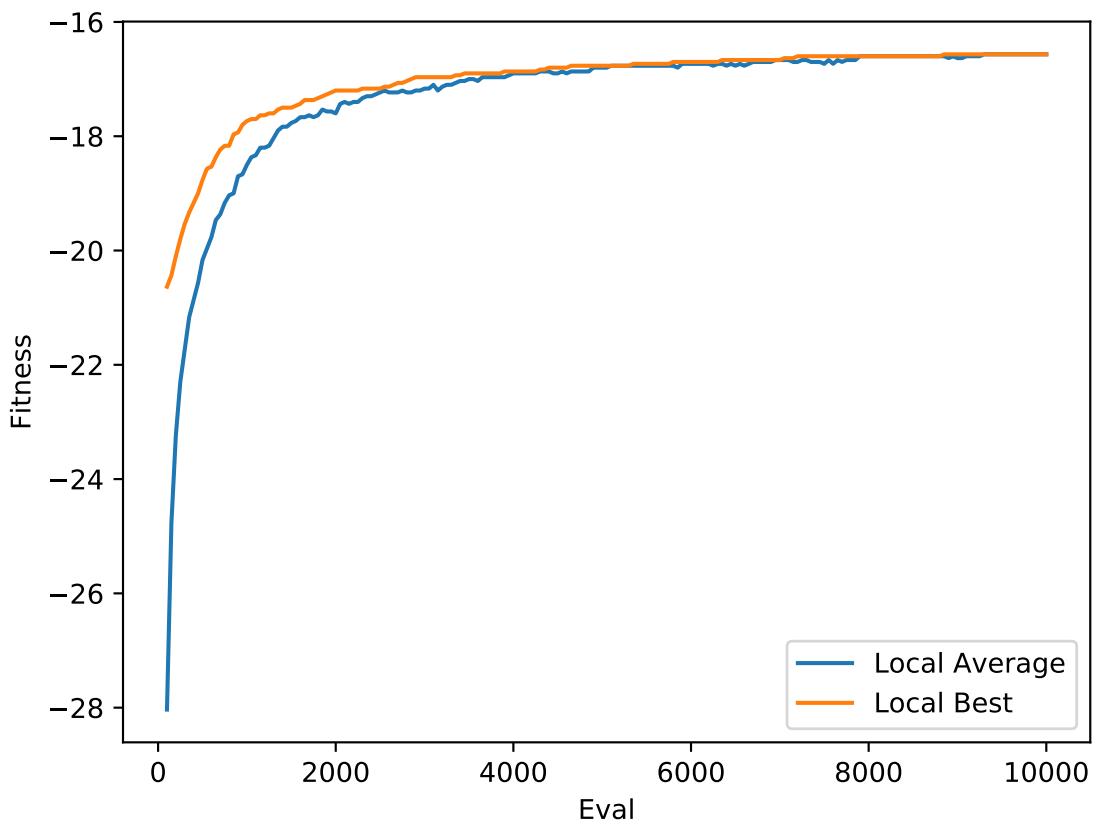


Table 10: Figure 50 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1010
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 50: Input 1

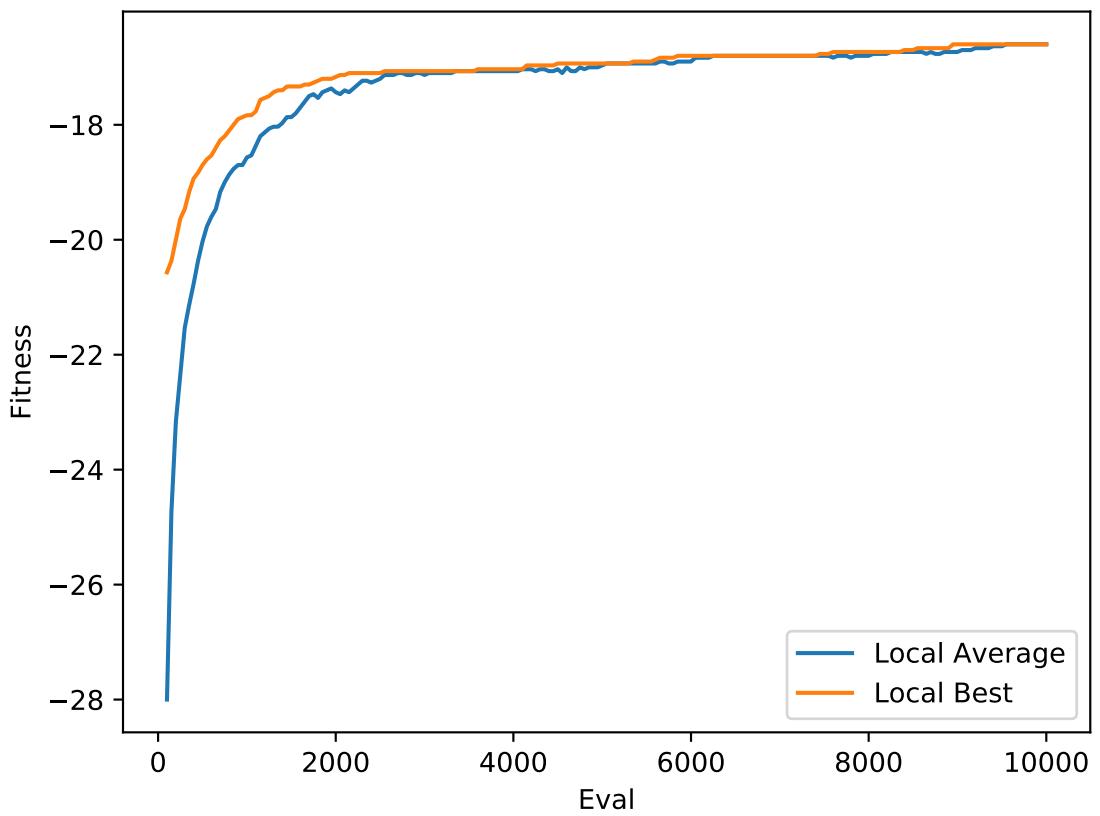


Table 11: Figure 51 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1011
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 12: Figure 52 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1012
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 51: Input 1

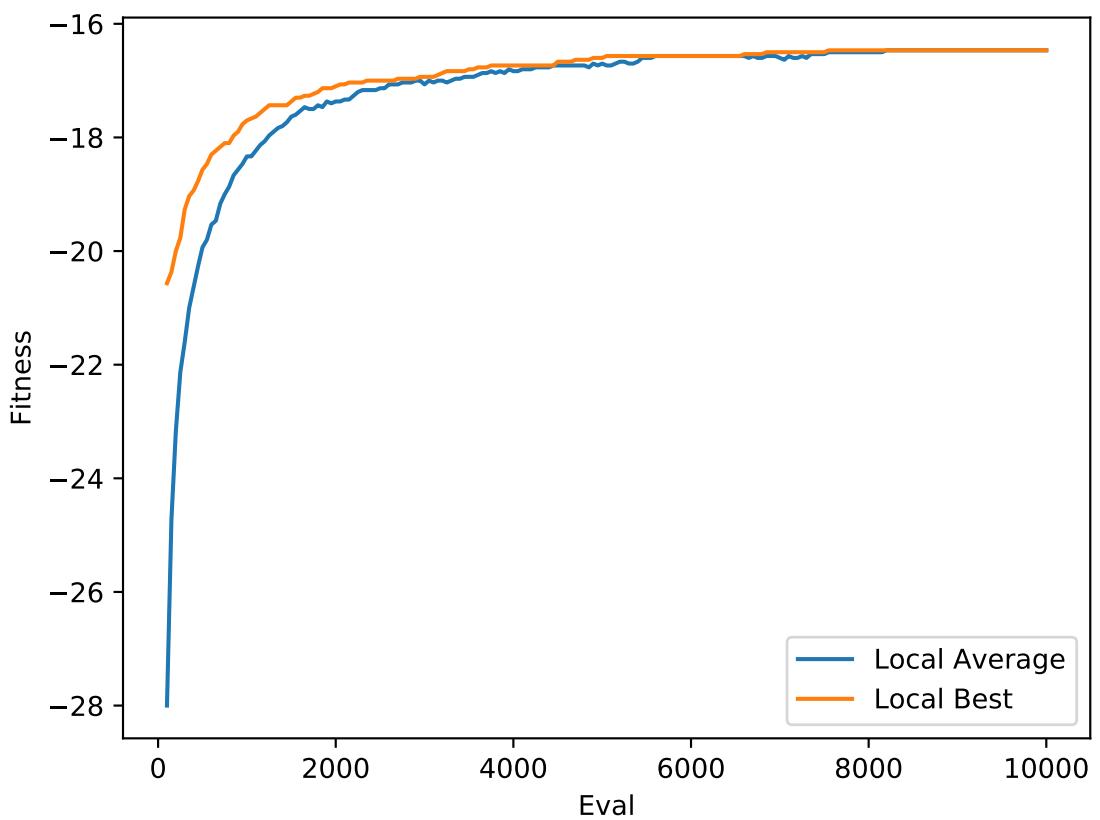


Figure 52: Input 1

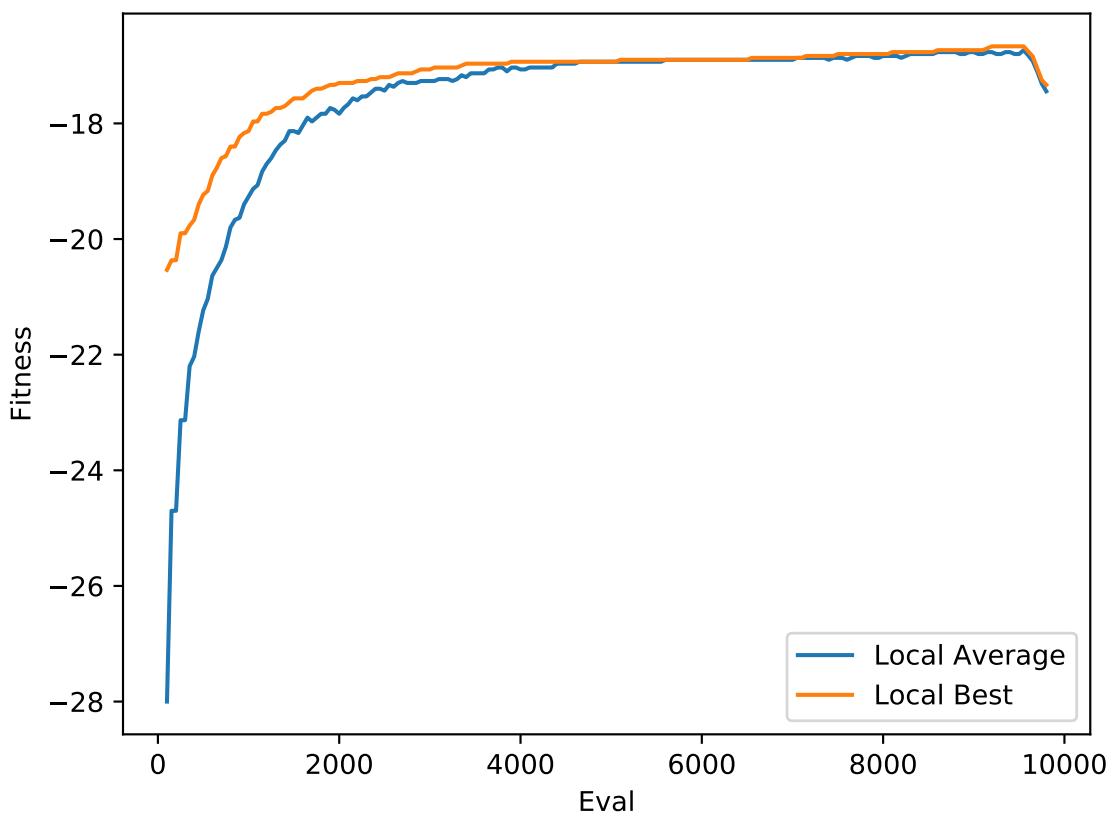


Table 13: Figure 53 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1013
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 14: Figure 54 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1014
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 53: Input 1

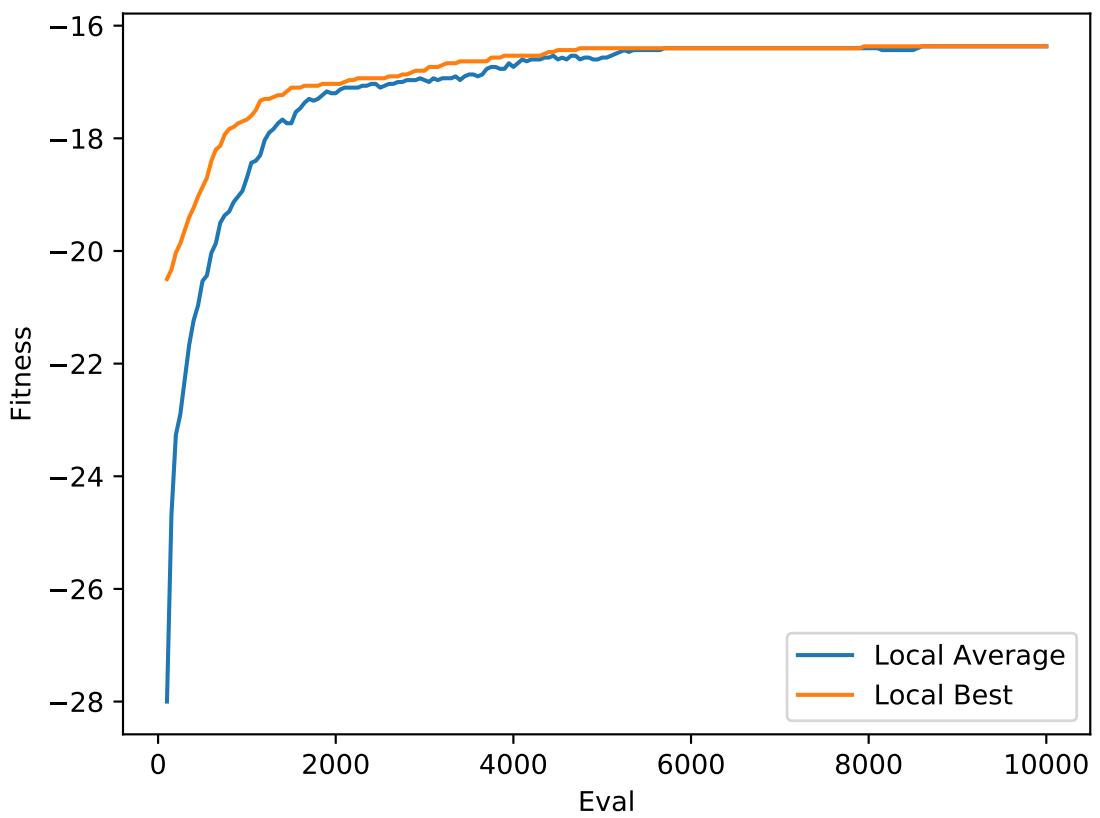


Figure 54: Input 1

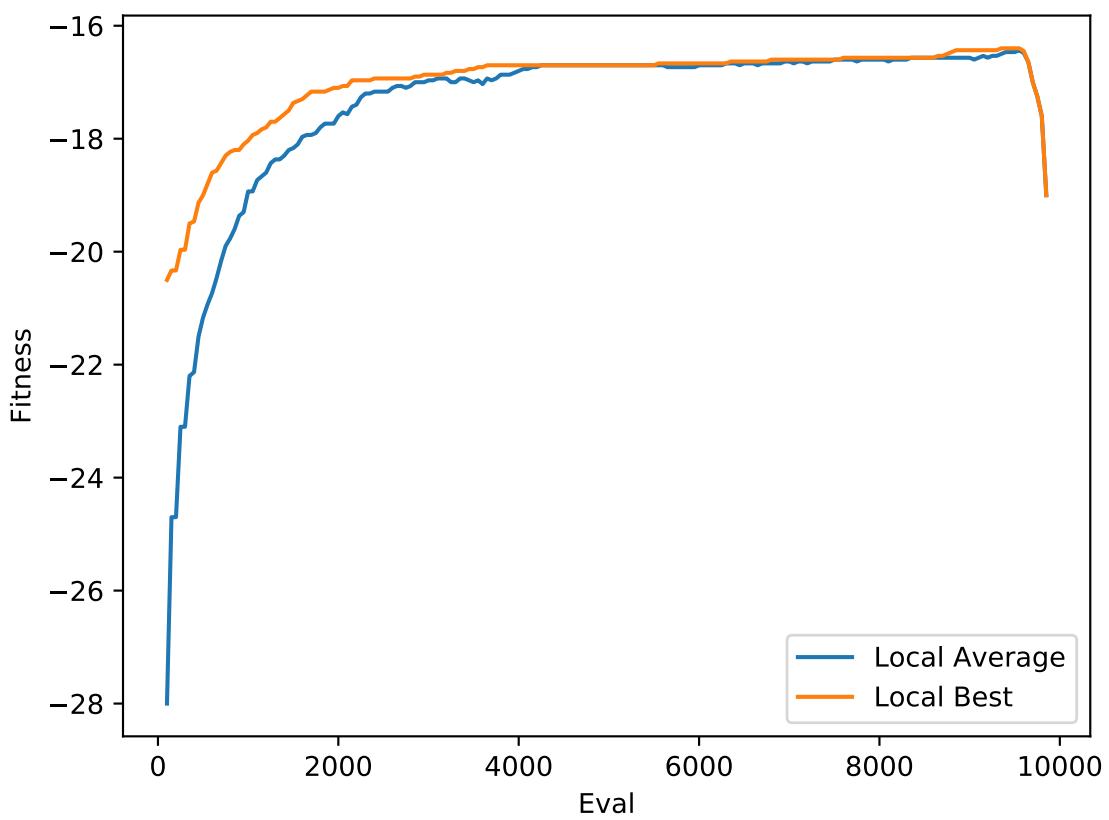


Table 15: Figure 55 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1015
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 16: Figure 56 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1016
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 55: Input 1

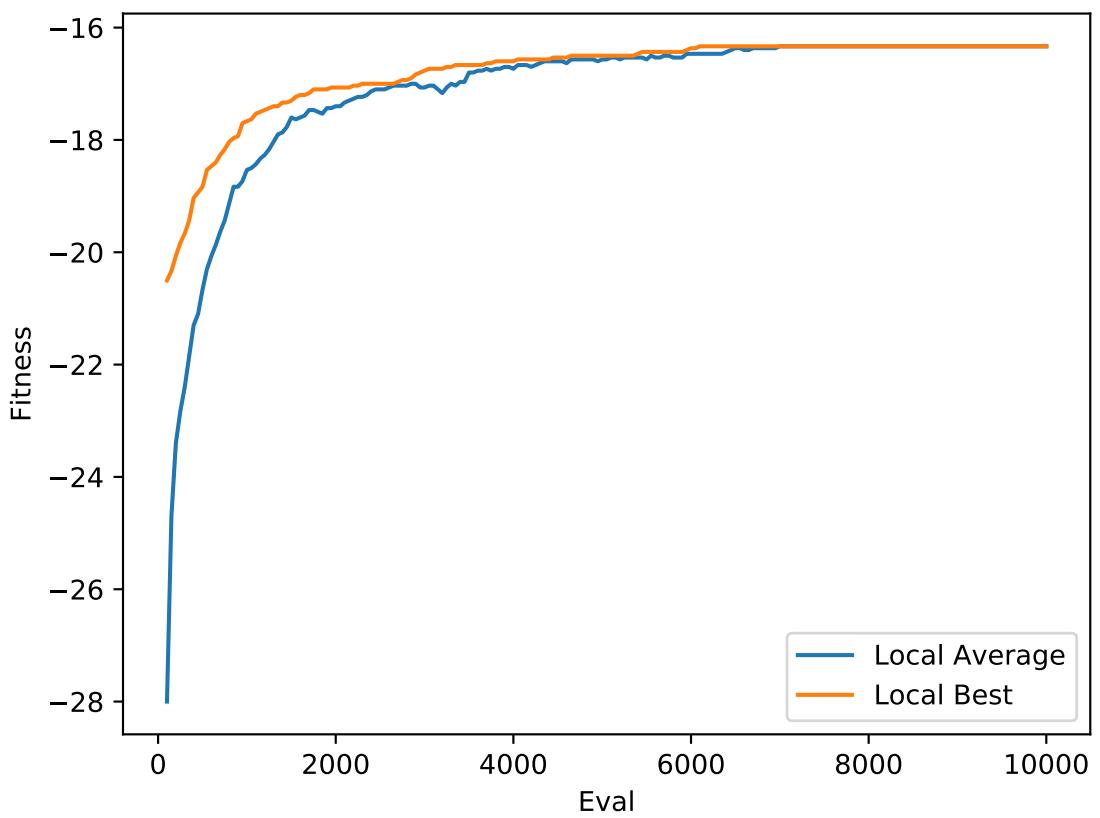


Figure 56: Input 1

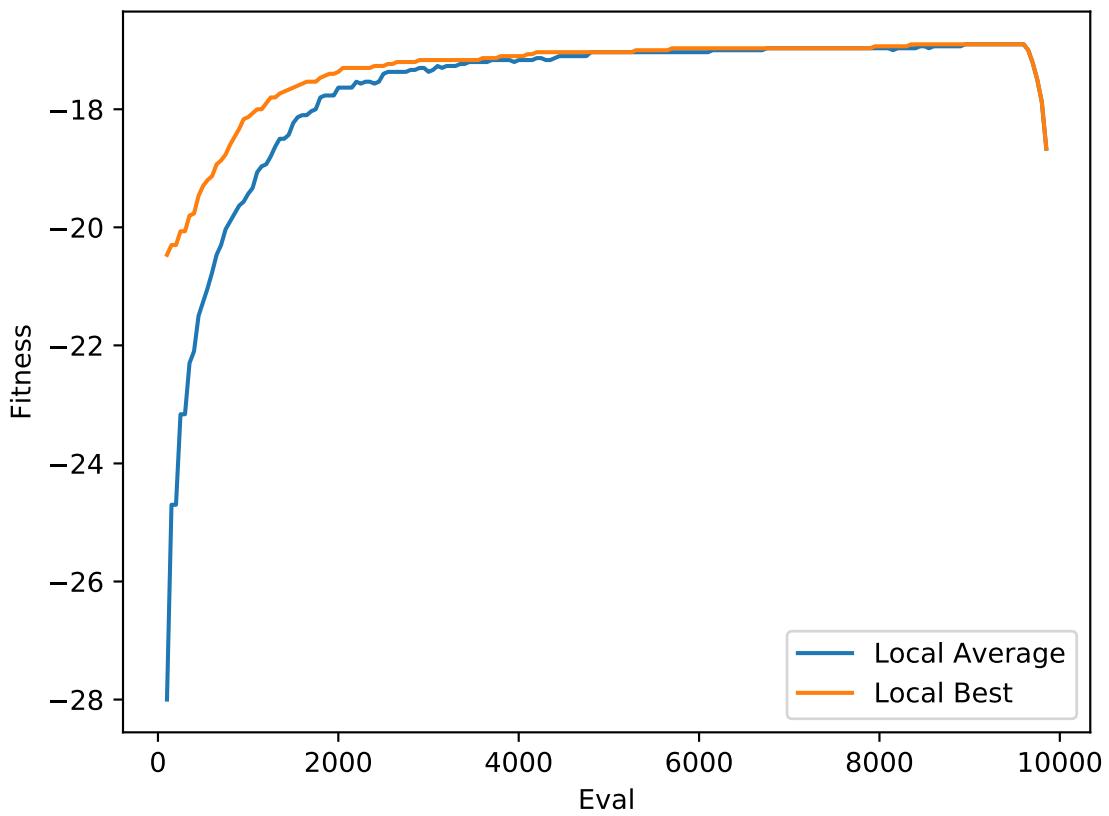


Table 17: Figure 57 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1017
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 18: Figure 58 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1018
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 57: Input 1

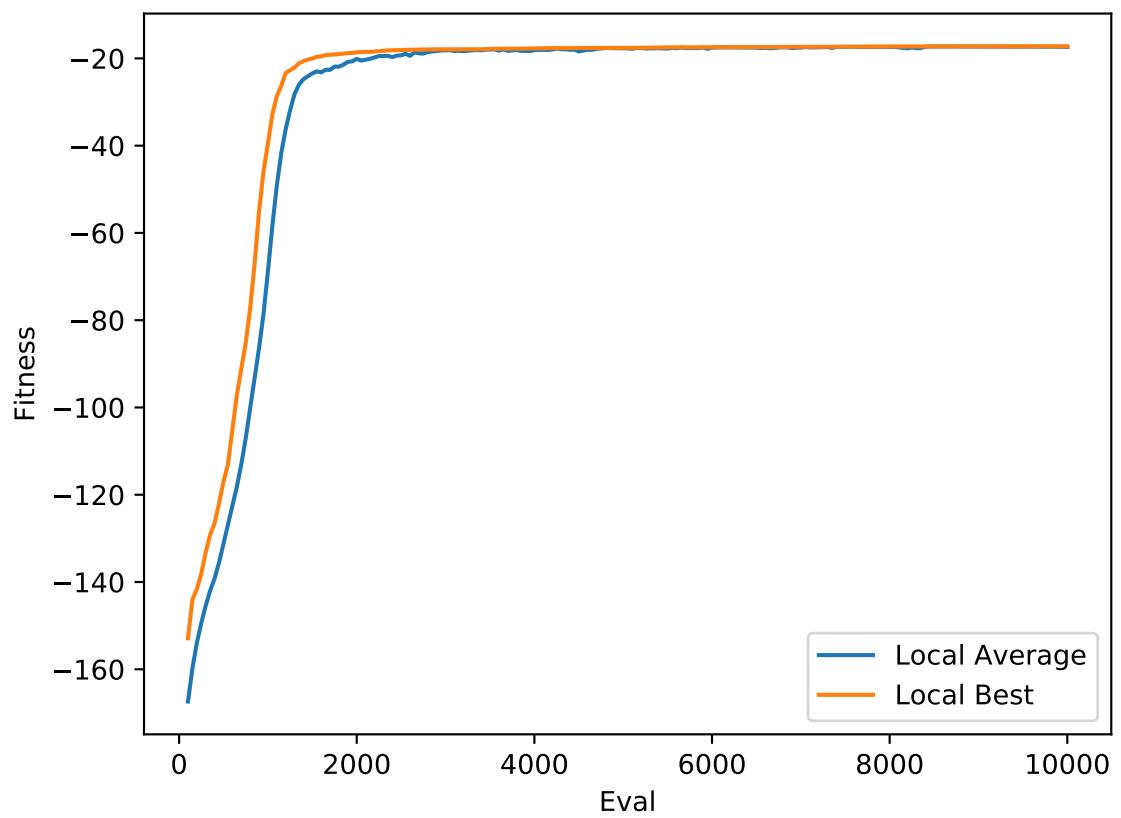


Figure 58: Input 1

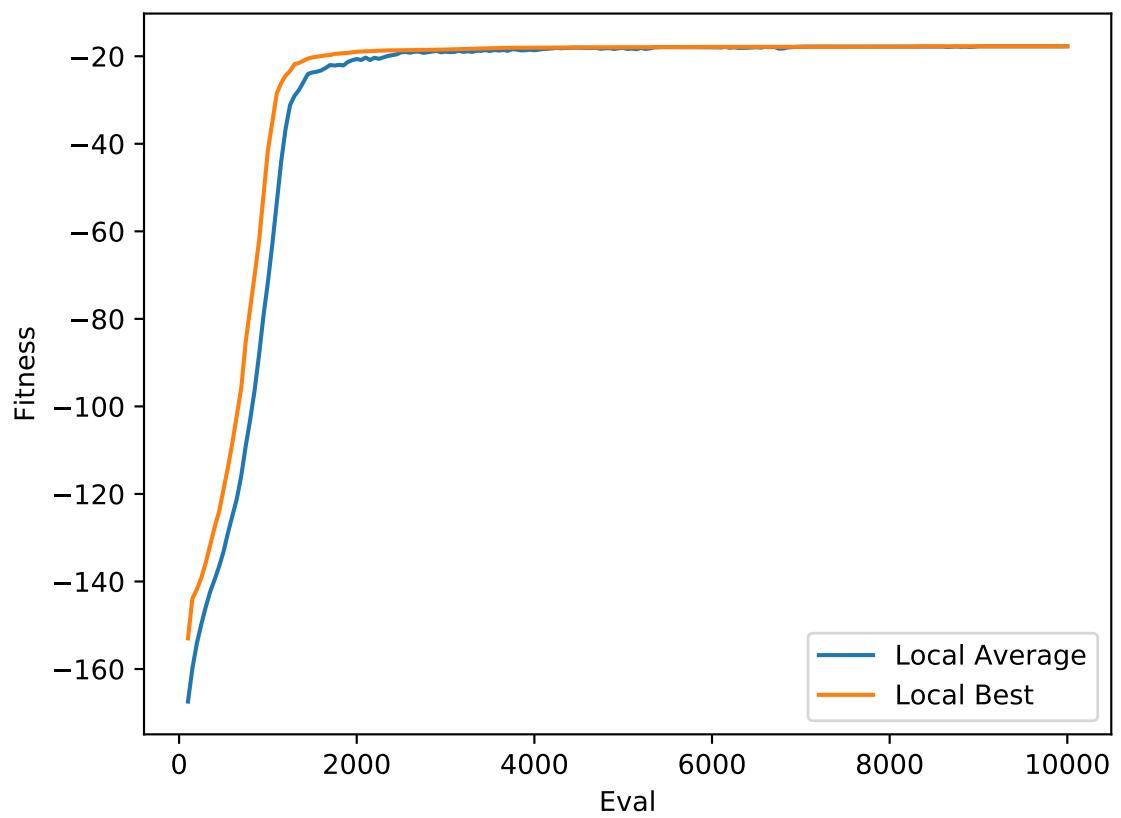


Table 19: Figure 59 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1019
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 20: Figure 60 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1020
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 59: Input 1

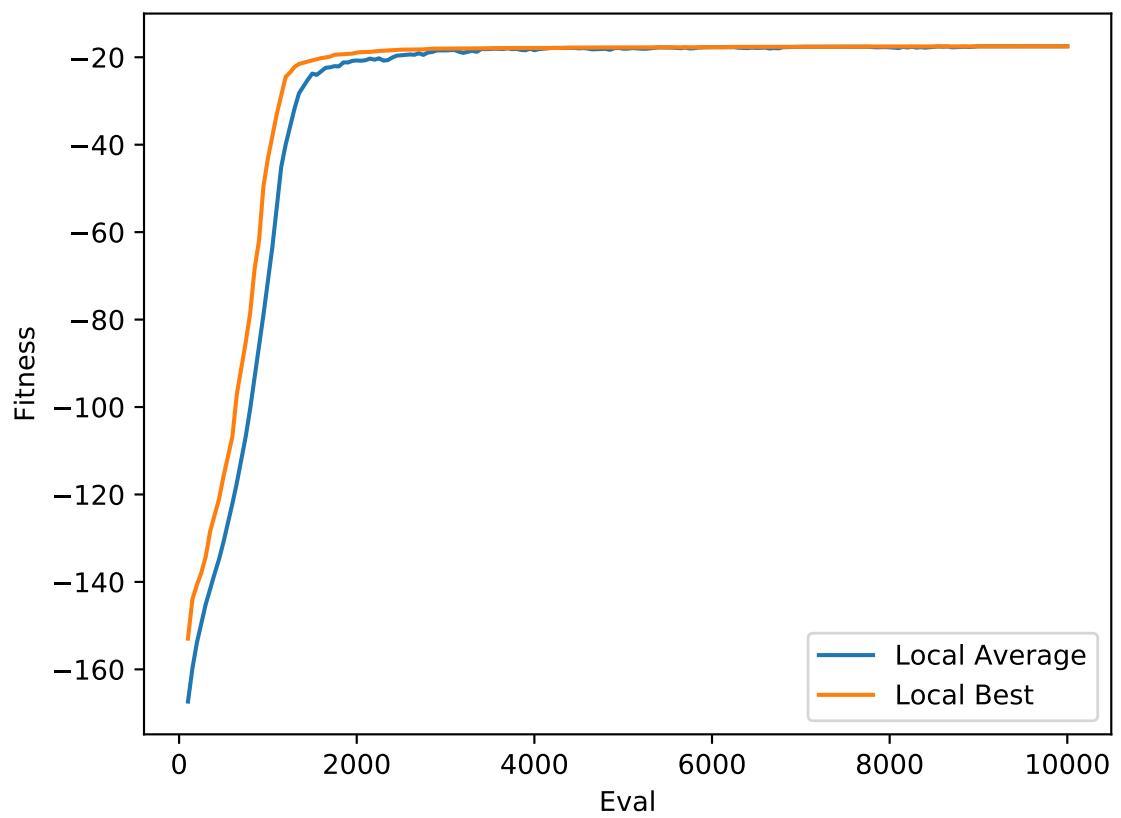


Figure 60: Input 1

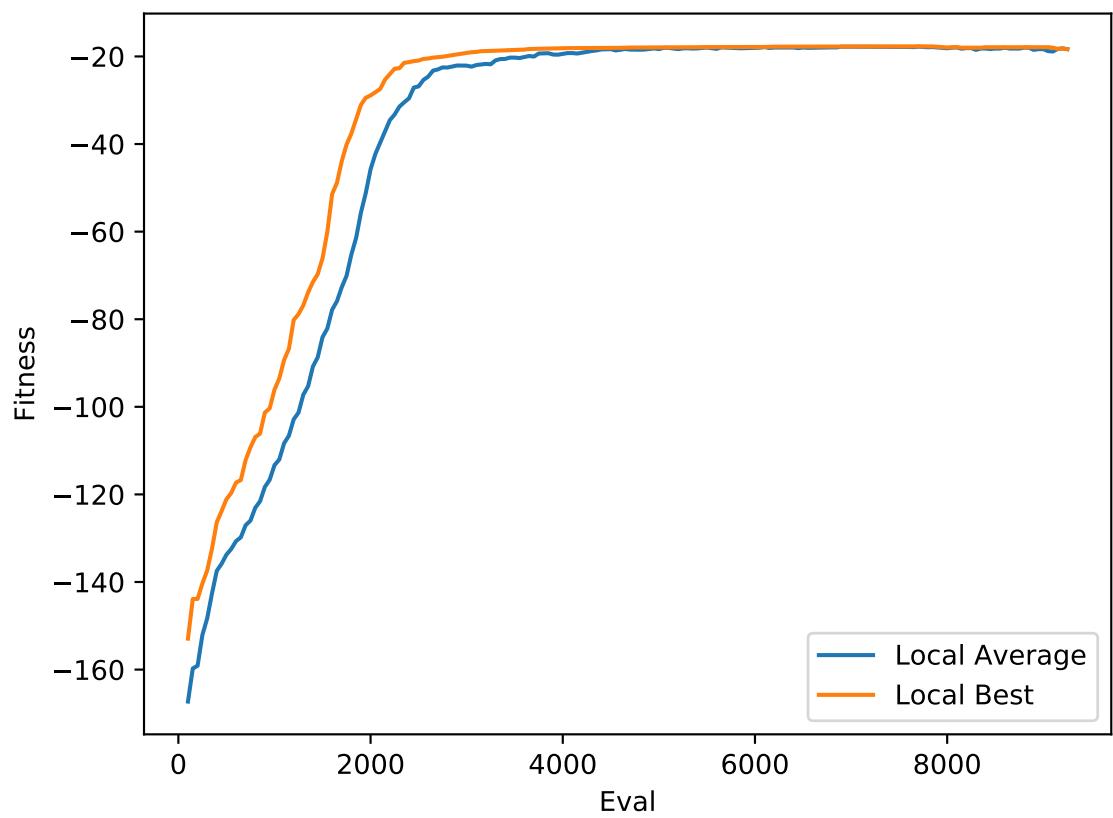


Table 21: Figure 61 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1021
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 22: Figure 62 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1022
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 61: Input 1

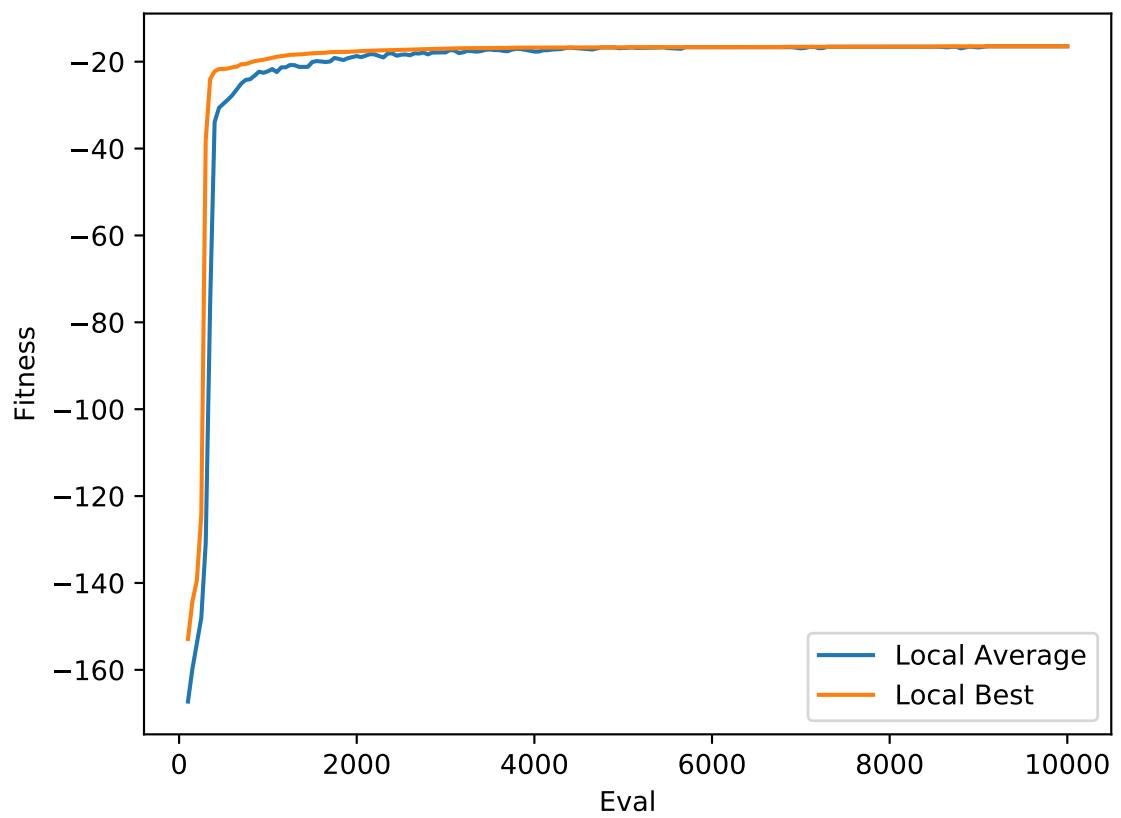


Figure 62: Input 1

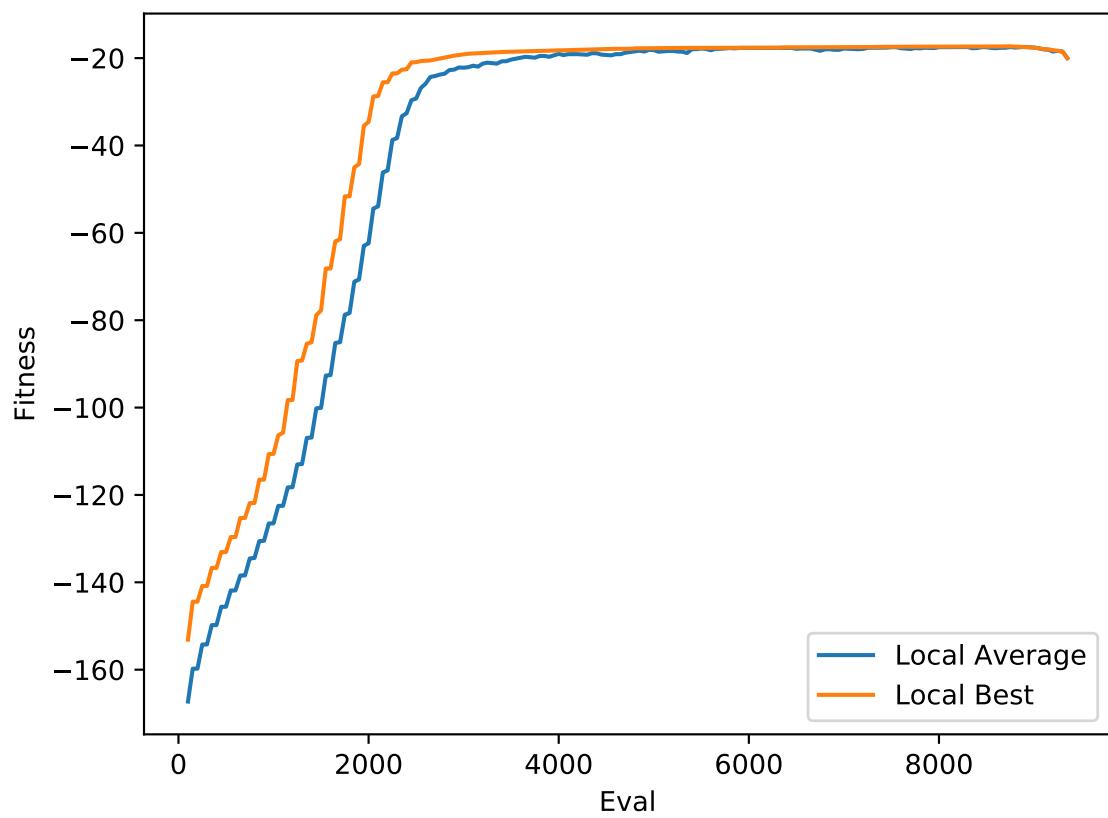


Table 23: Figure 63 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1023
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 24: Figure 64 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1024
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 63: Input 1

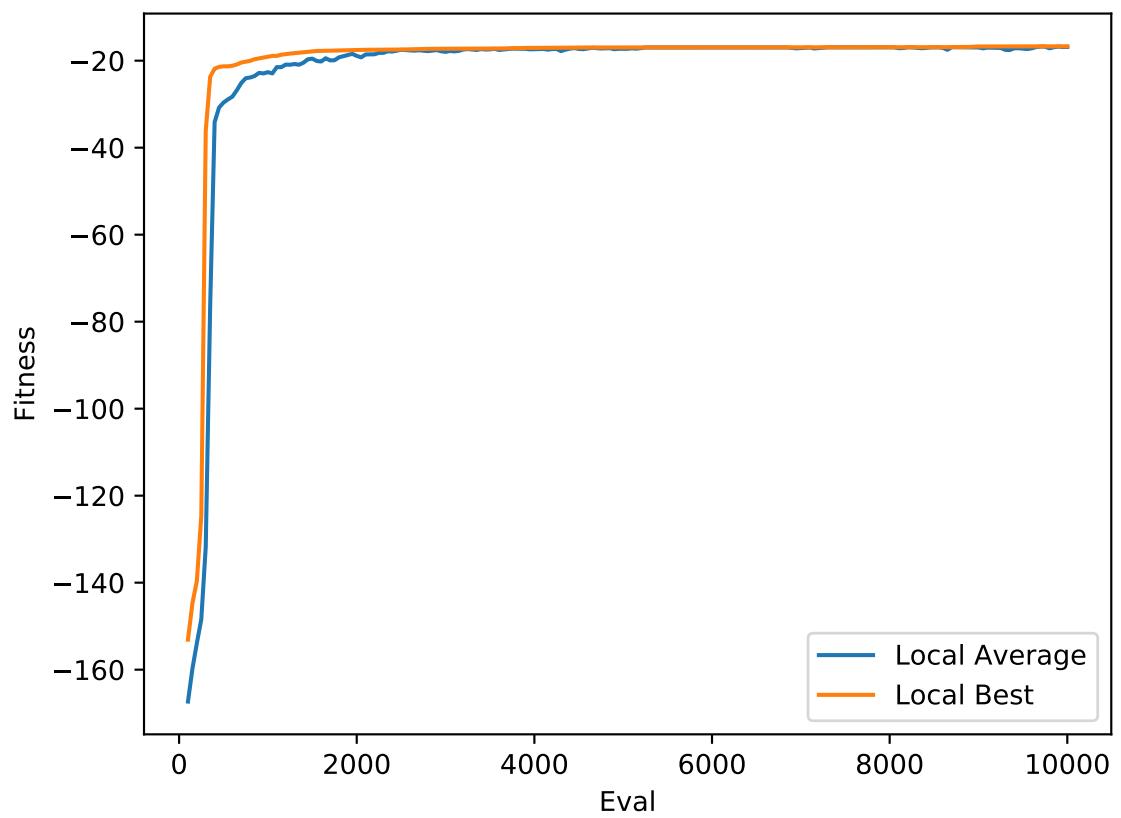


Figure 64: Input 1

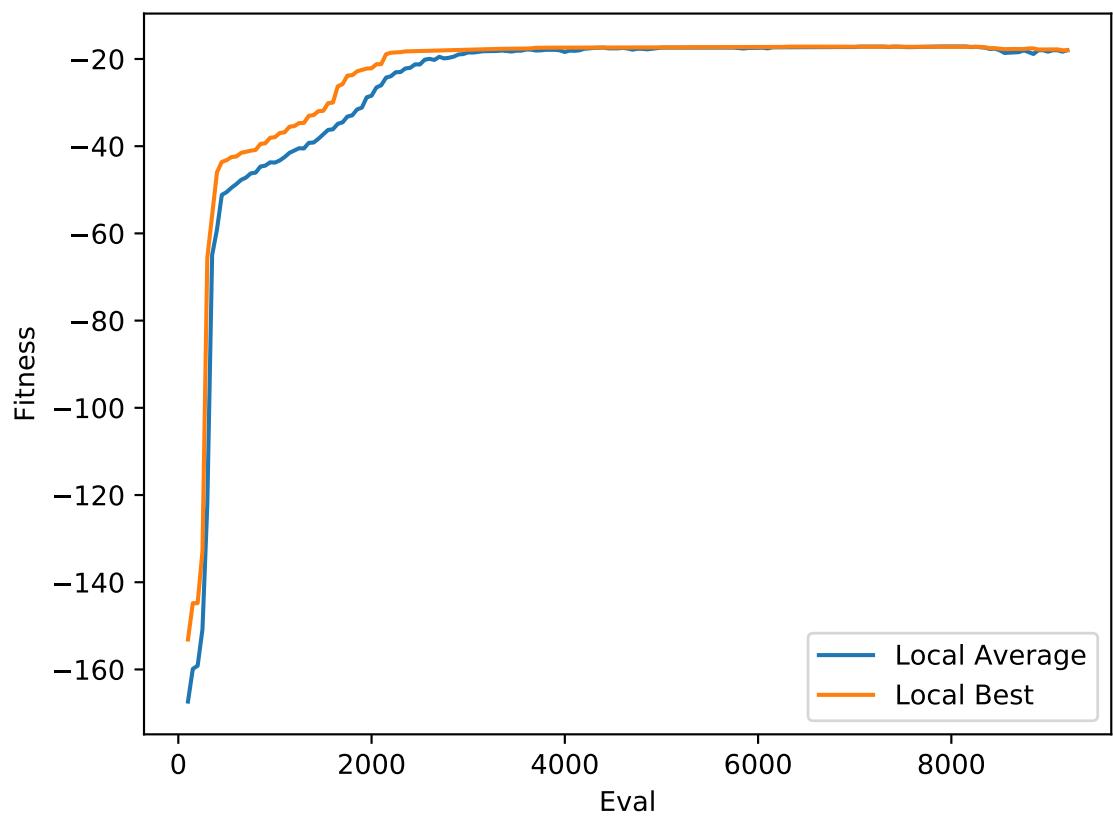


Table 25: Figure 65 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1025
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 26: Figure 66 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1026
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 65: Input 1

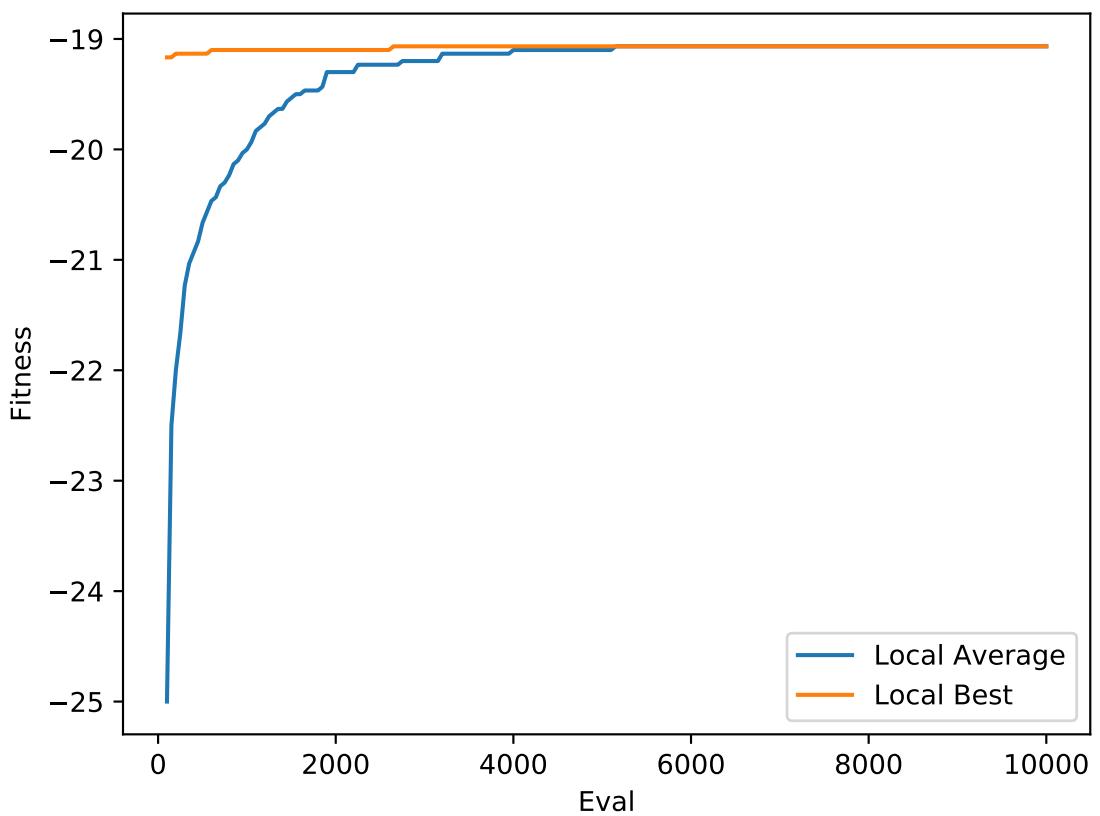


Figure 66: Input 1

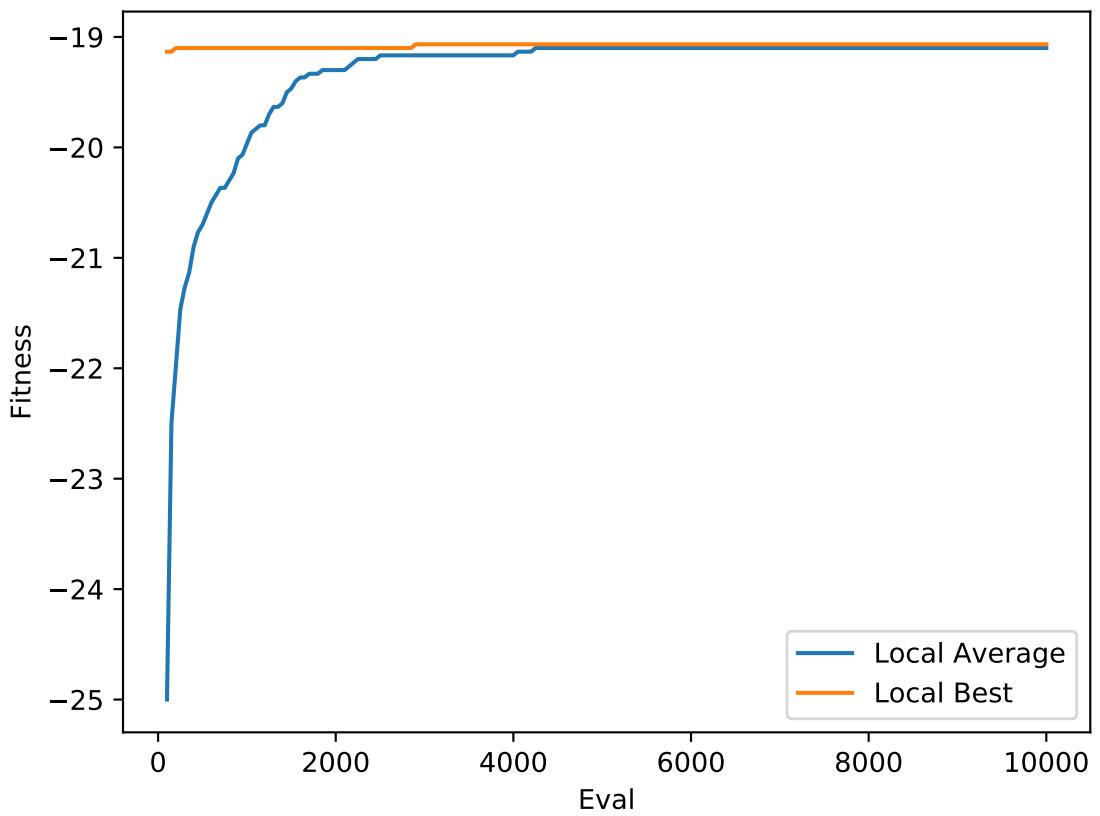


Table 27: Figure 67 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1027
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 28: Figure 68 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1028
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 67: Input 1

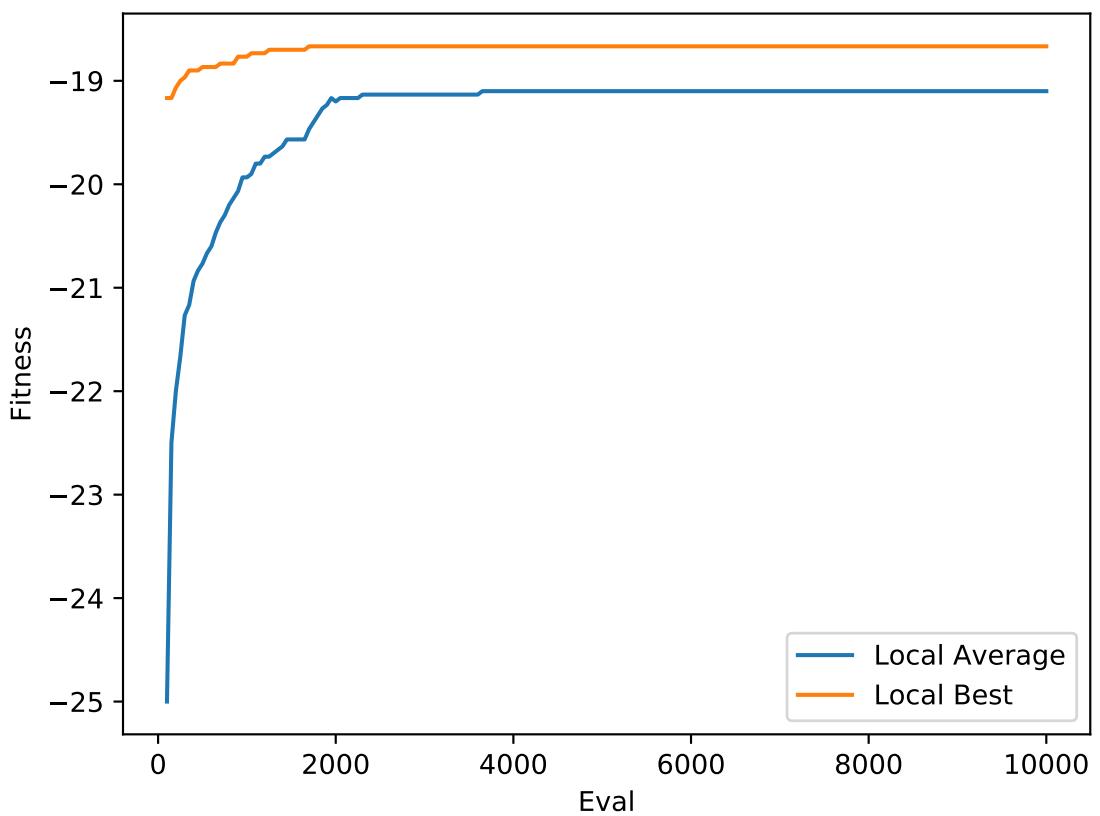


Figure 68: Input 1

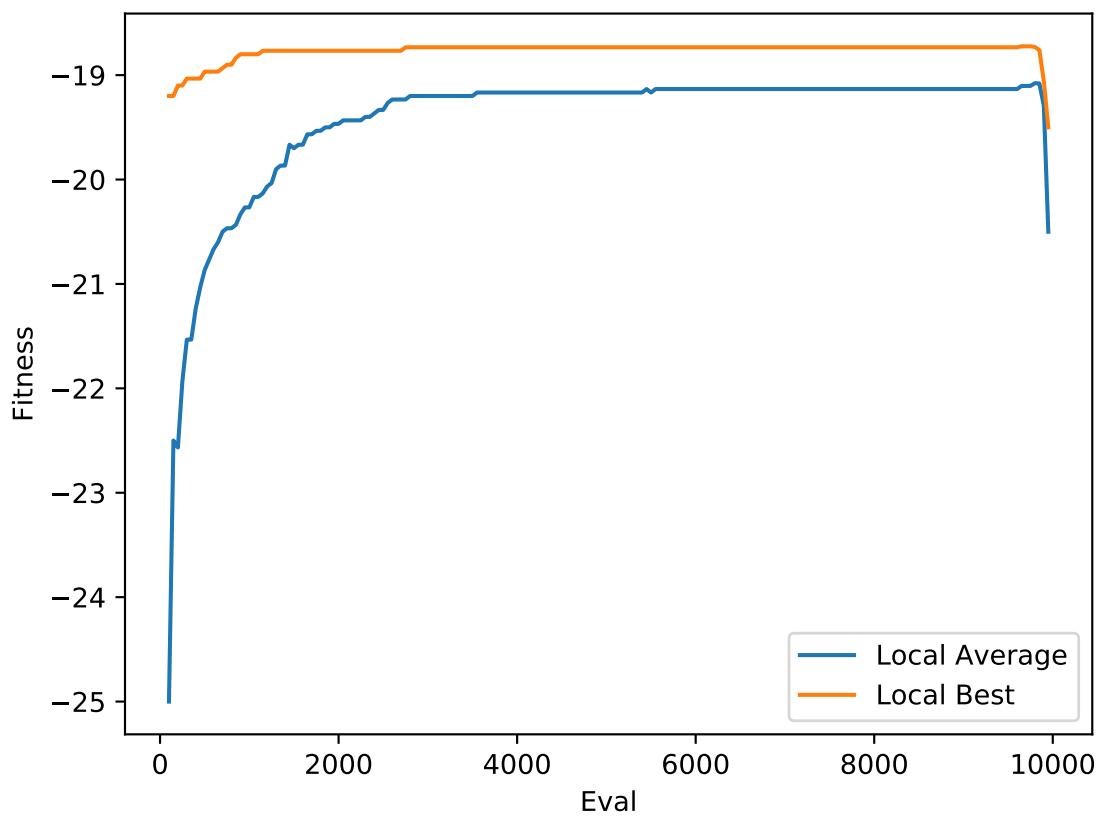


Table 29: Figure 69 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1029
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 30: Figure 70 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1030
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 69: Input 1

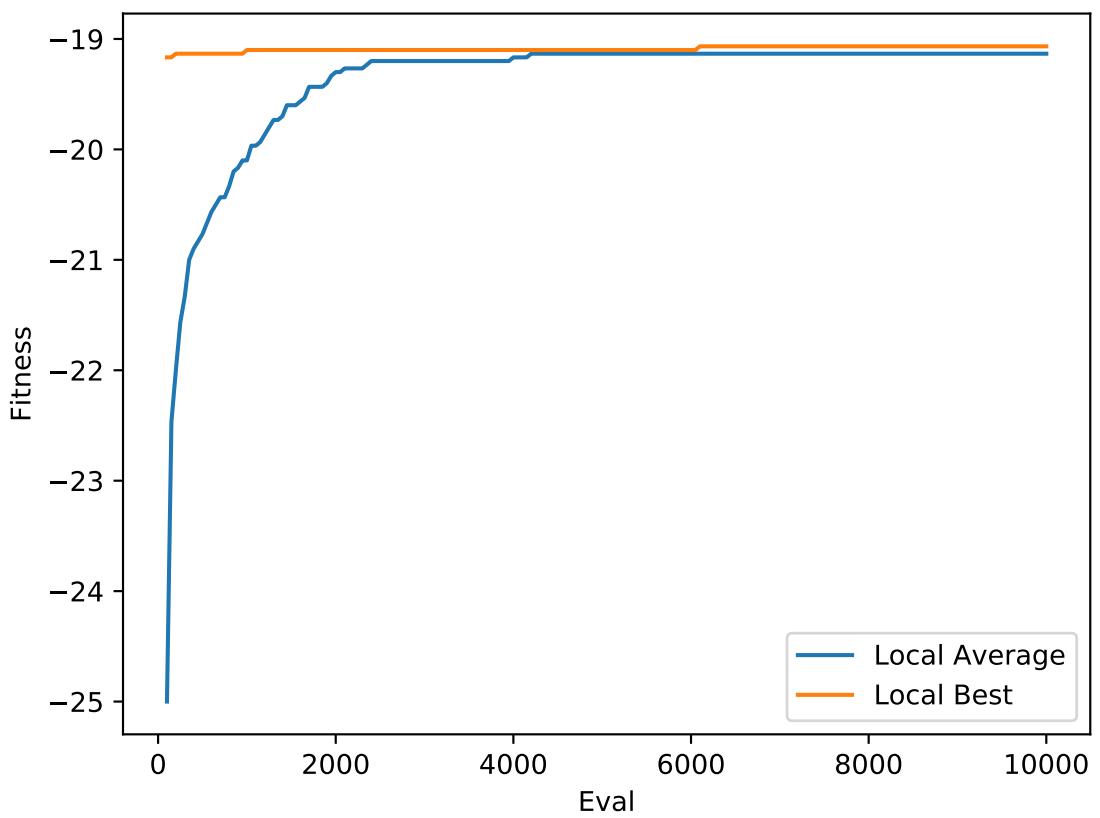


Figure 70: Input 1

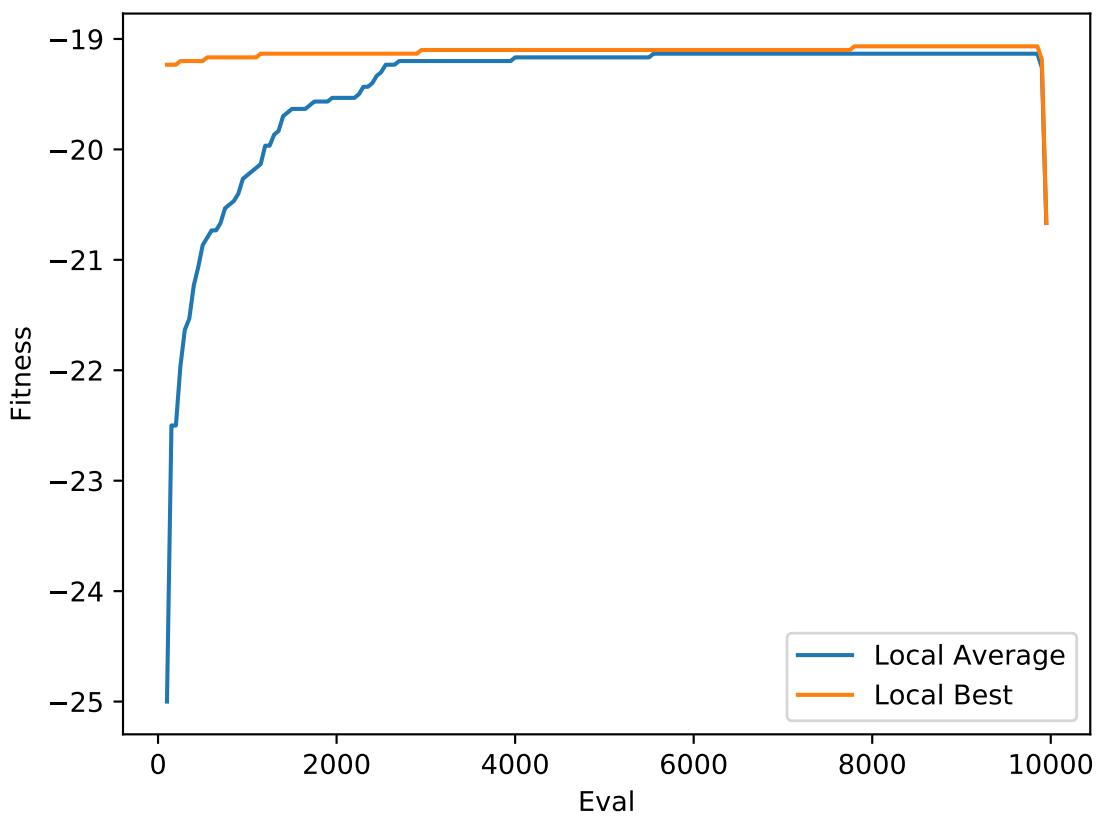


Table 31: Figure 71 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1031
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 32: Figure 72 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1032
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 71: Input 1

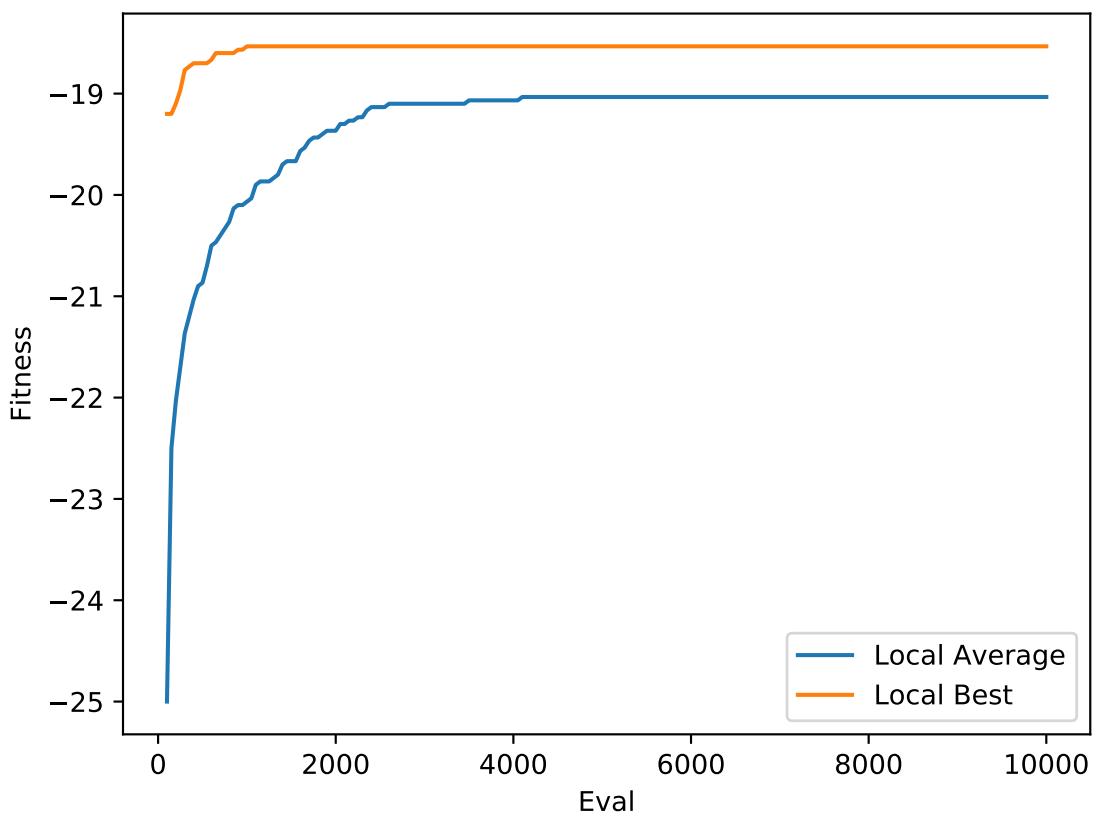


Figure 72: Input 1

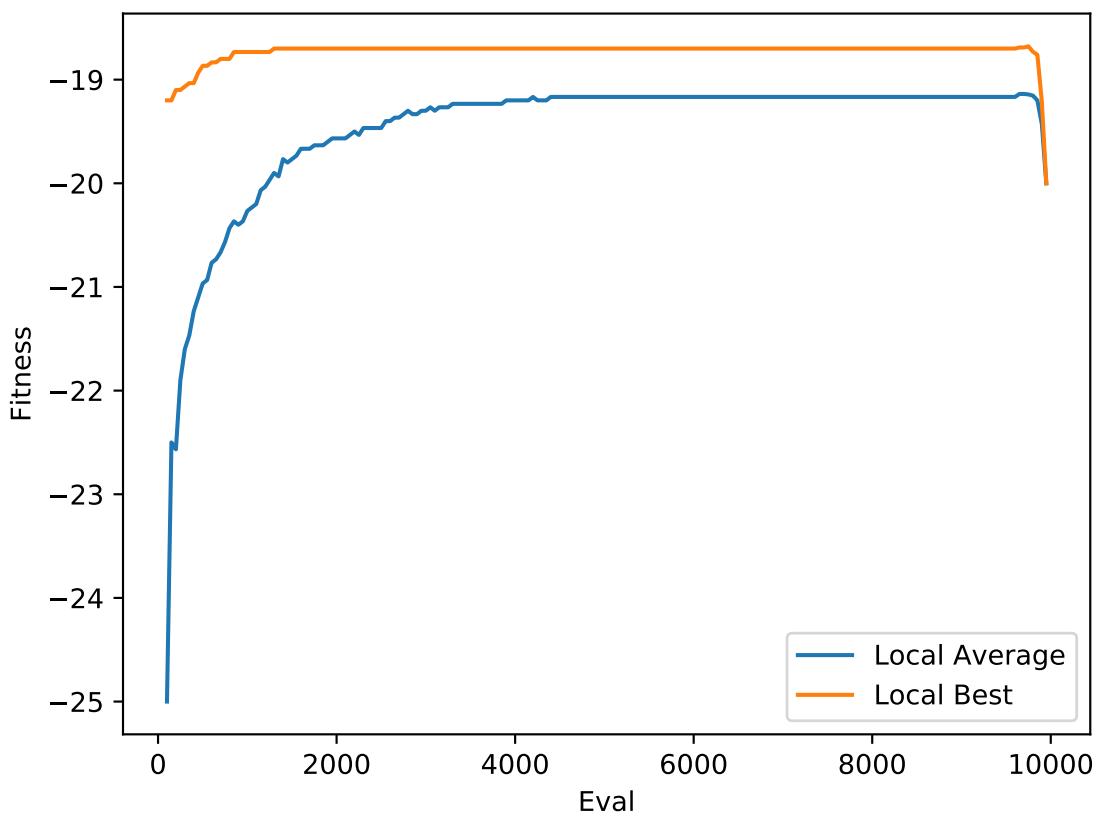


Table 33: Figure 73 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1033
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 34: Figure 74 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1034
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 73: Input 1

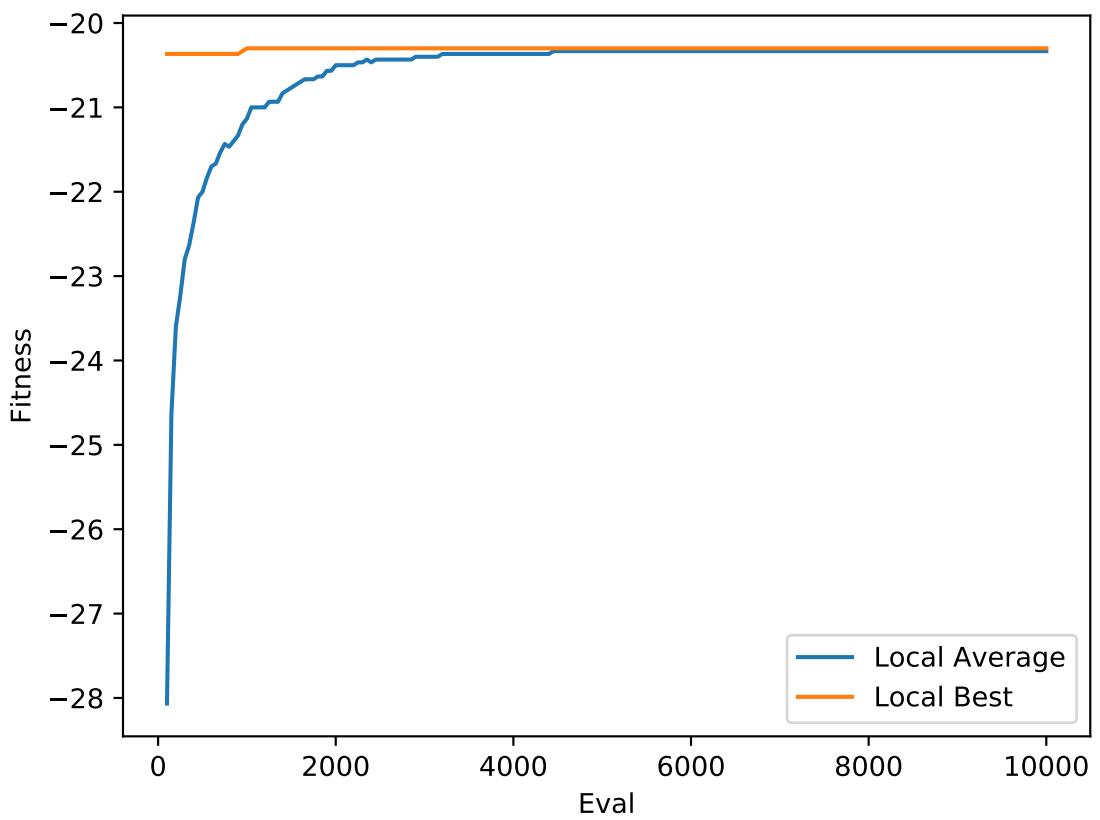


Figure 74: Input 1

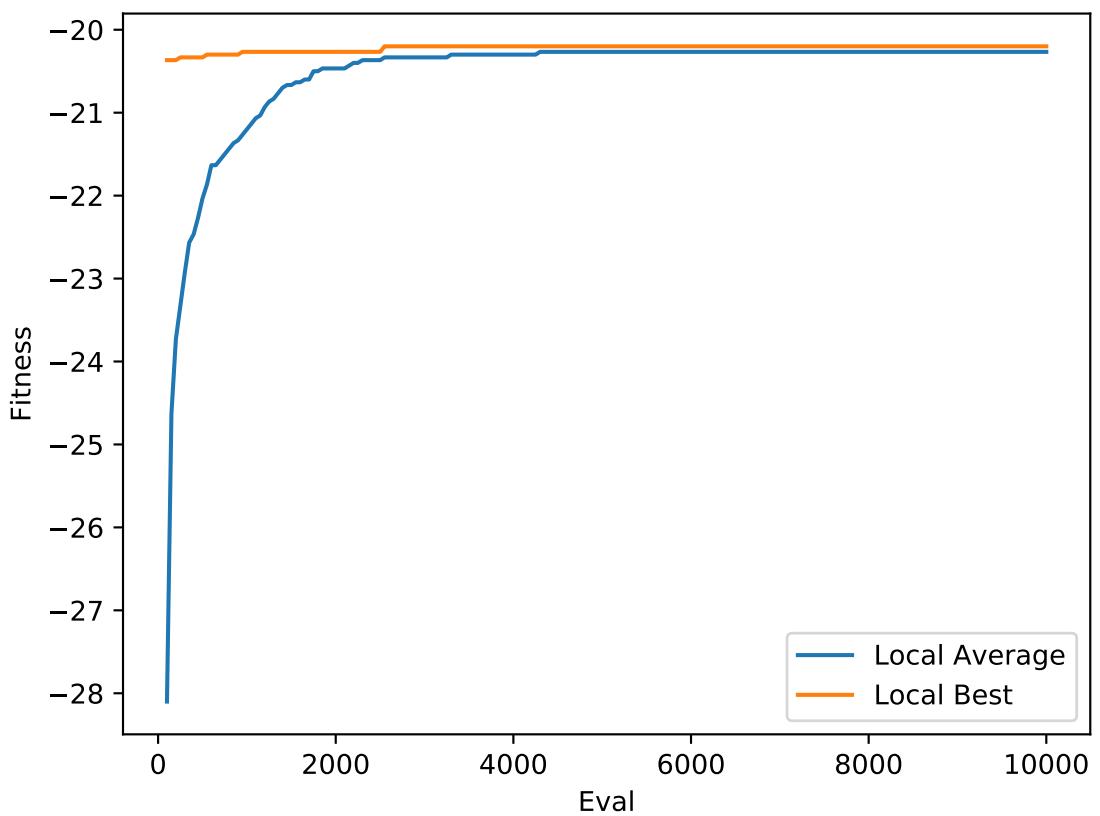


Table 35: Figure 75 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1035
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 36: Figure 76 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1036
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 75: Input 1

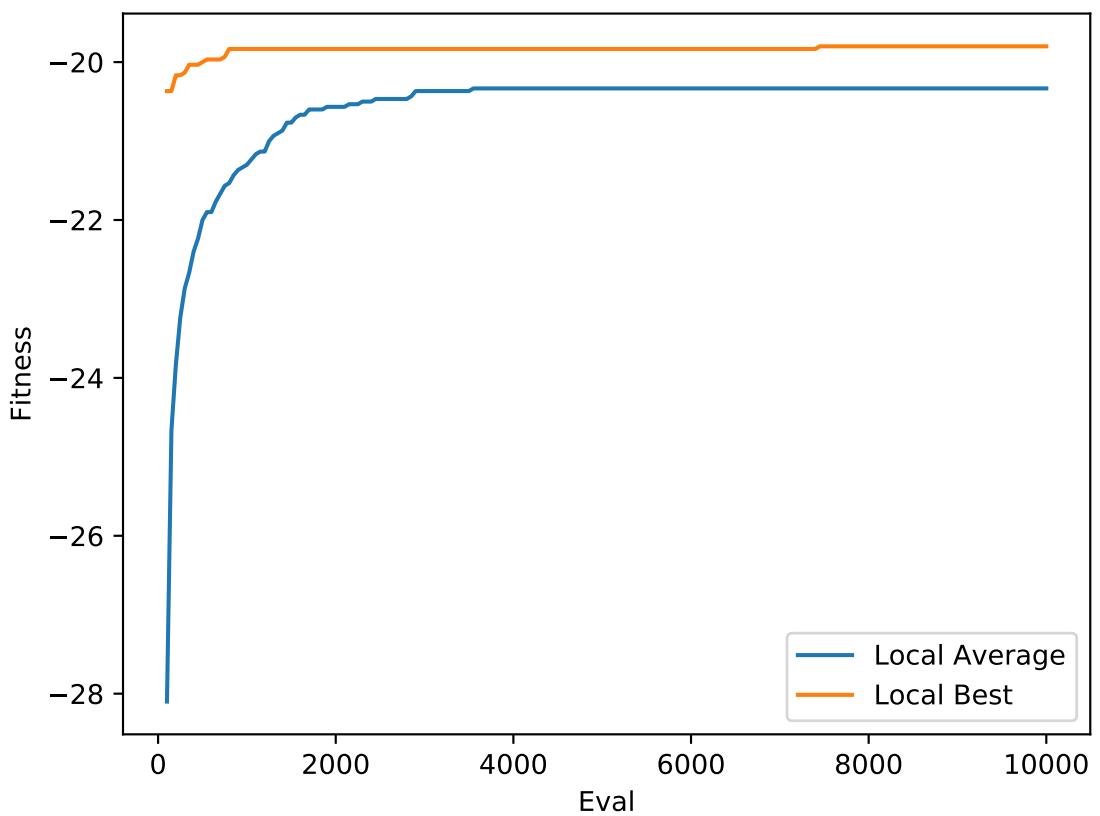


Figure 76: Input 1

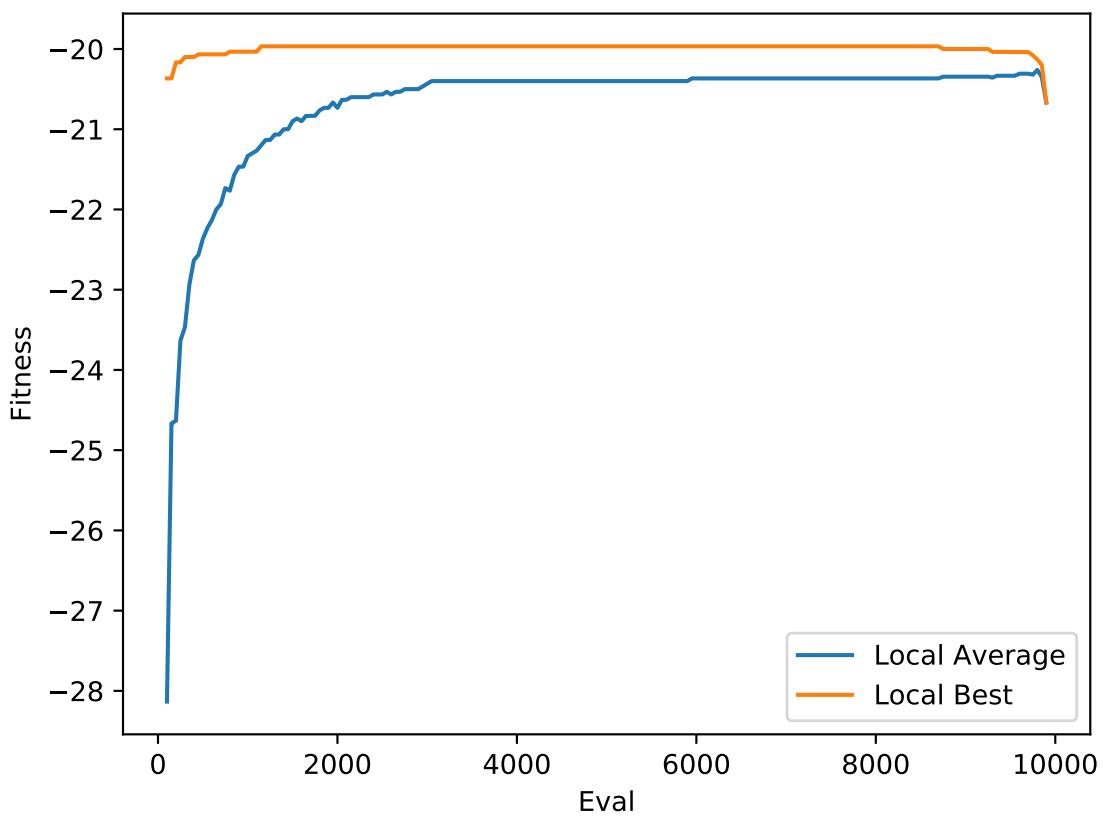


Table 37: Figure 77 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1037
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 38: Figure 78 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1038
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 77: Input 1

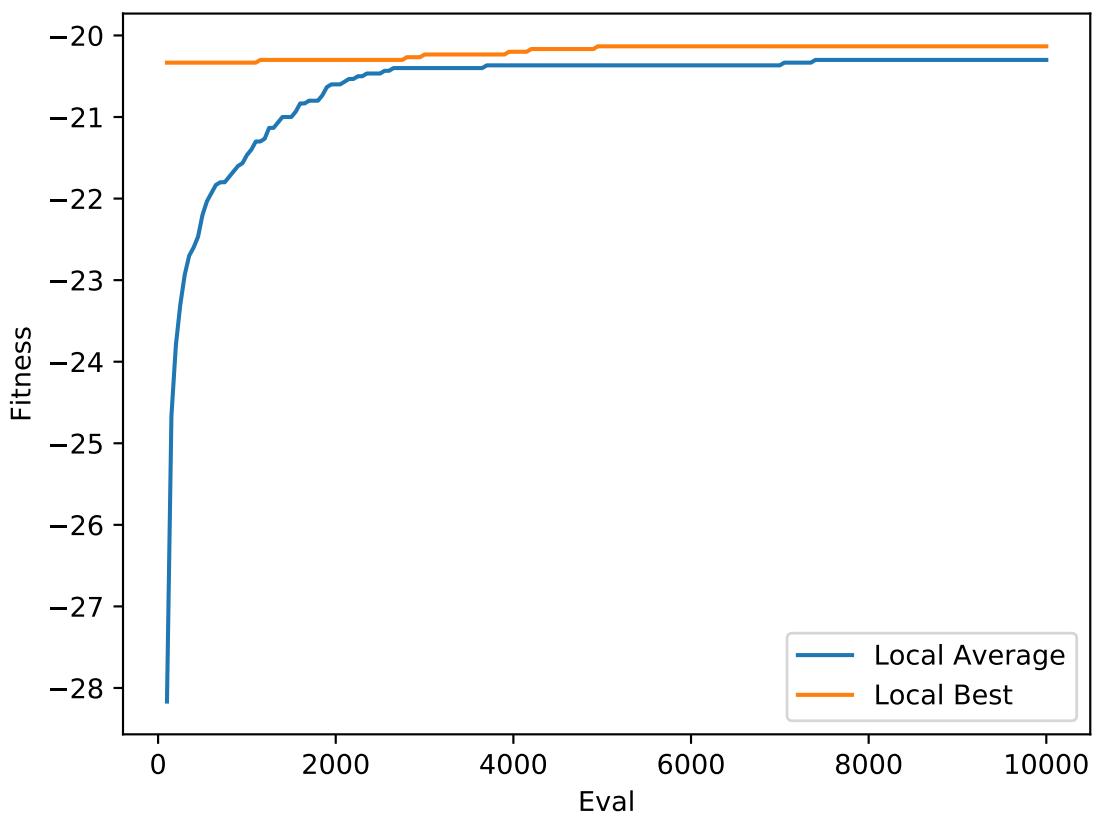


Figure 78: Input 1

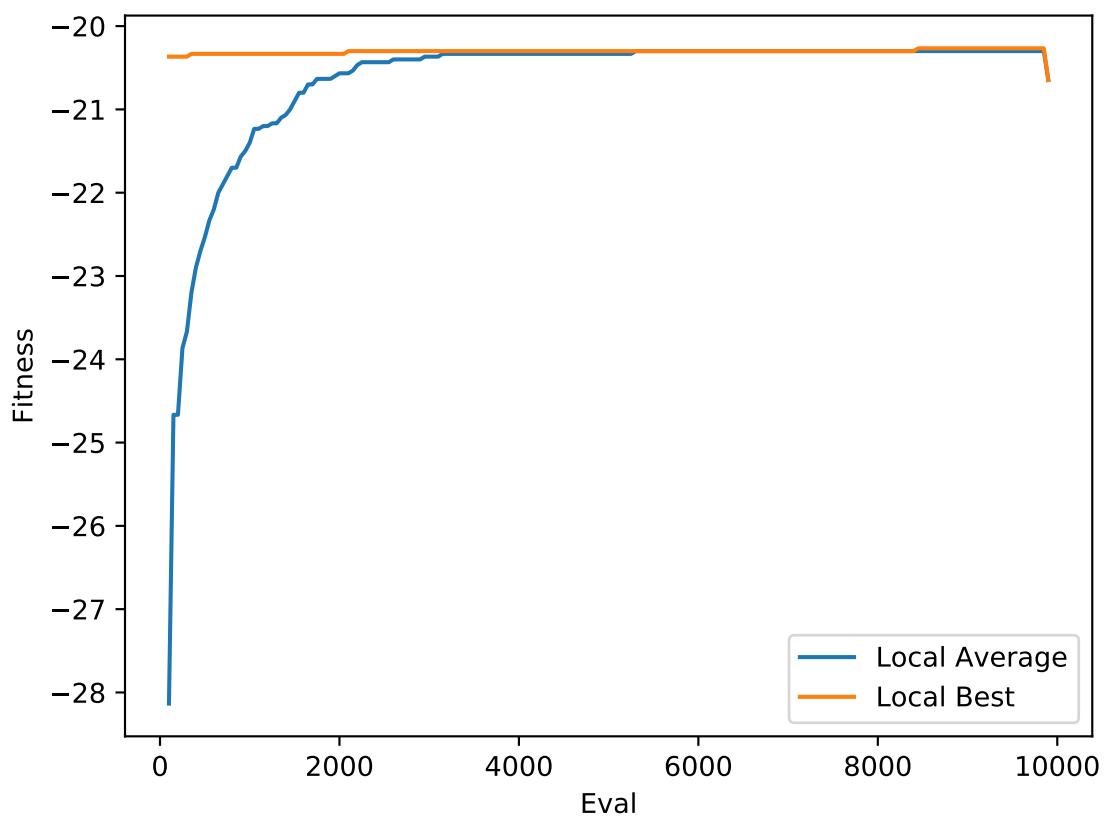


Table 39: Figure 79 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1039
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 40: Figure 80 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1040
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 79: Input 1

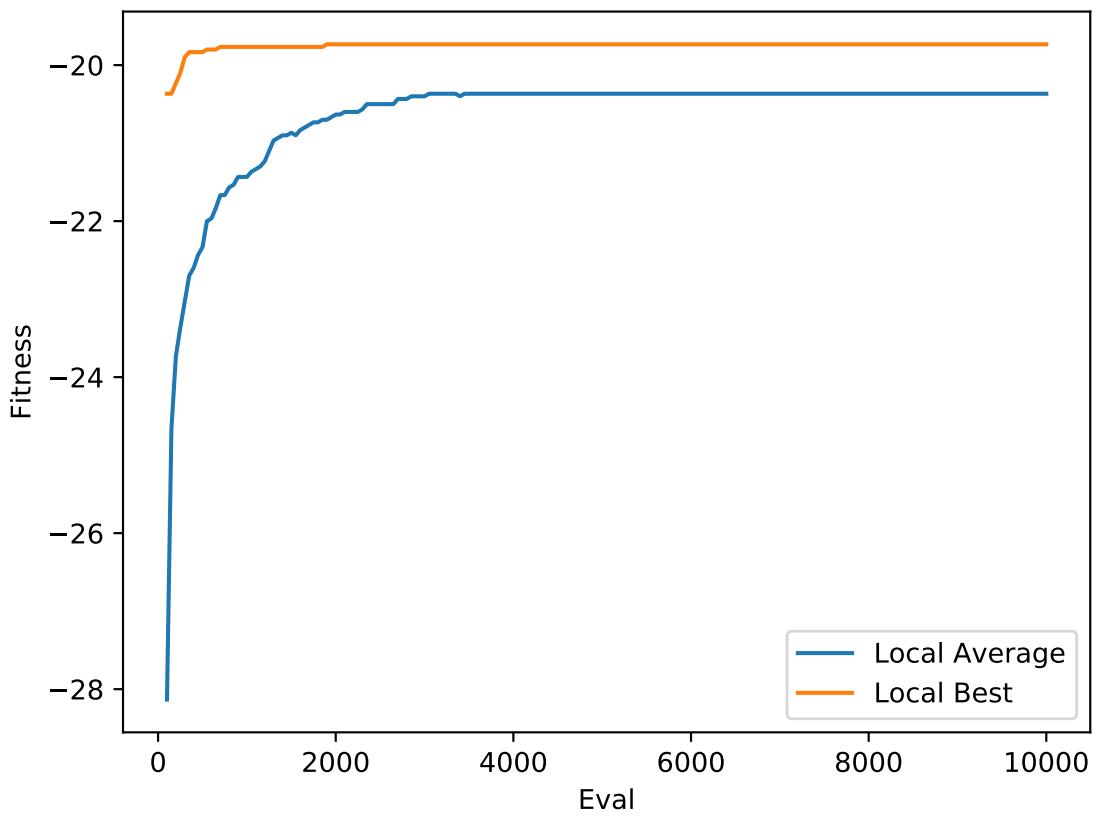


Figure 80: Input 1

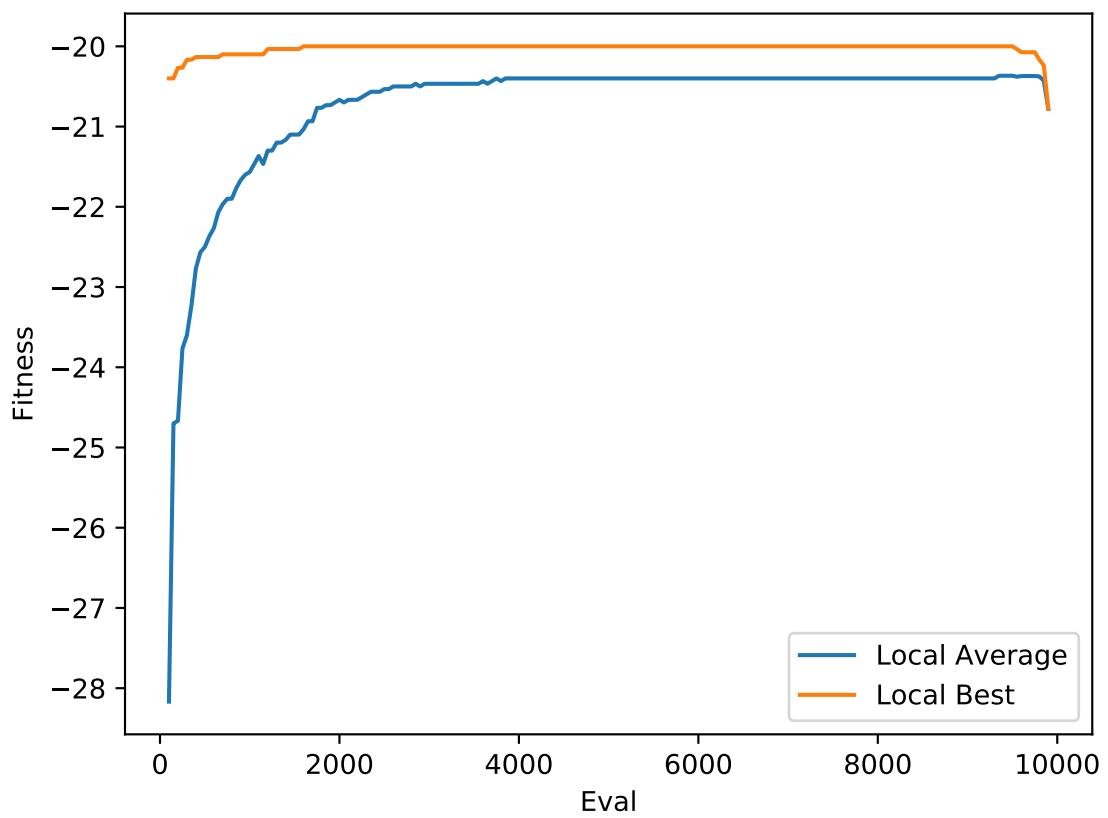


Table 41: Figure 81 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1041
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 42: Figure 82 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1042
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 81: Input 1

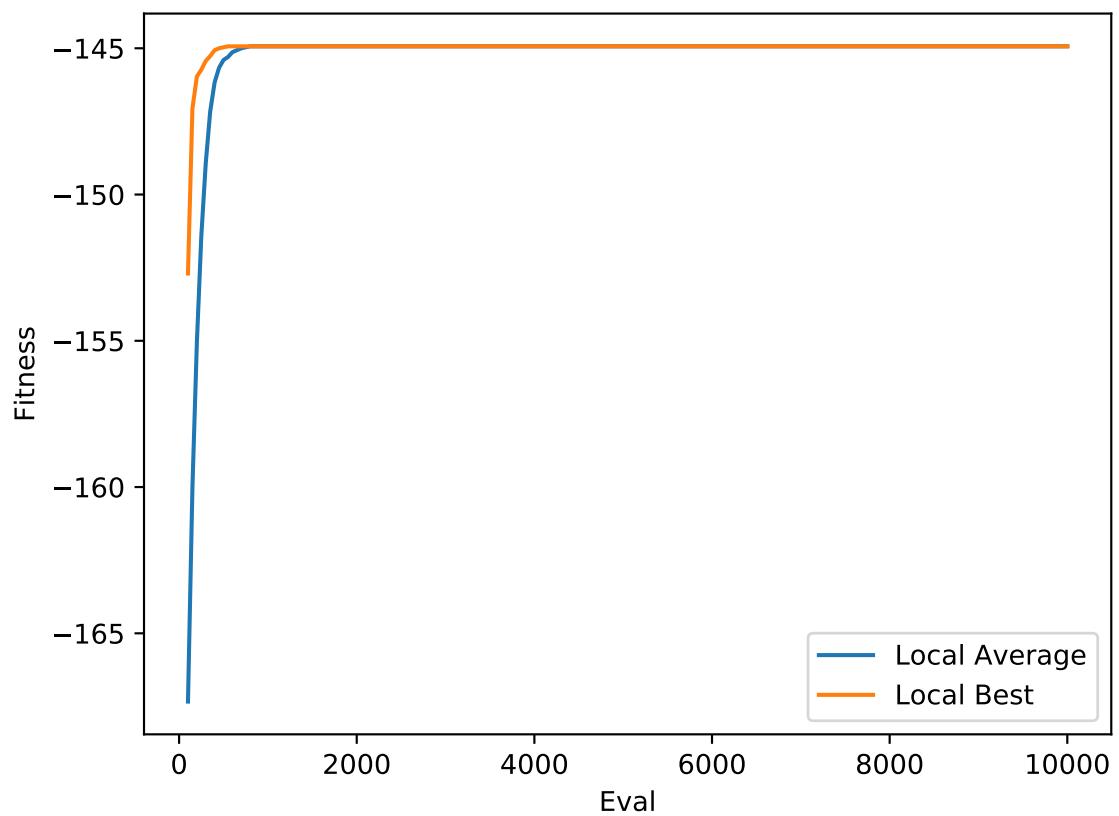


Figure 82: Input 1

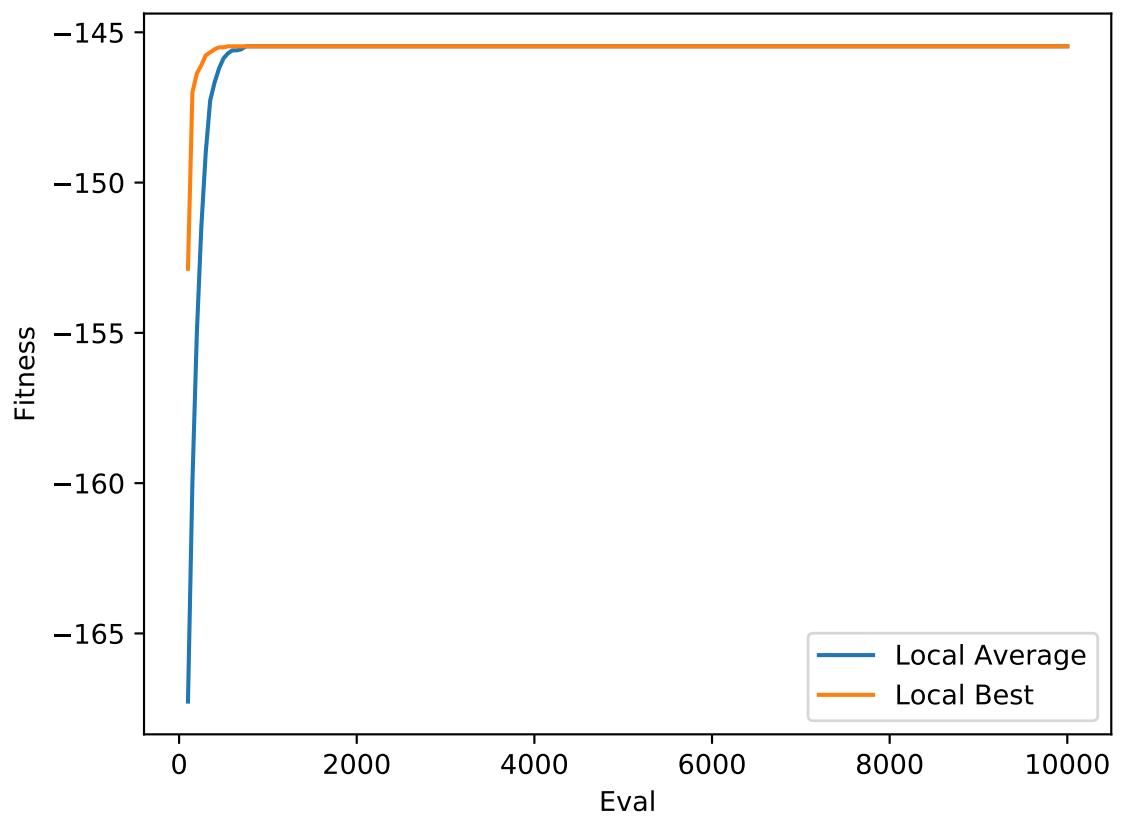


Table 43: Figure 83 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1043
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 44: Figure 84 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1044
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 83: Input 1

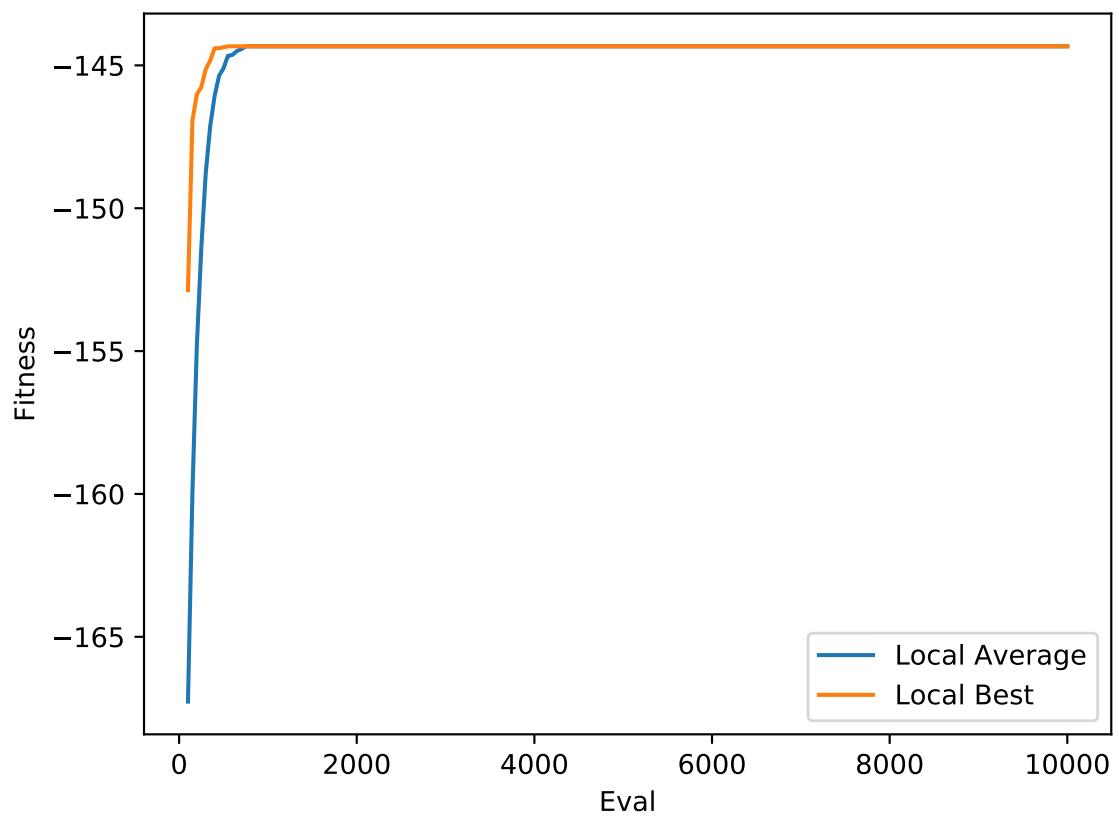


Figure 84: Input 1

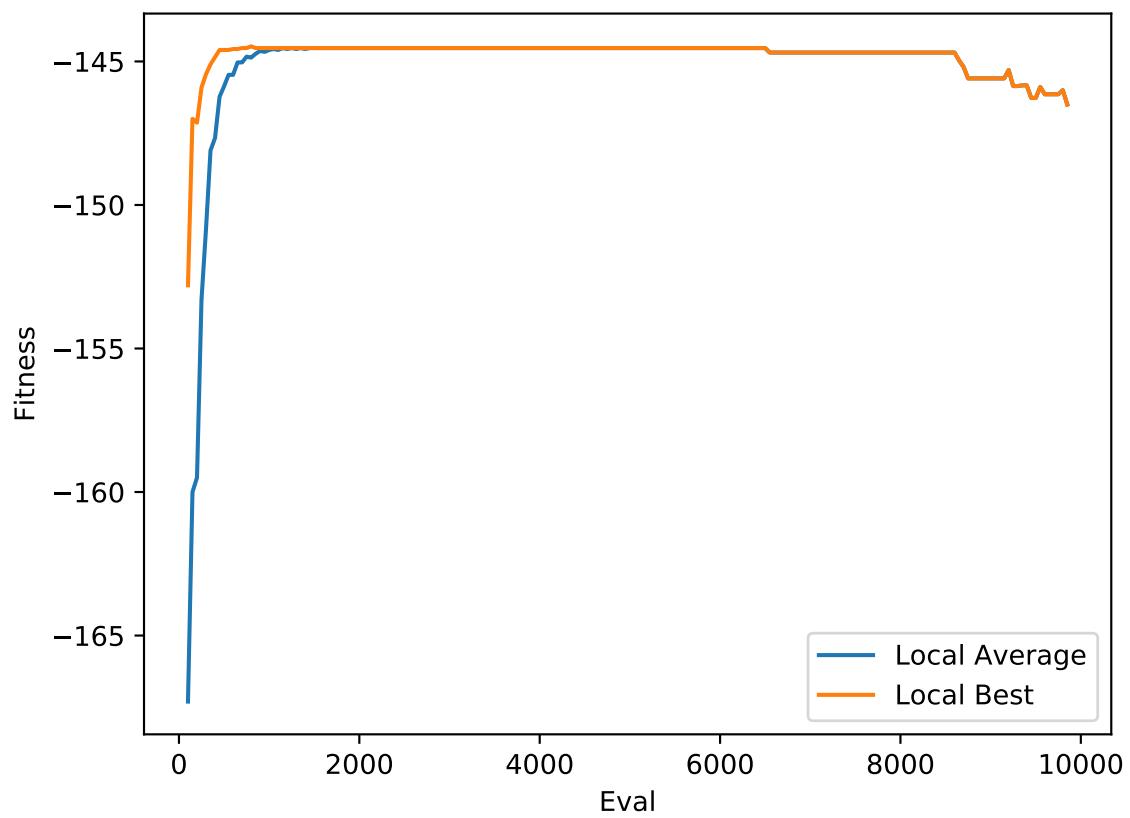


Table 45: Figure 85 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1045
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 46: Figure 86 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1046
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 85: Input 1

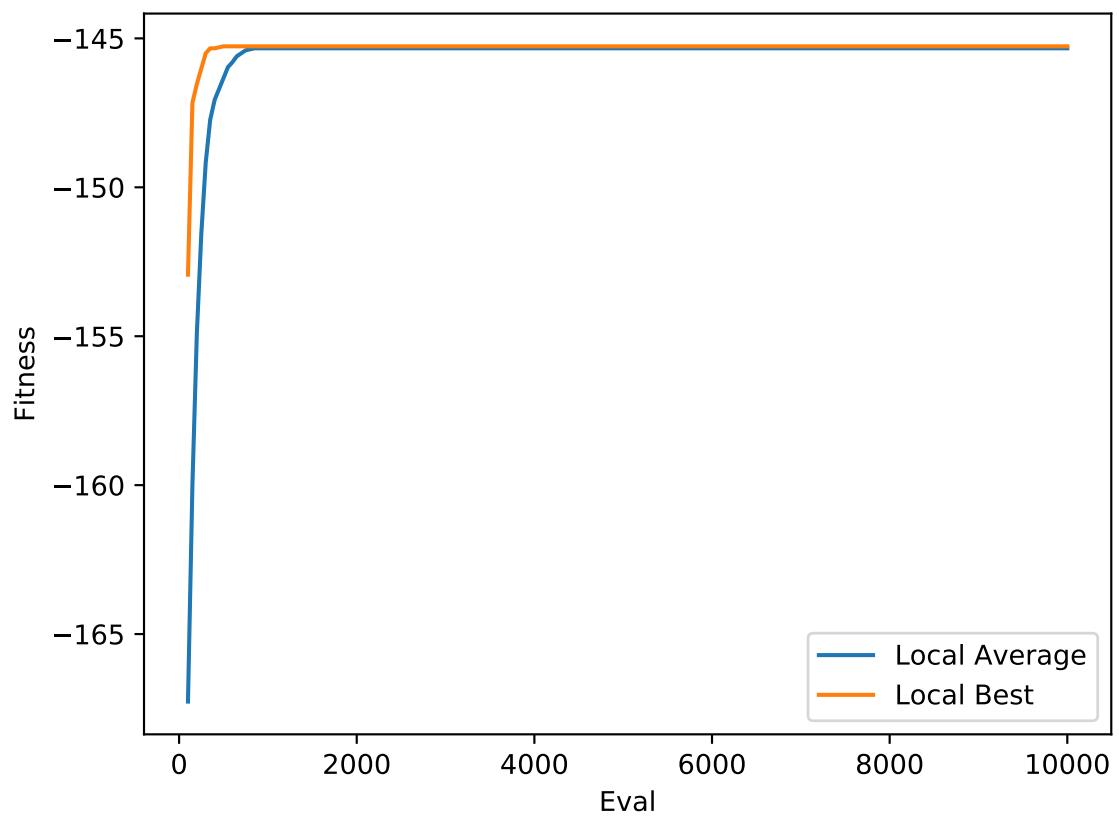


Figure 86: Input 1

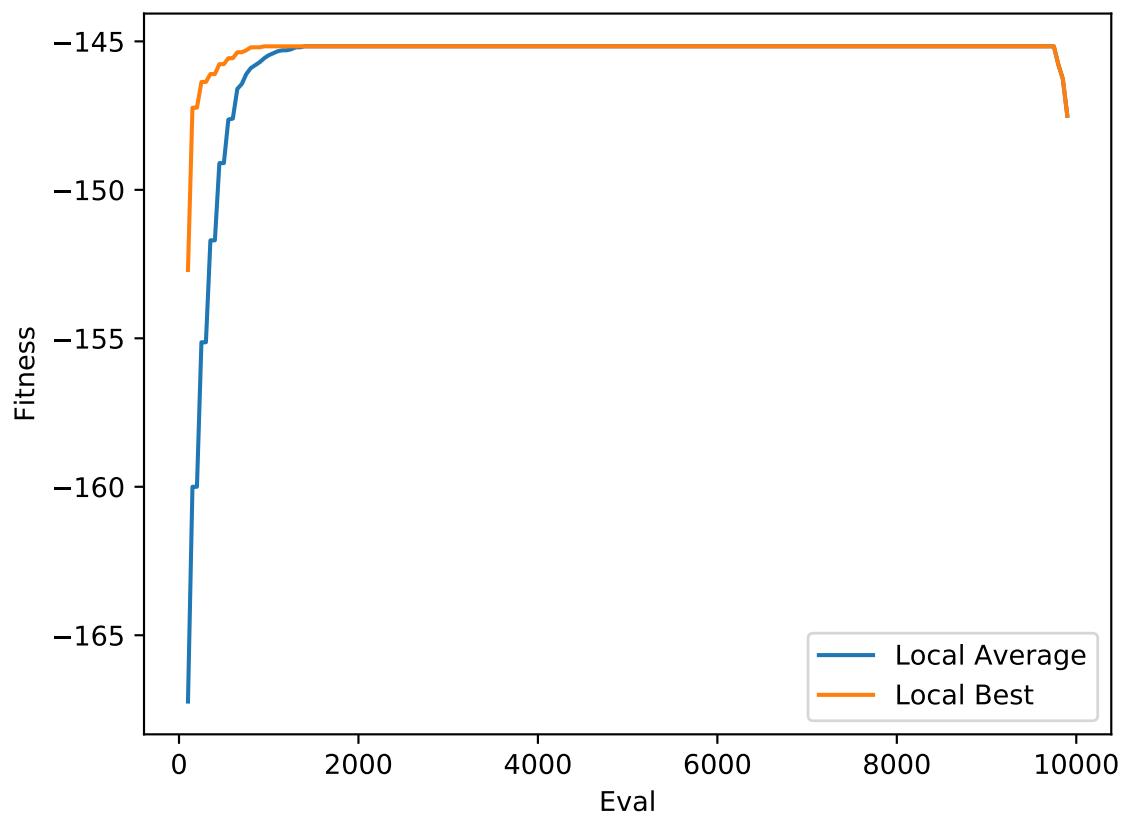


Table 47: Figure 87 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1047
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 48: Figure 88 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1048
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 87: Input 1

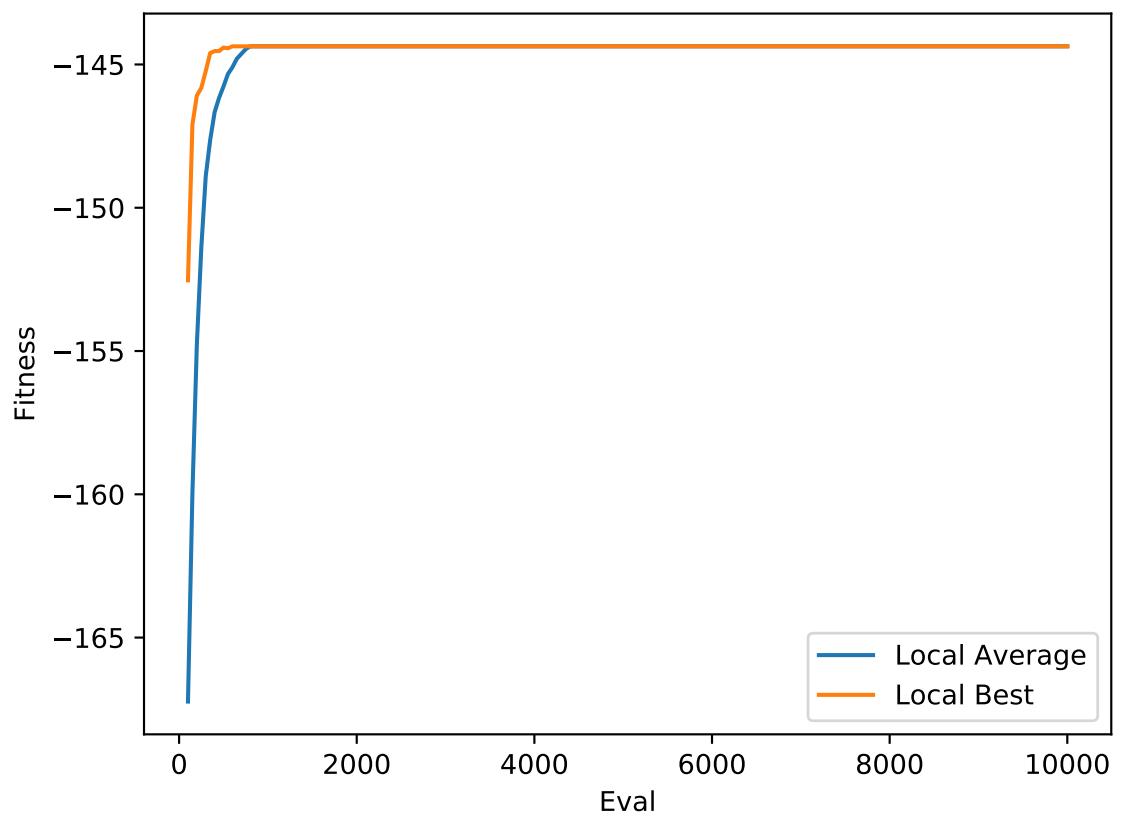


Figure 88: Input 1

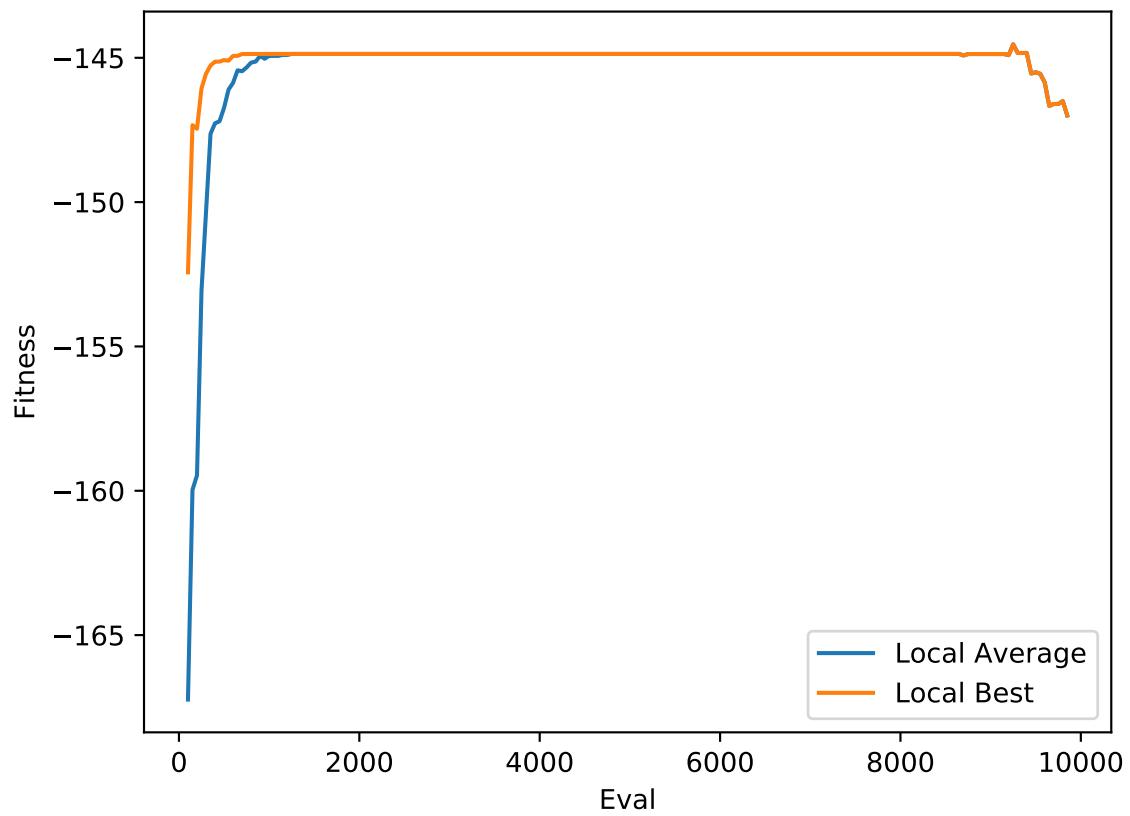


Table 49: Figure 89 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1049
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 50: Figure 90 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1050
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 89: Input 1

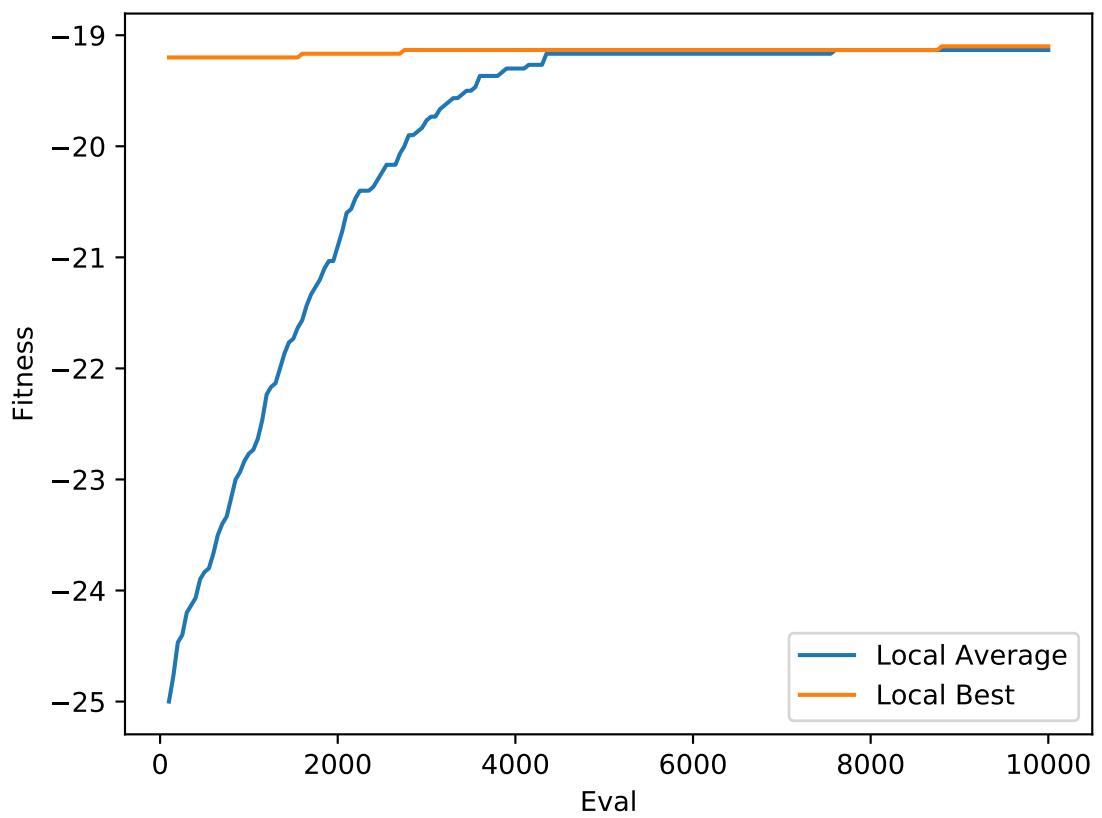


Figure 90: Input 1

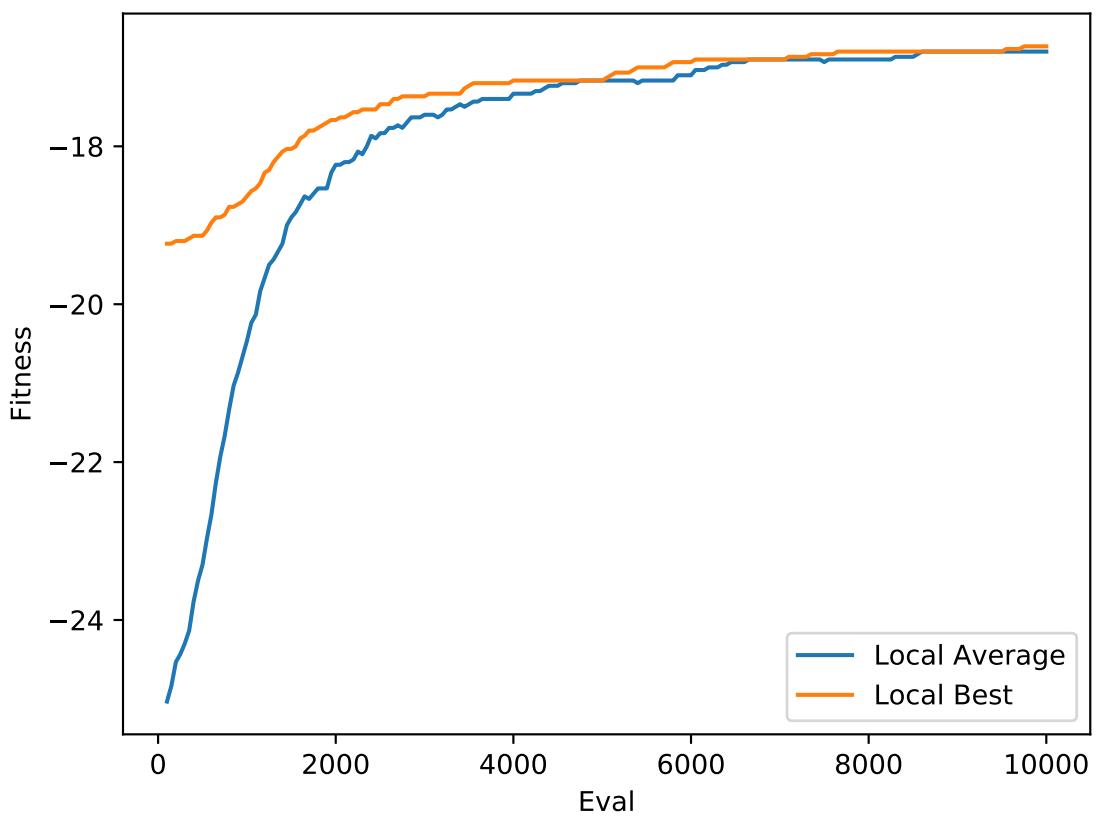


Table 51: Figure 91 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1051
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 52: Figure 92 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1052
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 91: Input 1

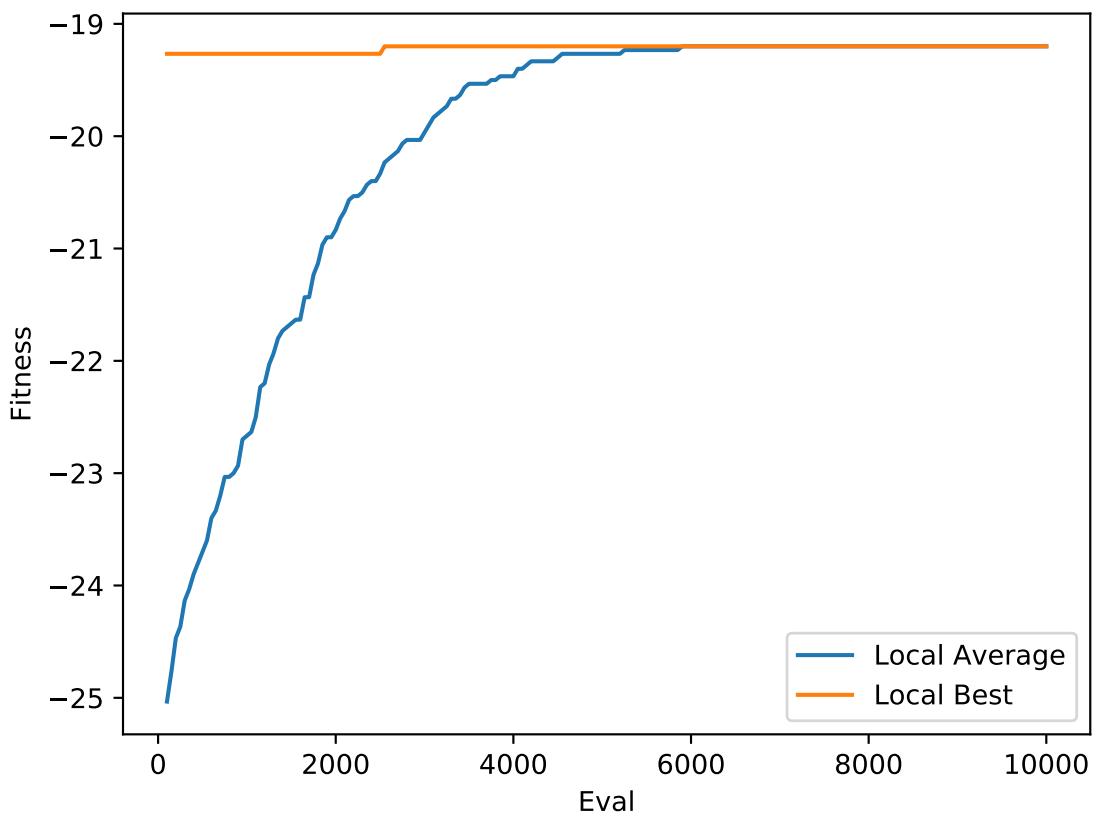


Figure 92: Input 1

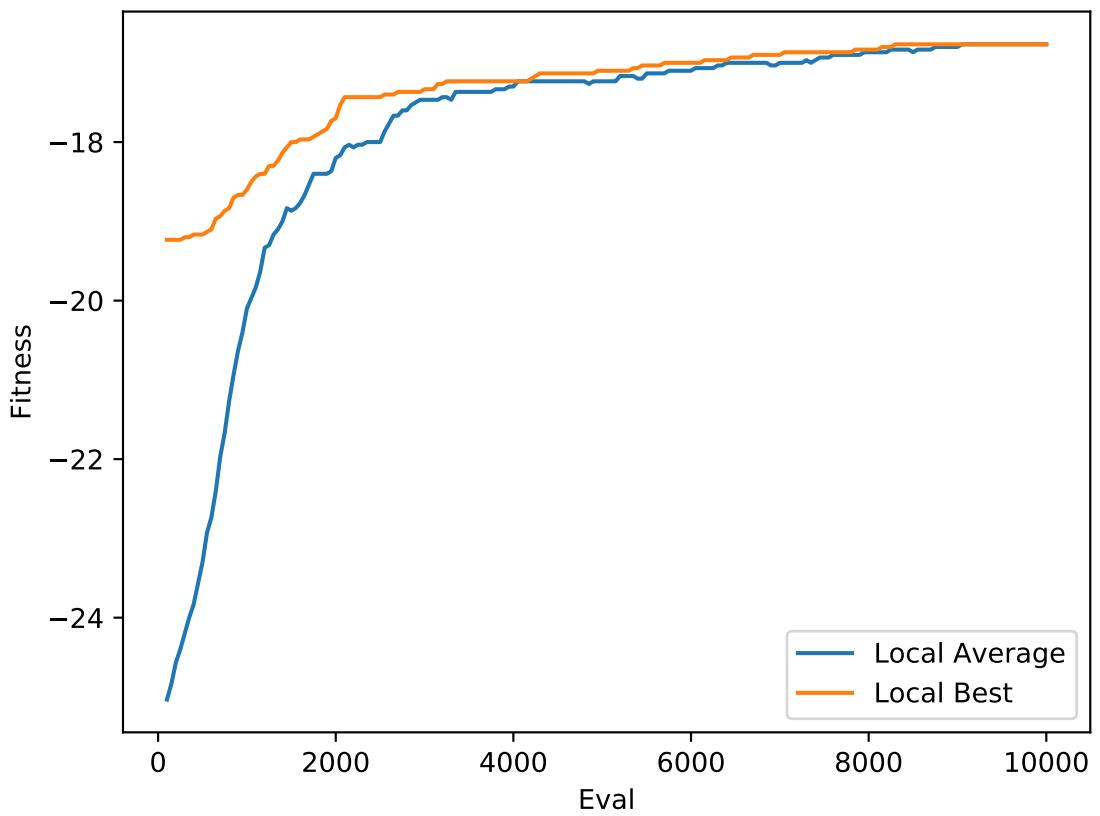


Table 53: Figure 93 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1053
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 54: Figure 94 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1054
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 93: Input 1

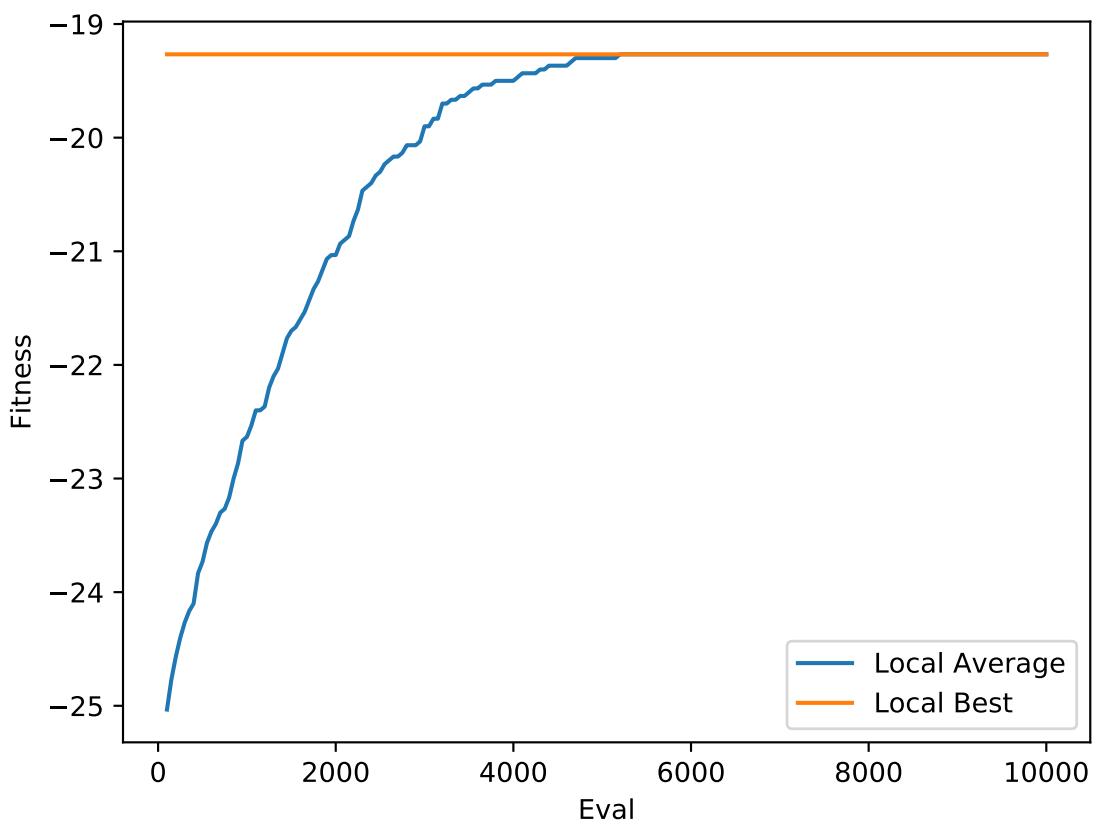


Figure 94: Input 1

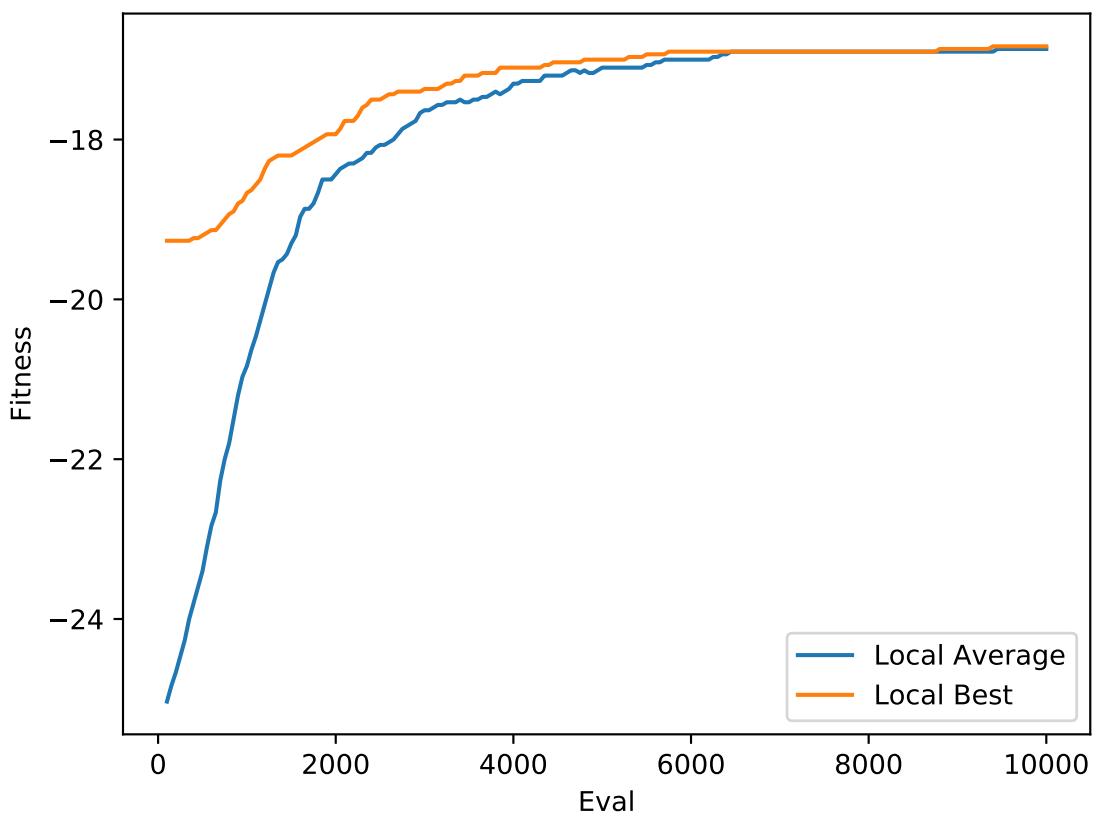


Table 55: Figure 95 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1055
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 56: Figure 96 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	1056
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 95: Input 1

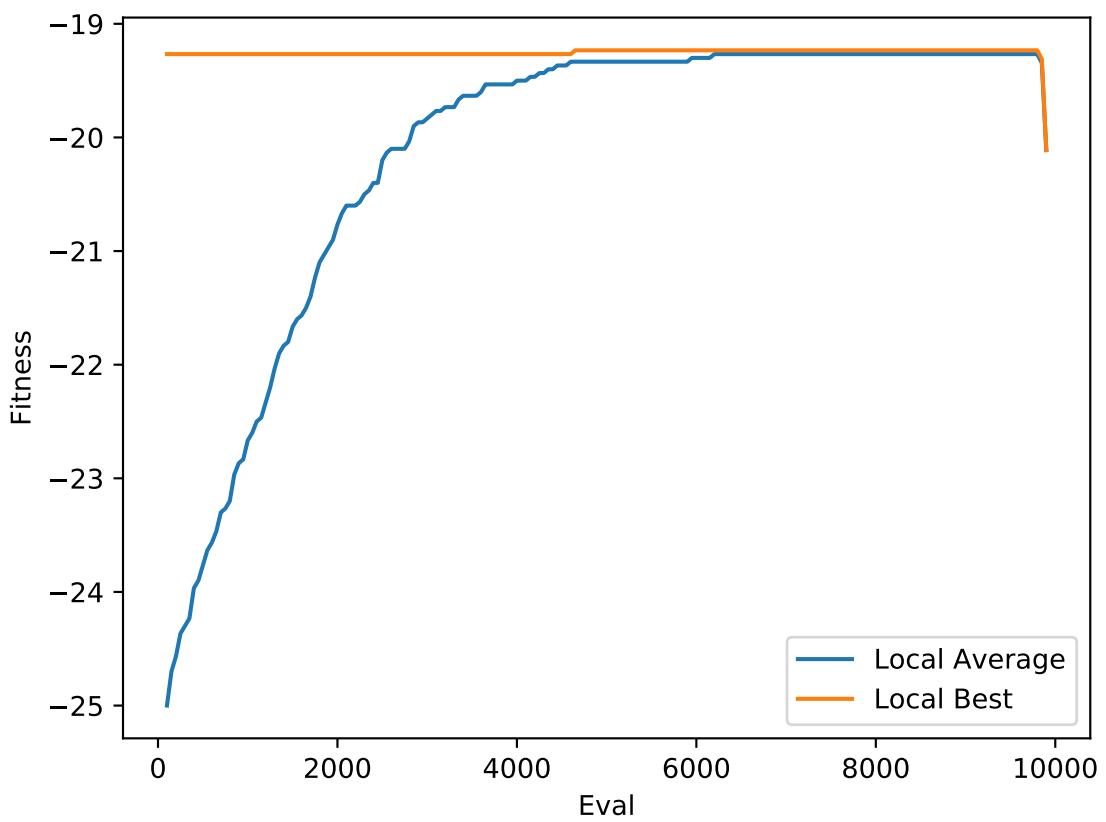


Figure 96: Input 1

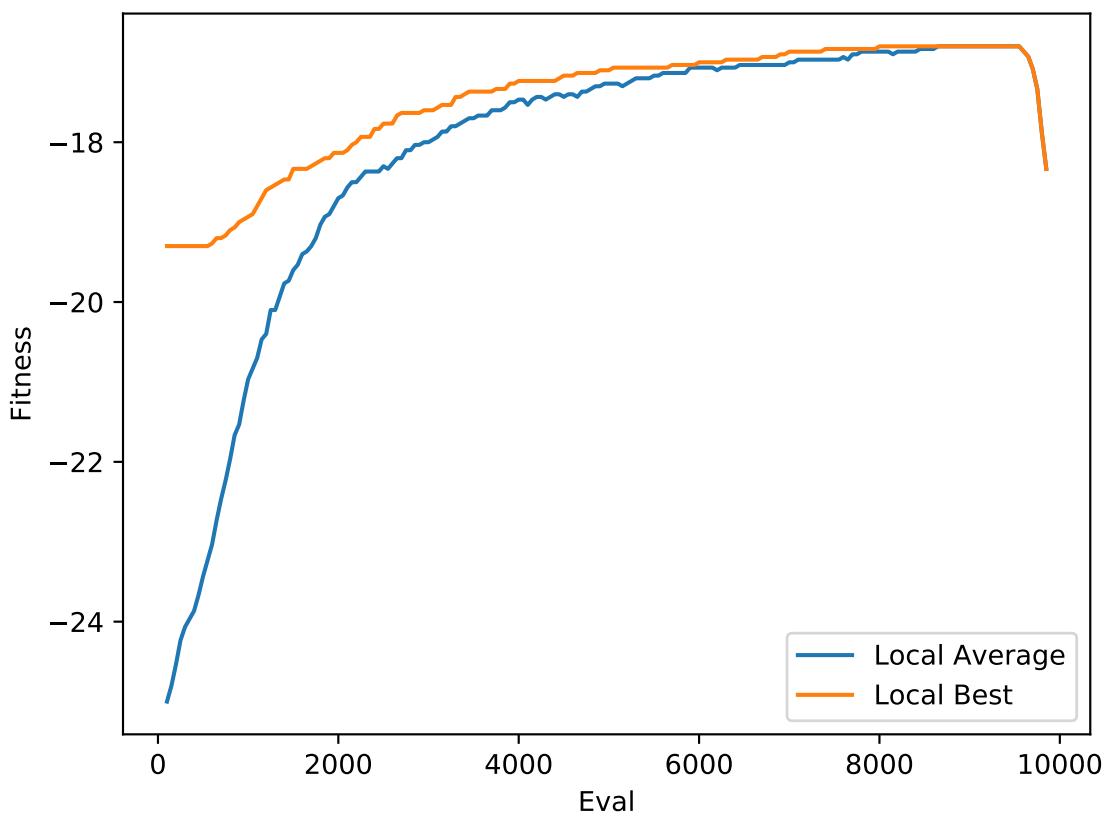


Table 57: Figure 97 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1057
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 58: Figure 98 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1058
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 97: Input 1

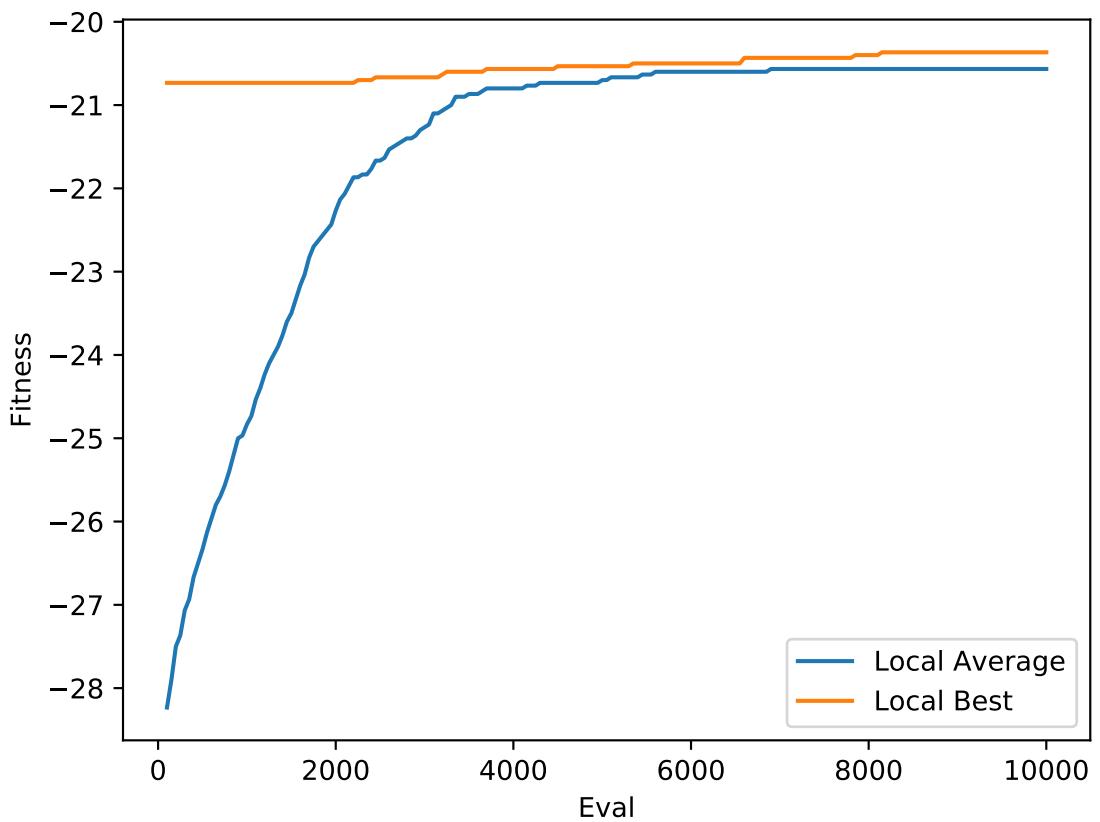


Figure 98: Input 1

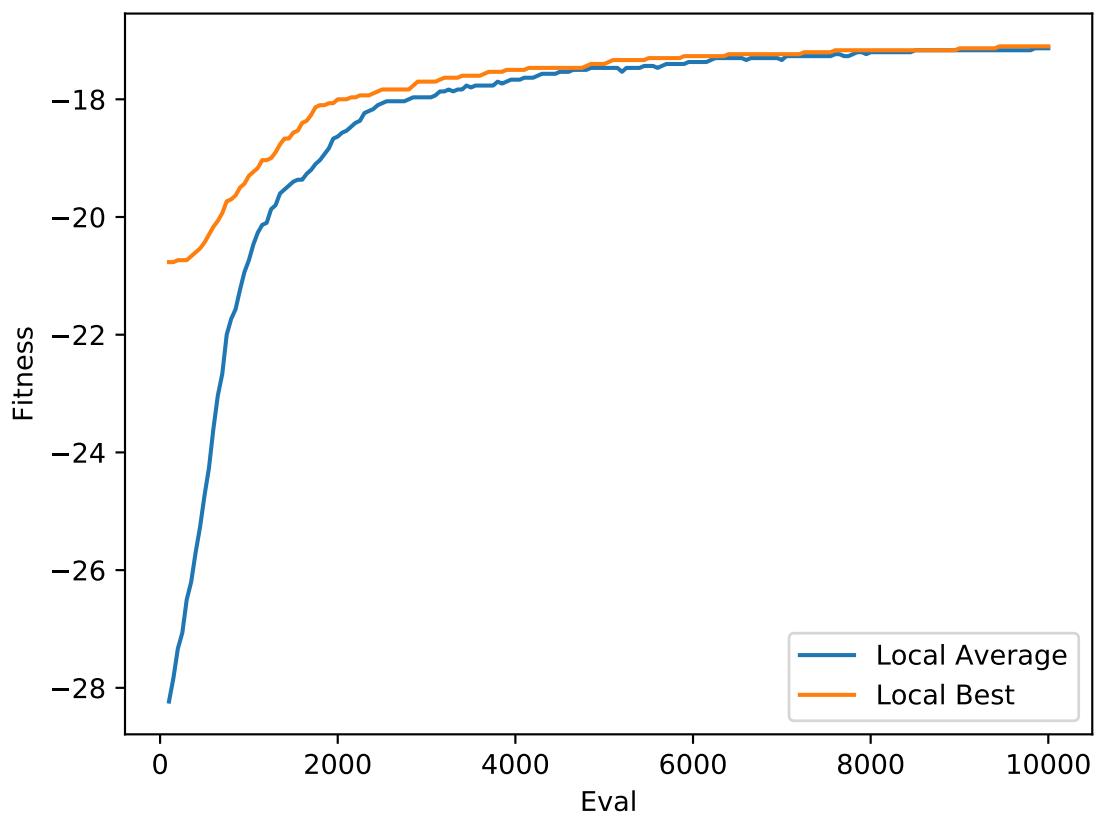


Table 59: Figure 99 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1059
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 60: Figure 100 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1060
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 99: Input 1

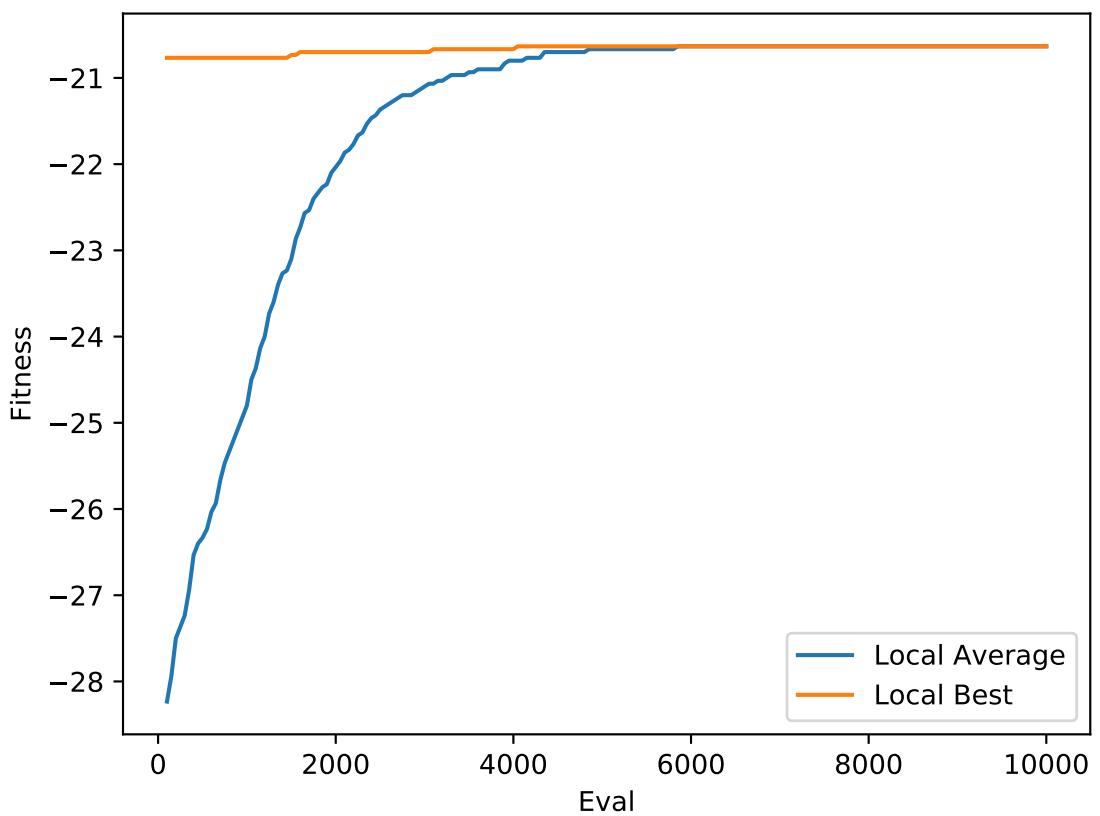


Figure 100: Input 1

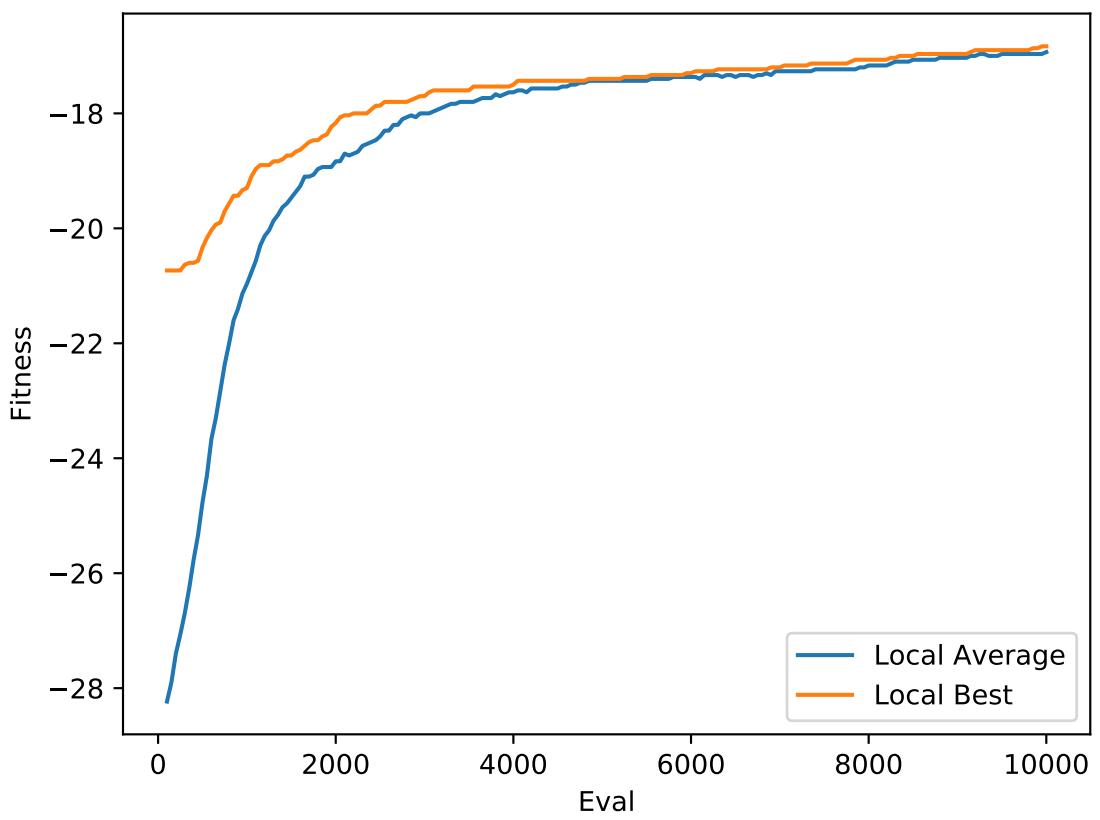


Table 61: Figure 101 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1061
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 62: Figure 102 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1062
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 101: Input 1

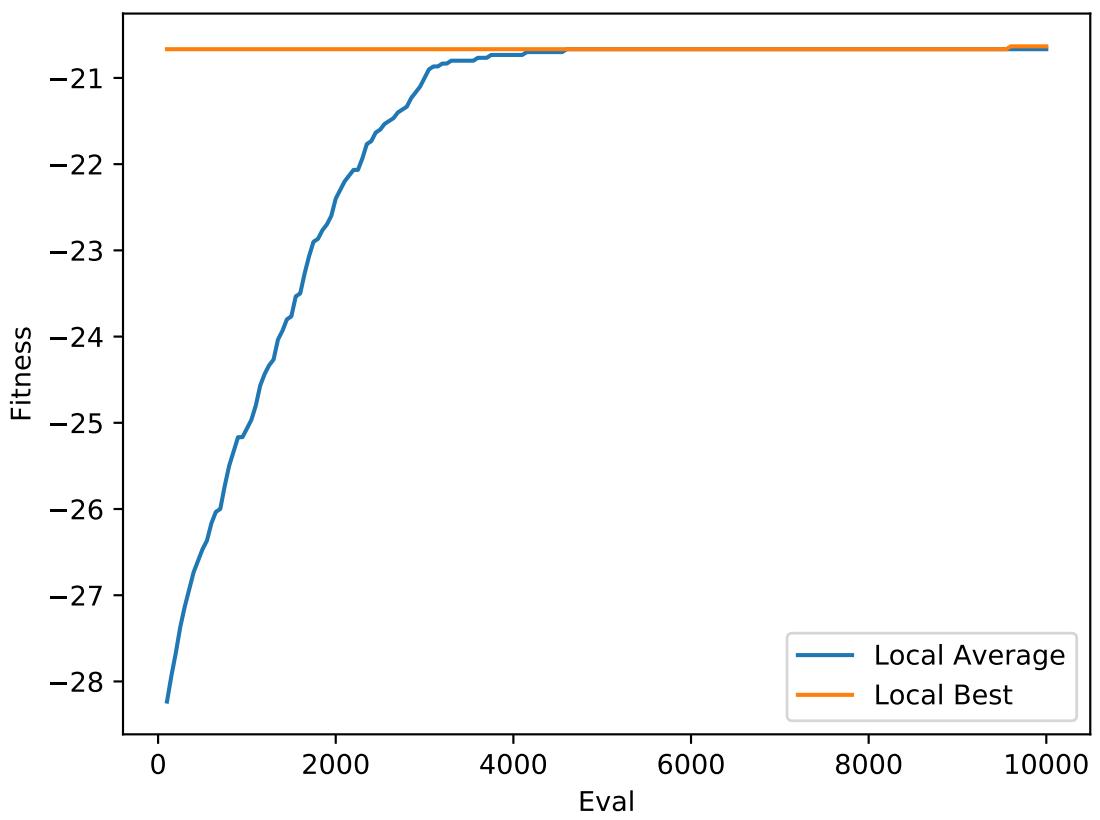


Figure 102: Input 1

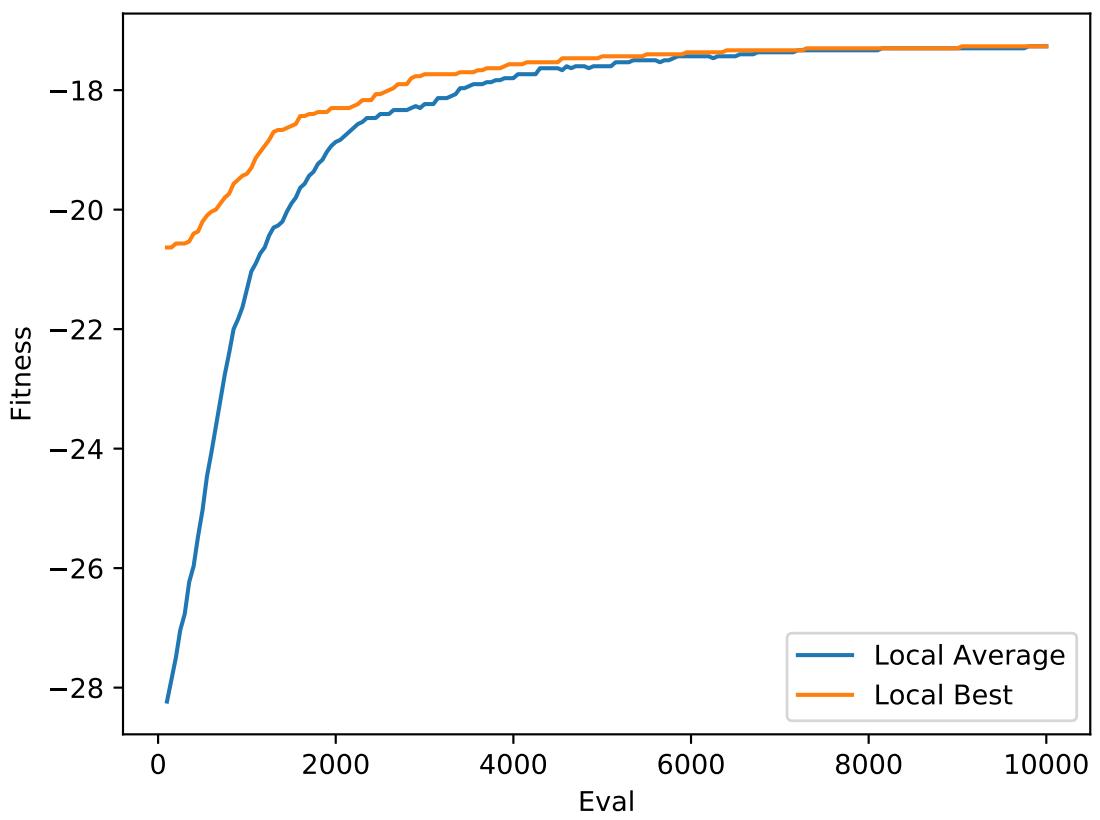


Table 63: Figure 103 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1063
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 64: Figure 104 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	1064
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 103: Input 1

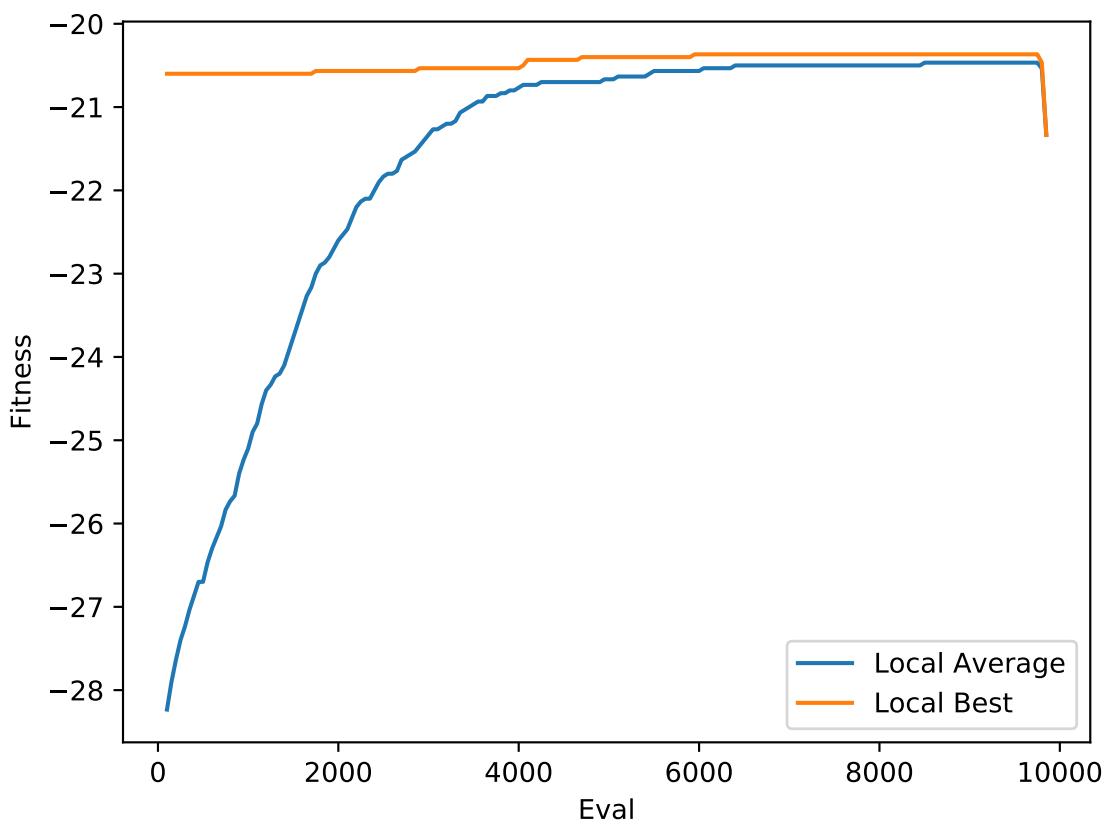


Figure 104: Input 1

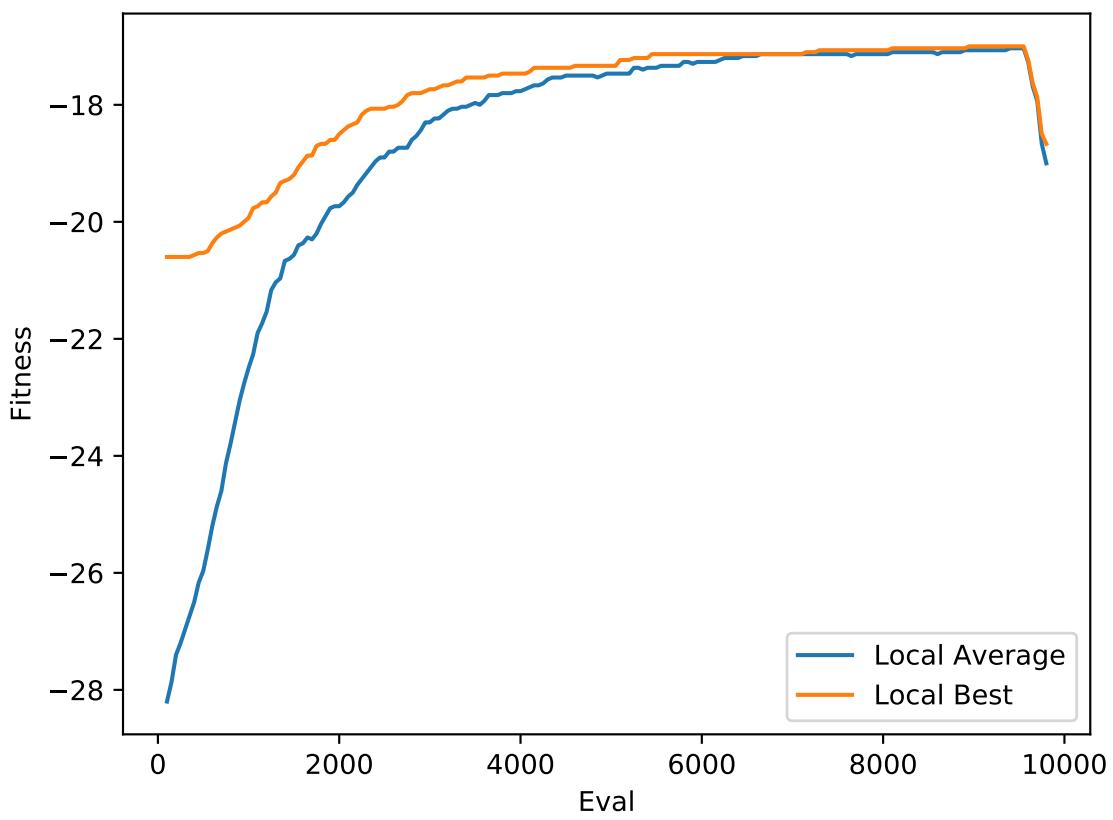


Table 65: Figure 105 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1065
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 66: Figure 106 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1066
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 105: Input 1

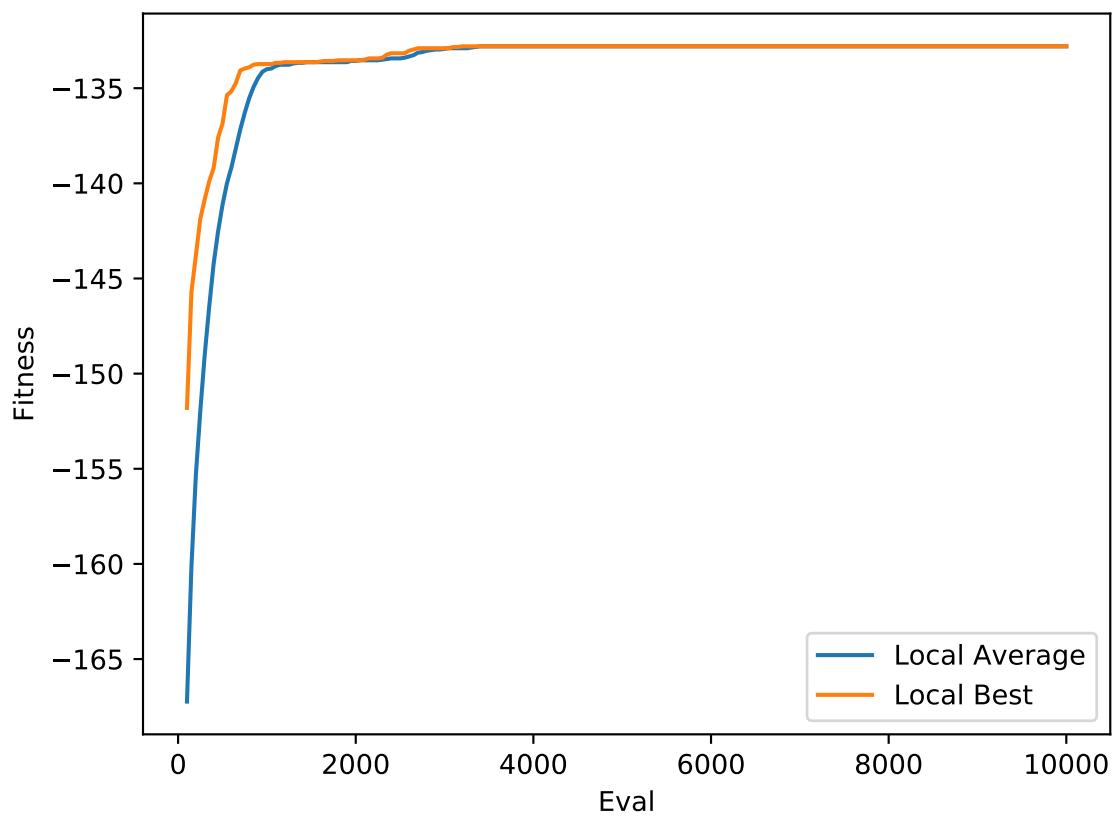


Figure 106: Input 1

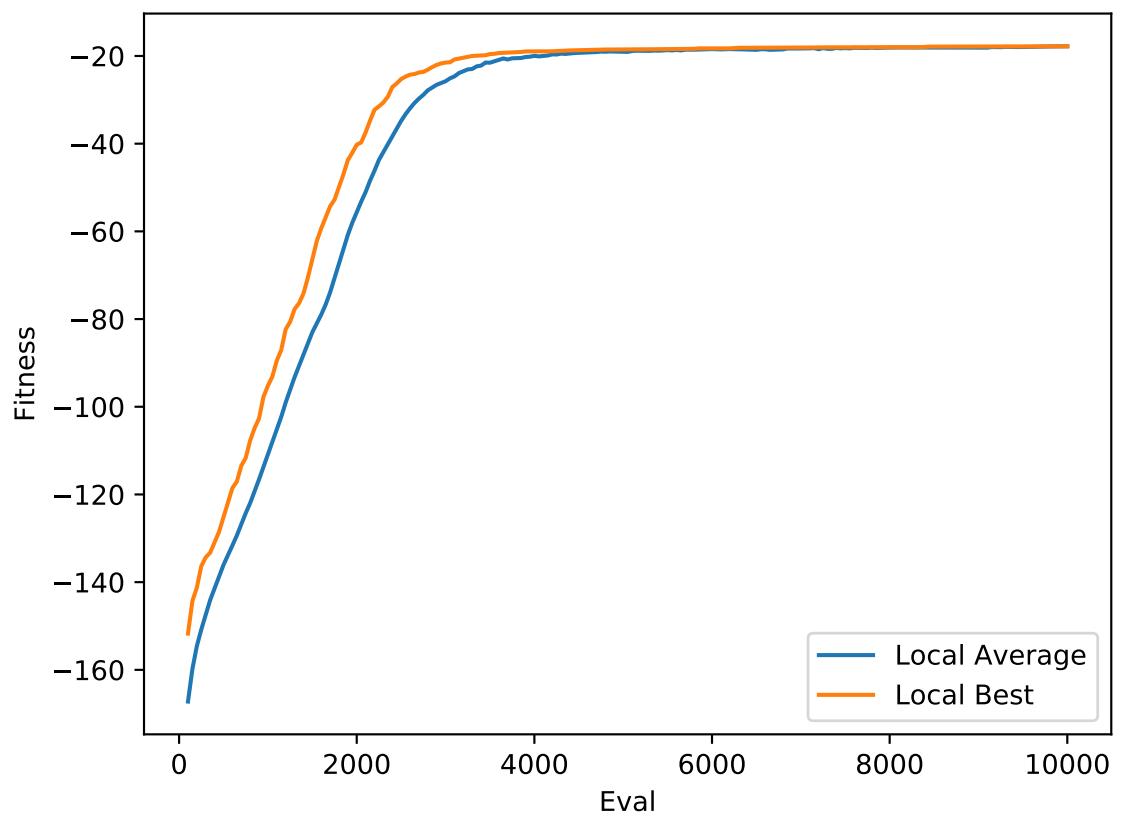


Table 67: Figure 107 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1067
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 68: Figure 108 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1068
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 107: Input 1

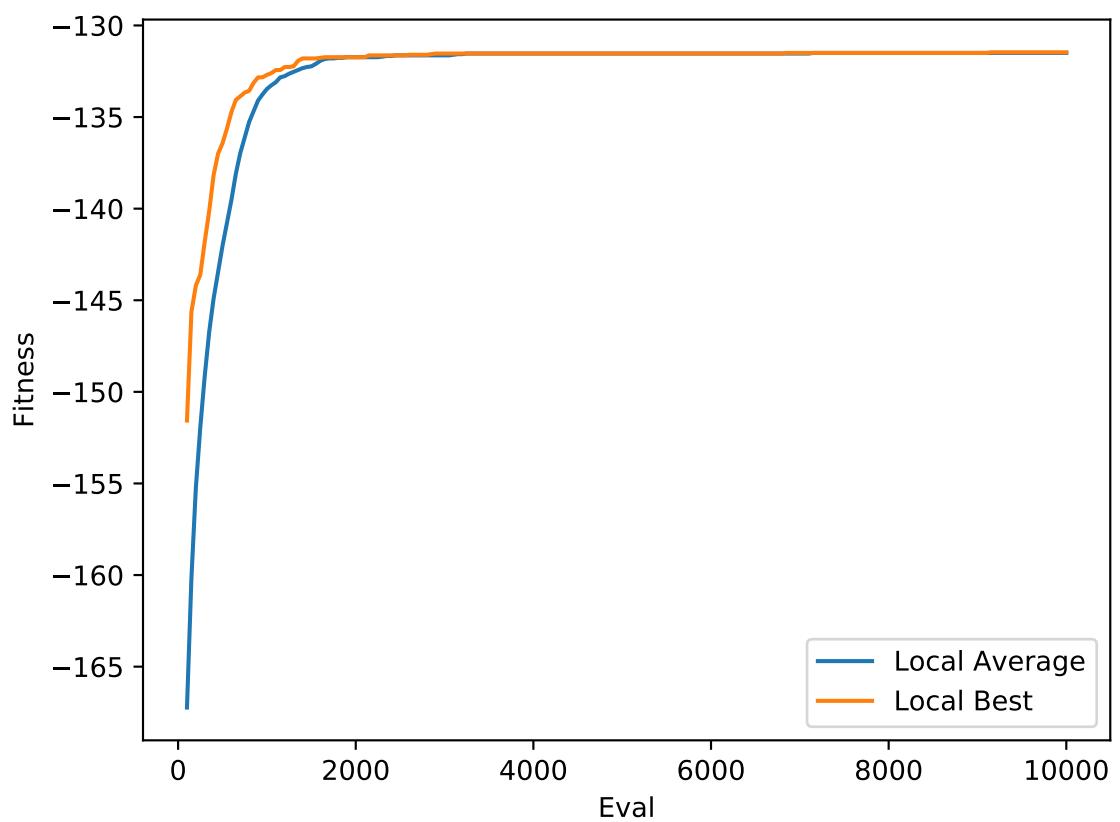


Figure 108: Input 1

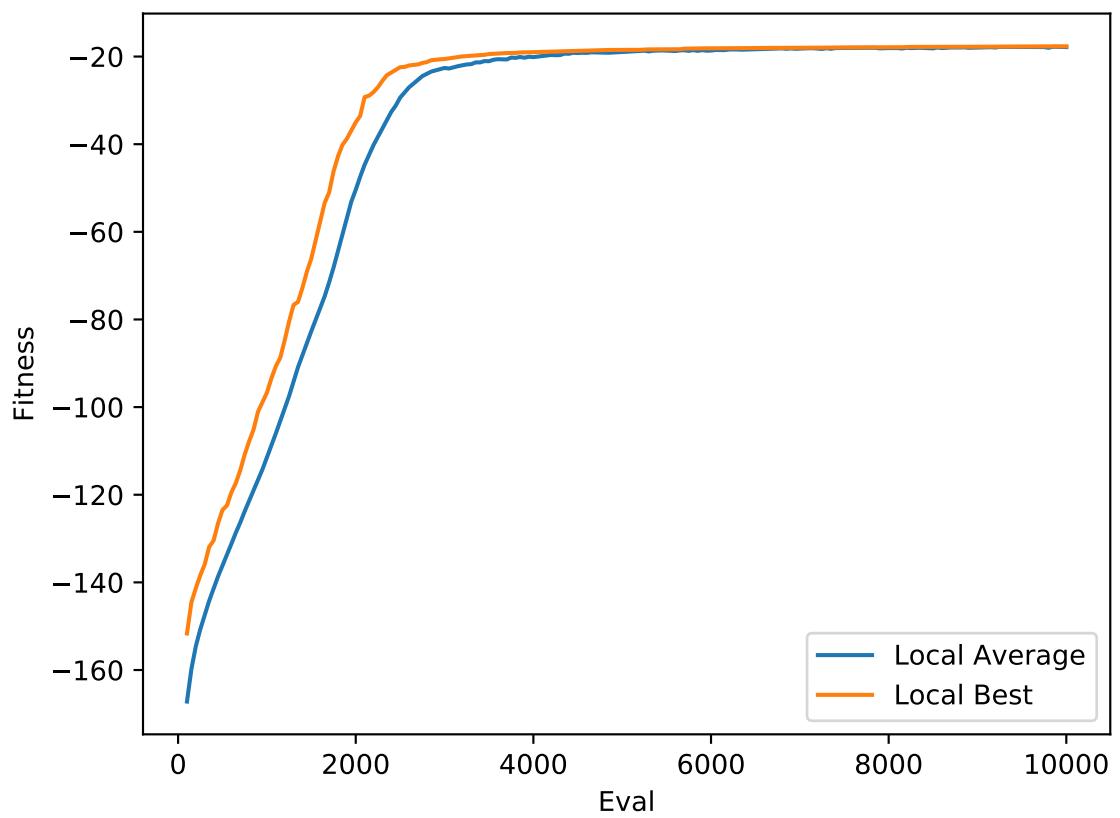


Table 69: Figure 109 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1069
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 70: Figure 110 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1070
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 109: Input 1

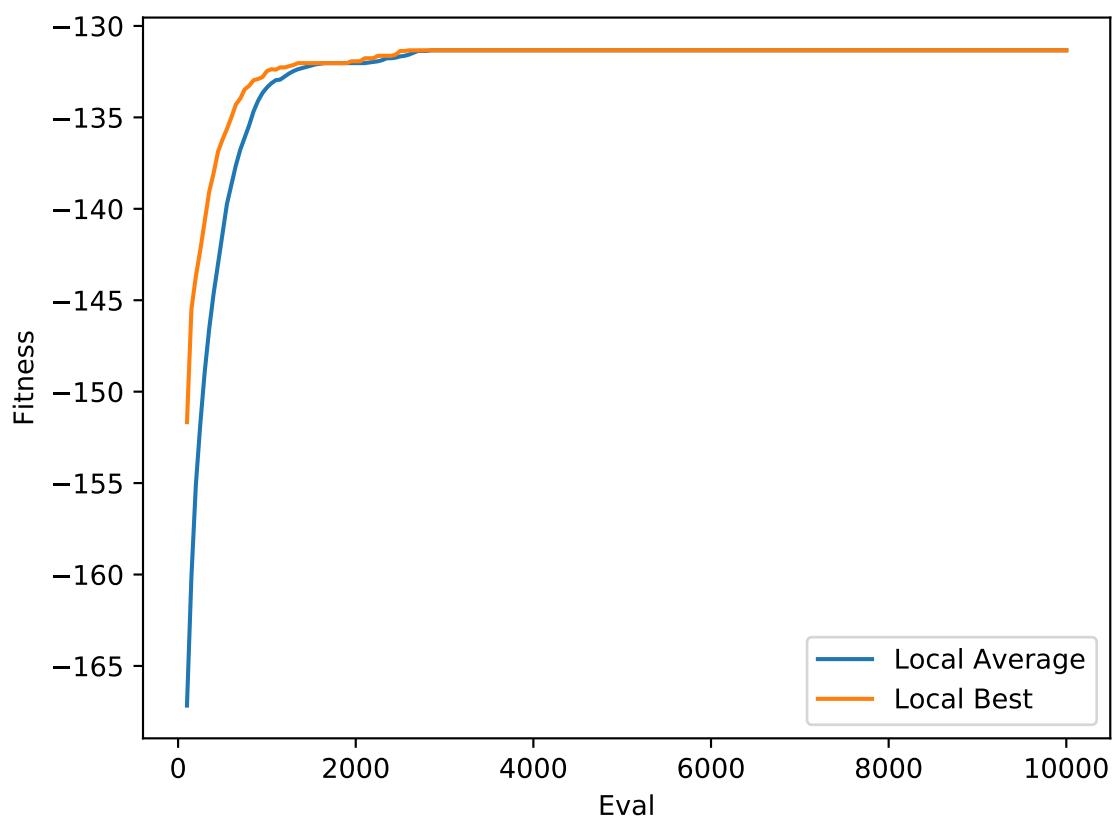


Figure 110: Input 1

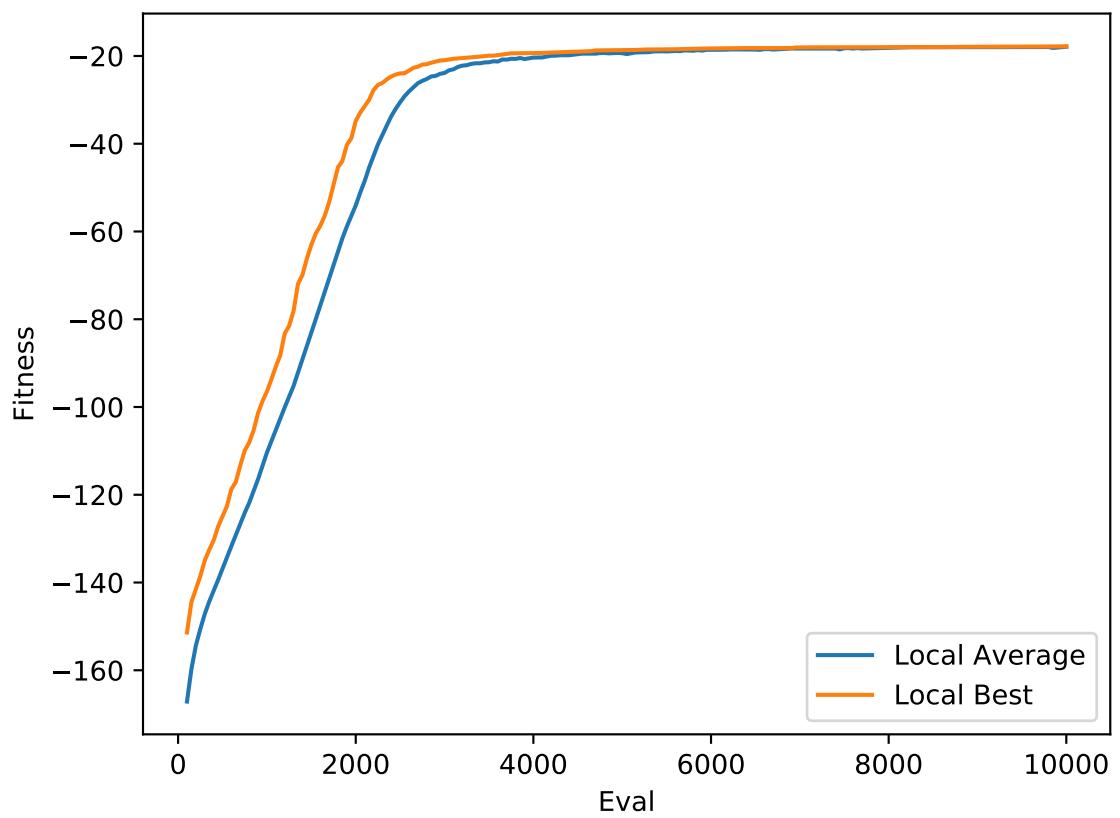


Table 71: Figure 111 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1071
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 72: Figure 112 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1072
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 111: Input 1

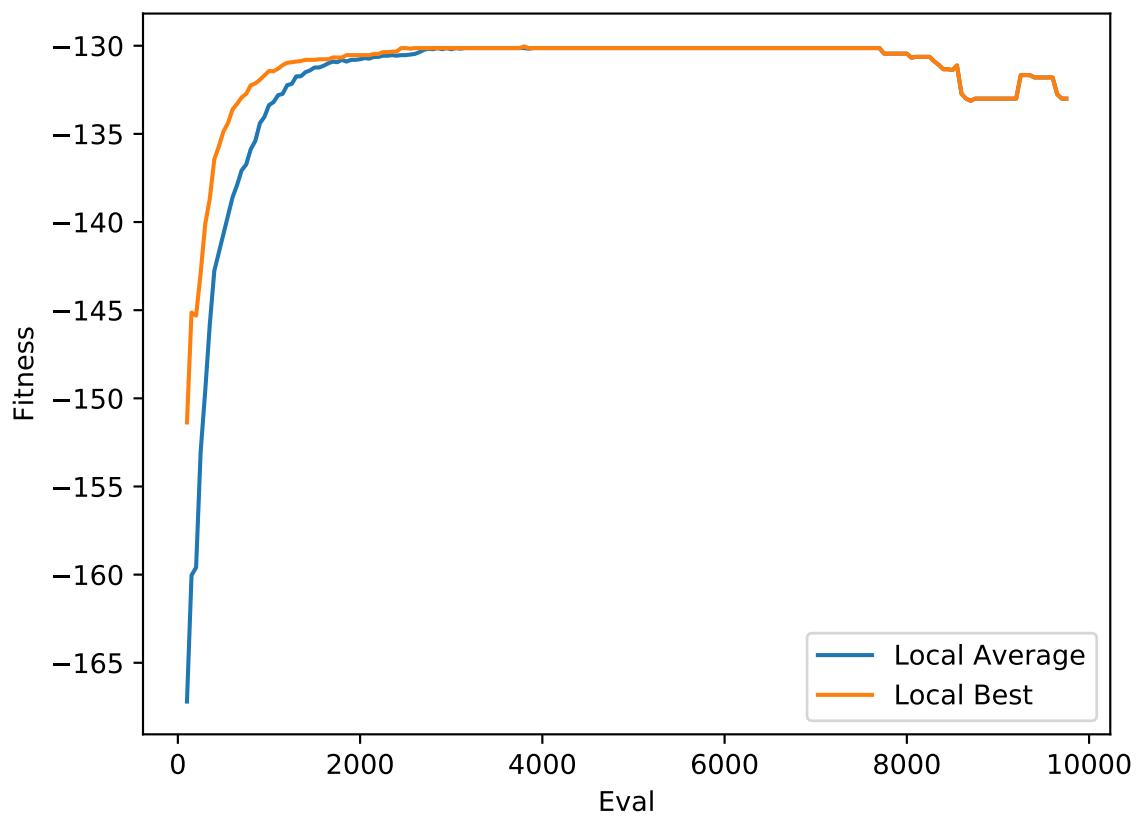


Figure 112: Input 1

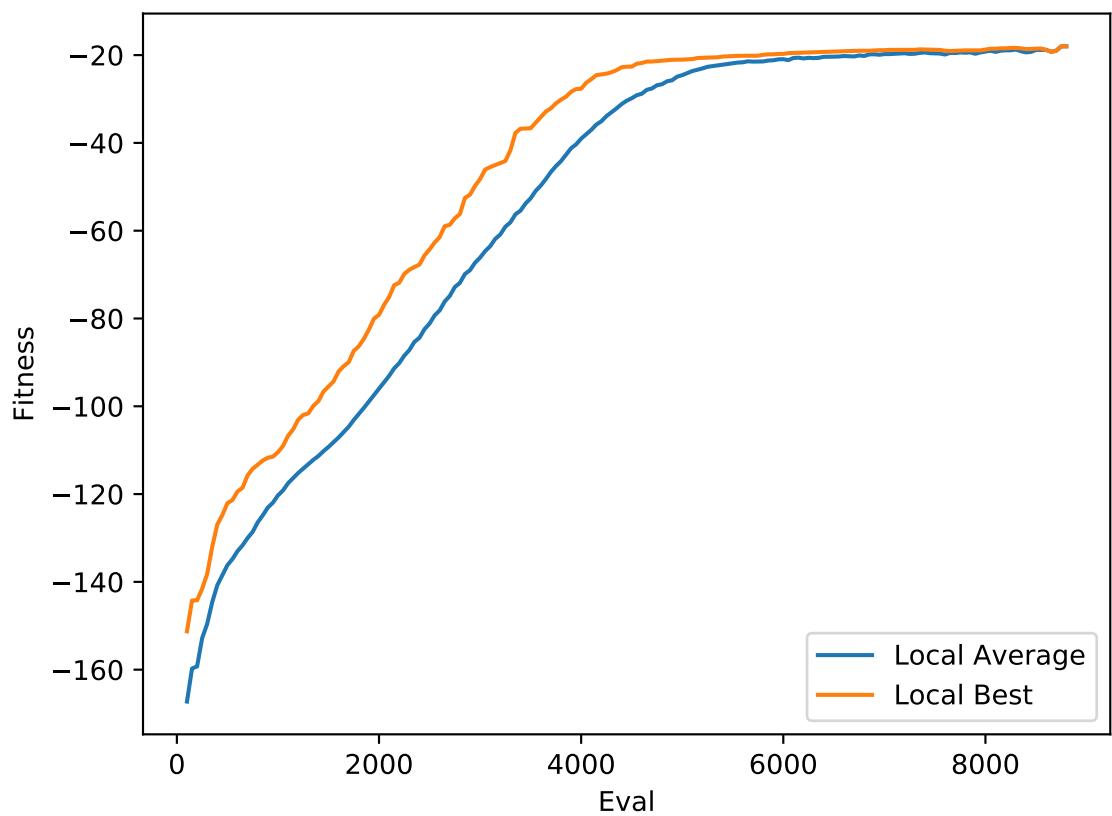


Table 73: Figure 113 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1073
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 74: Figure 114 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1074
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 113: Input 1

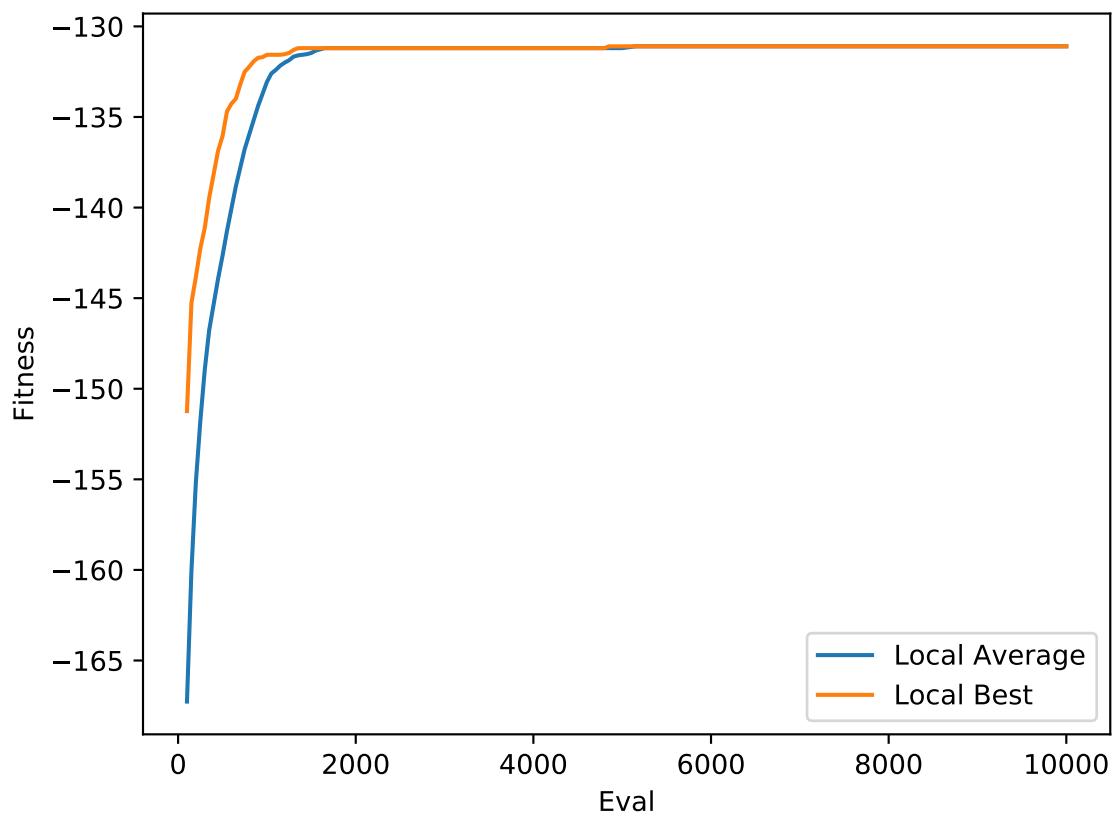


Figure 114: Input 1

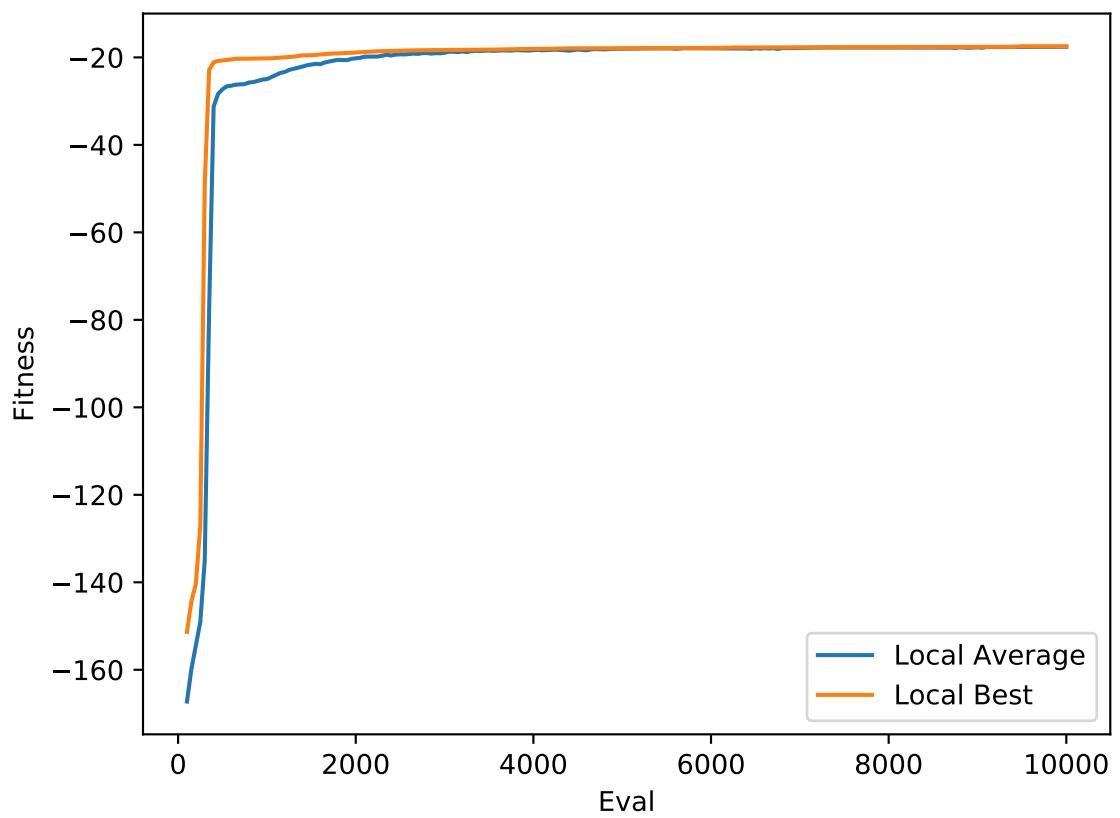


Table 75: Figure 115 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1075
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 76: Figure 116 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1076
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 115: Input 1

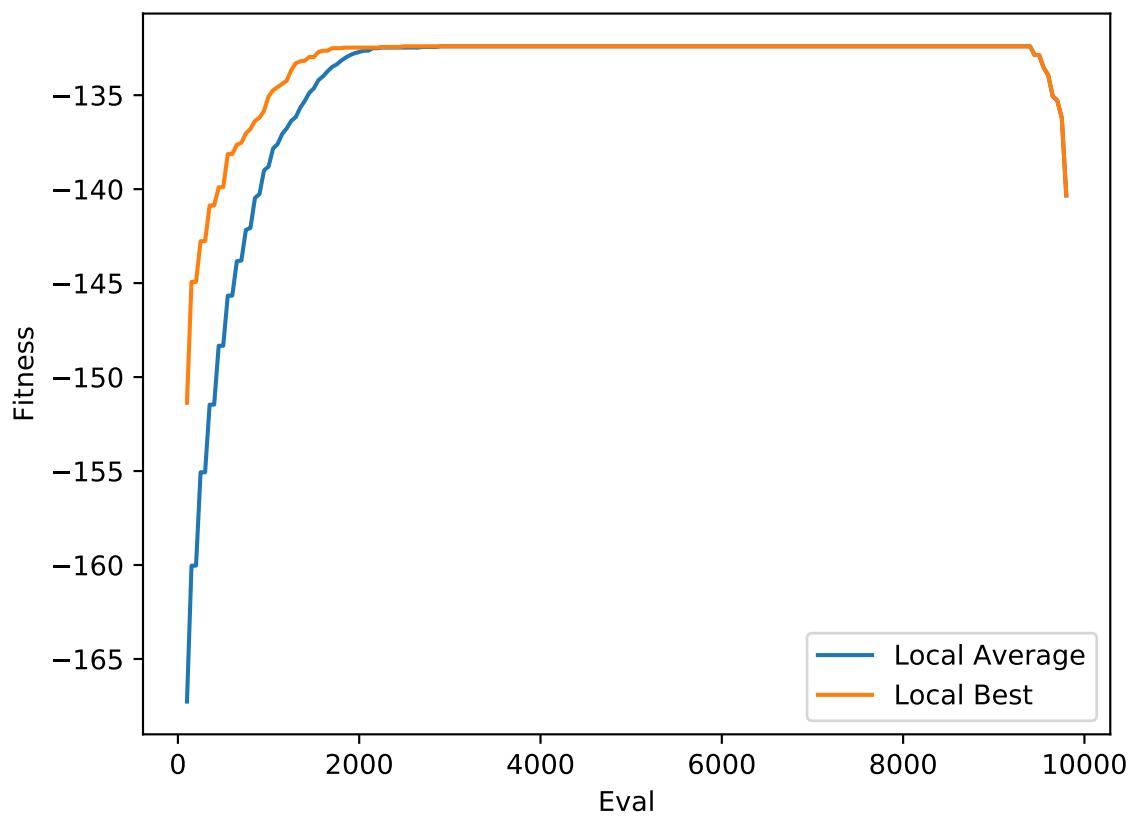


Figure 116: Input 1

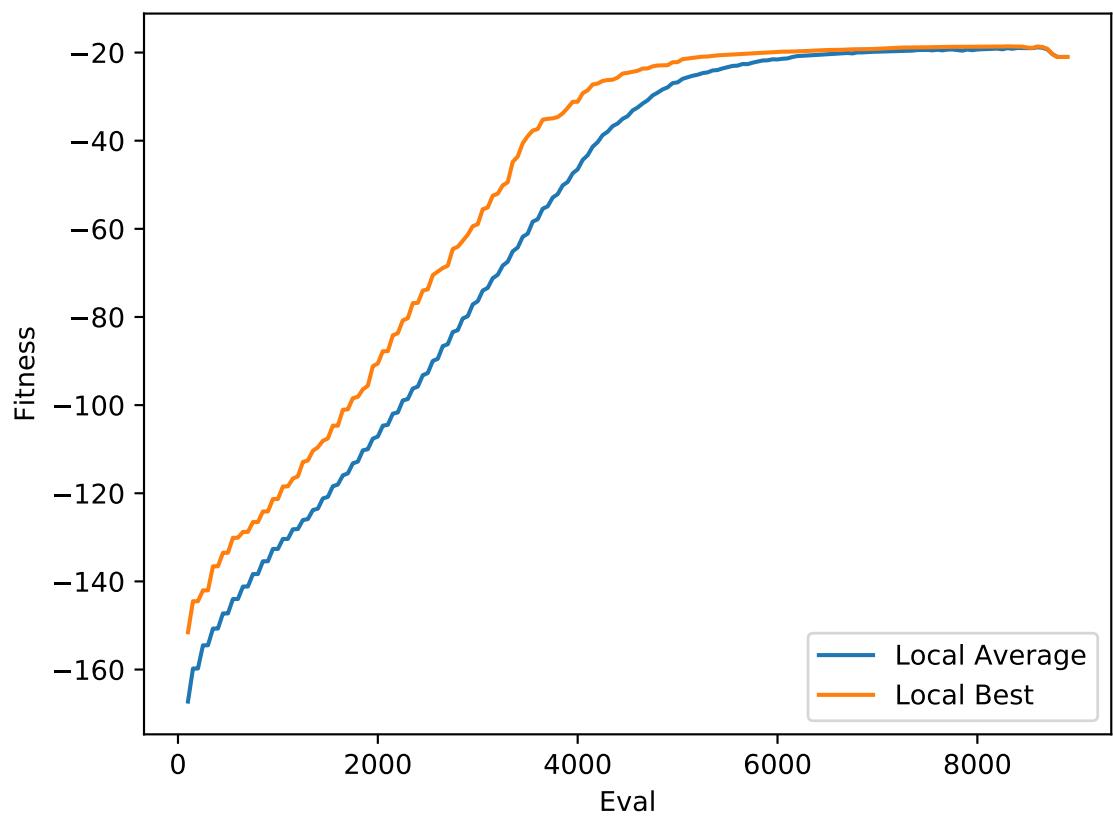


Table 77: Figure 117 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1077
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 78: Figure 118 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1078
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 117: Input 1

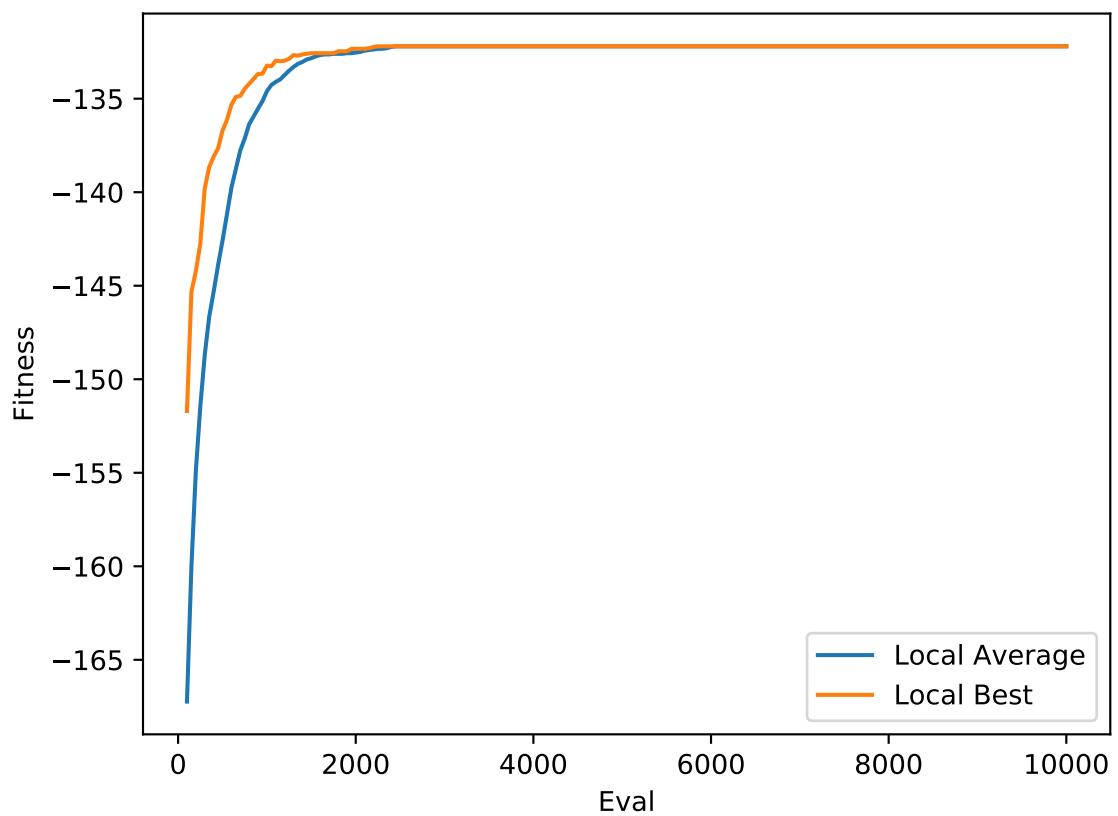


Figure 118: Input 1

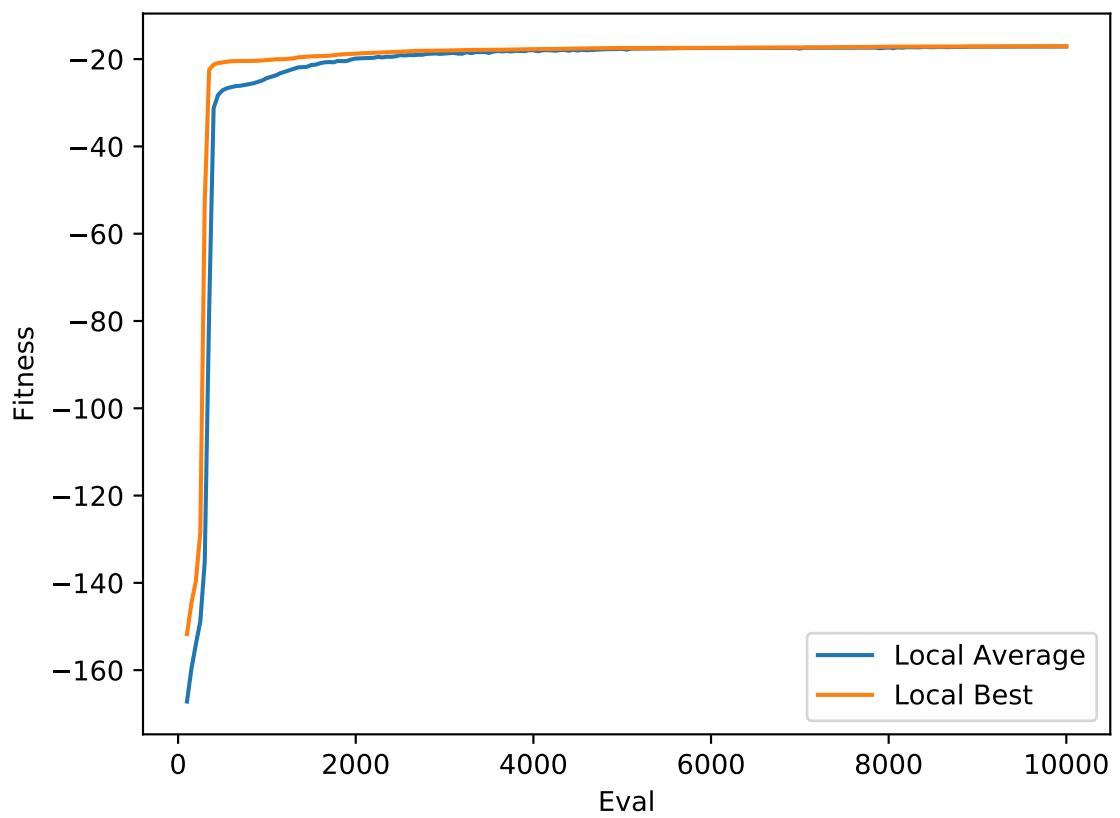


Table 79: Figure 119 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1079
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 80: Figure 120 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	1080
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 119: Input 1

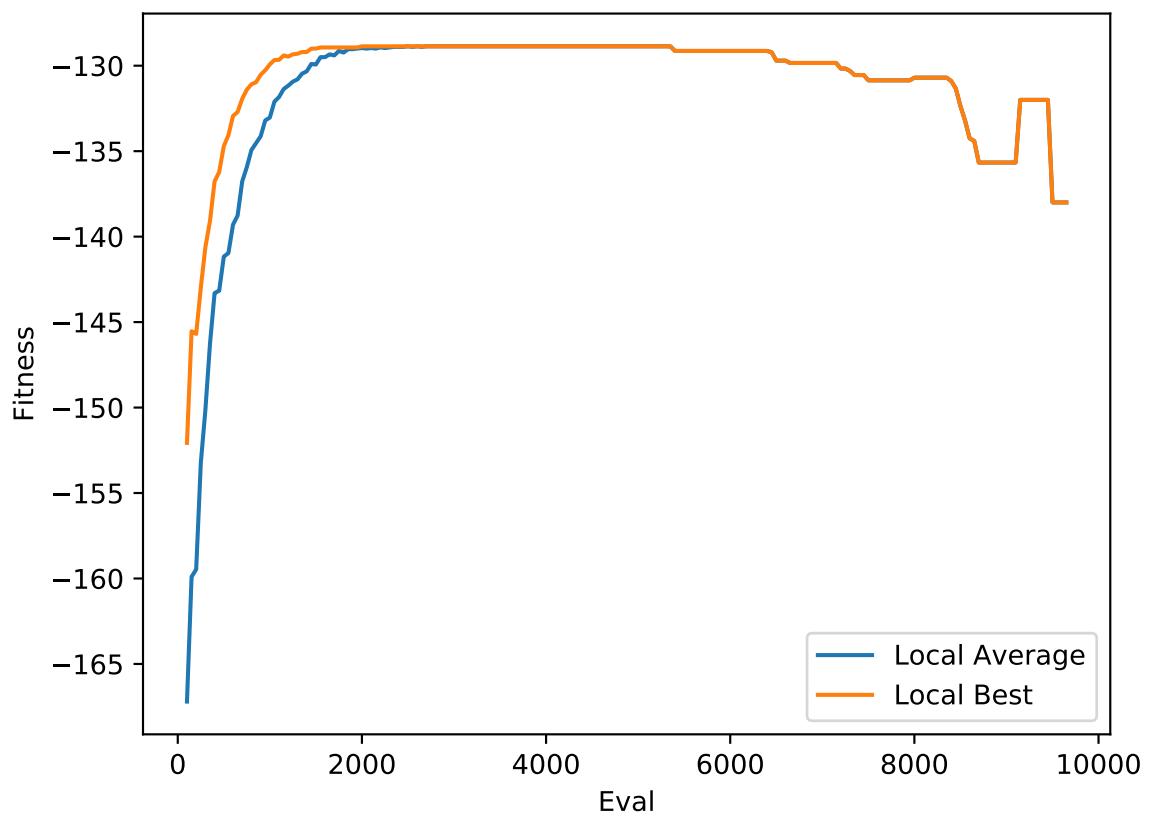


Figure 120: Input 1

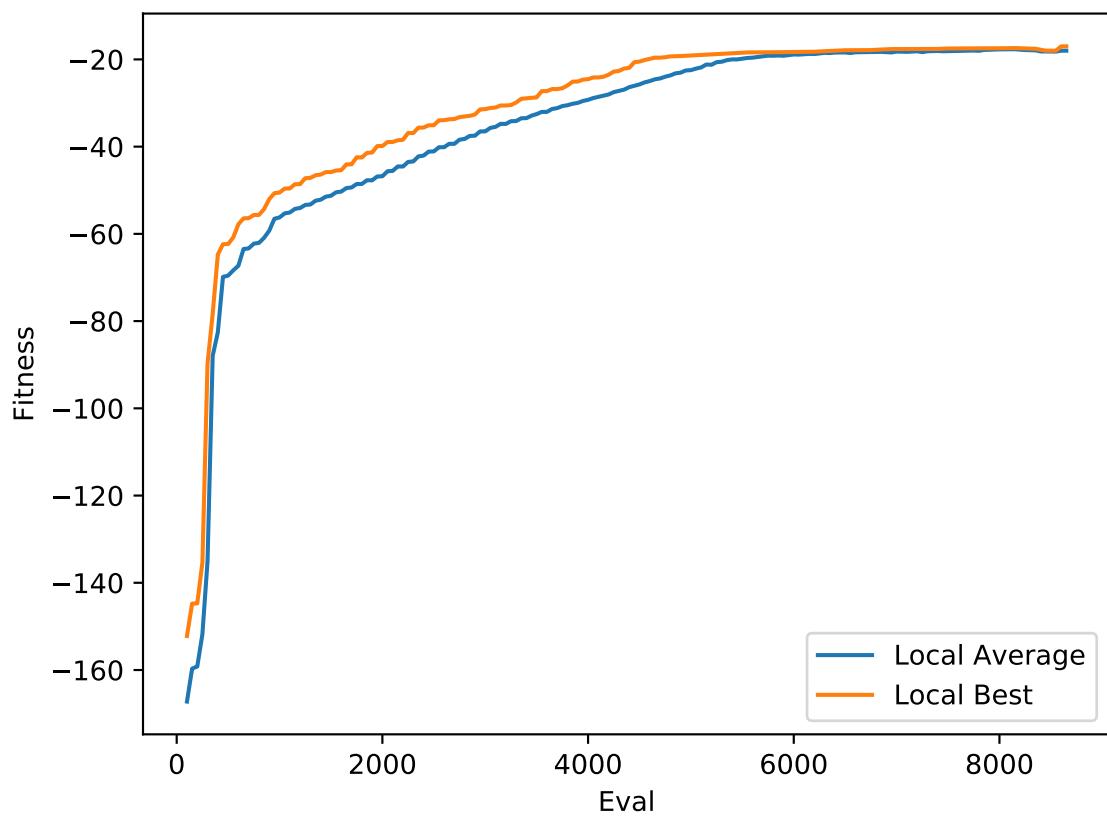


Table 81: Figure 121 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2001
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 82: Figure 122 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2002
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 121: Input 2

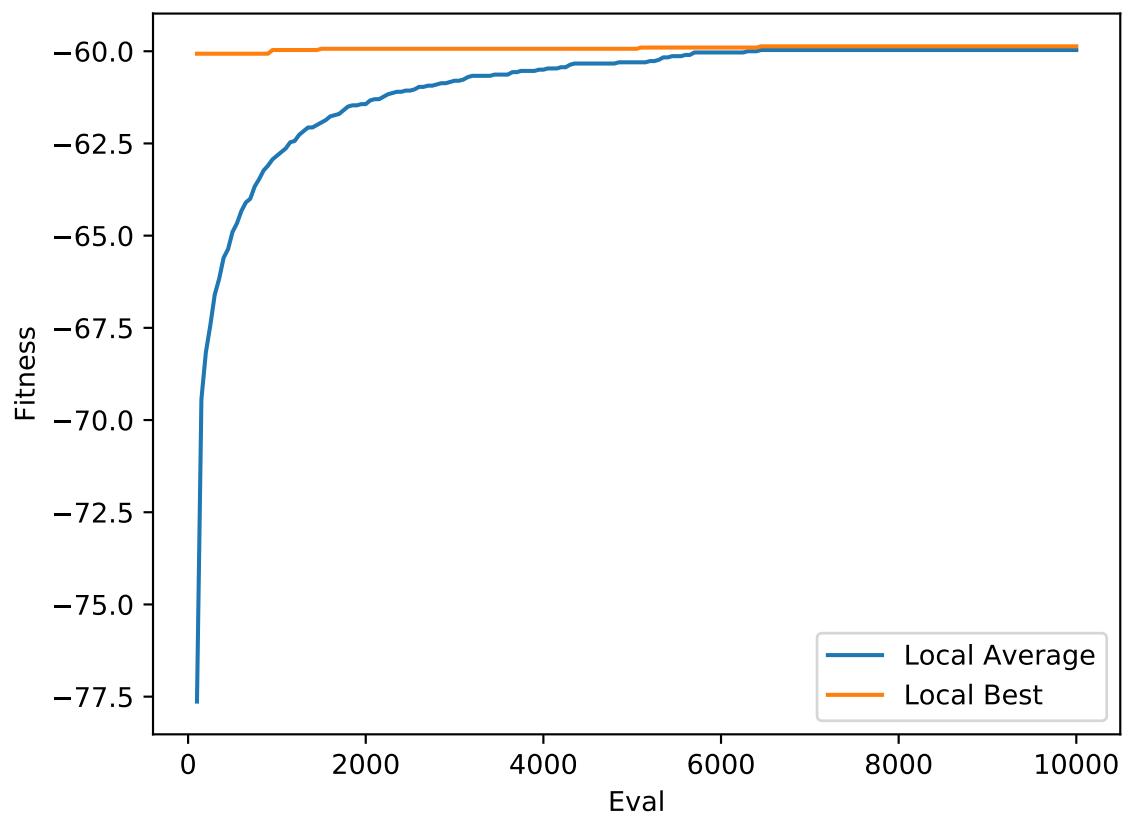


Figure 122: Input 2

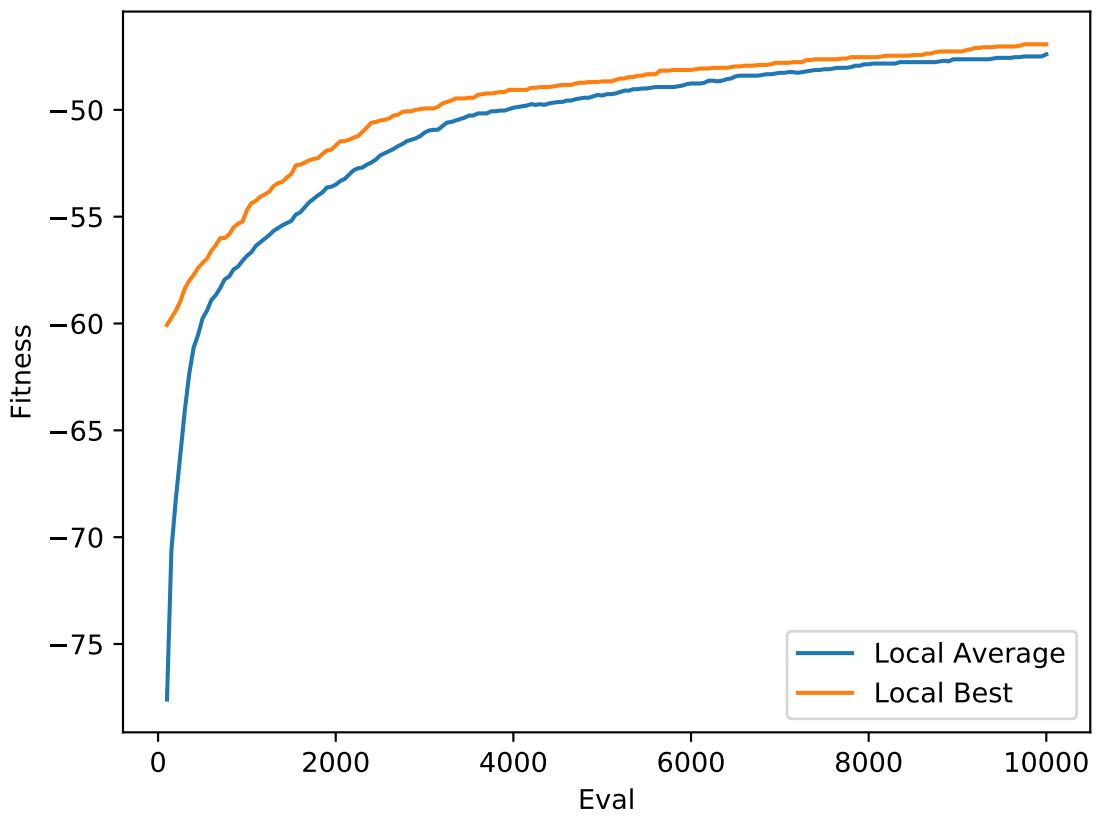


Table 83: Figure 123 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2003
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 84: Figure 124 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2004
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 123: Input 2

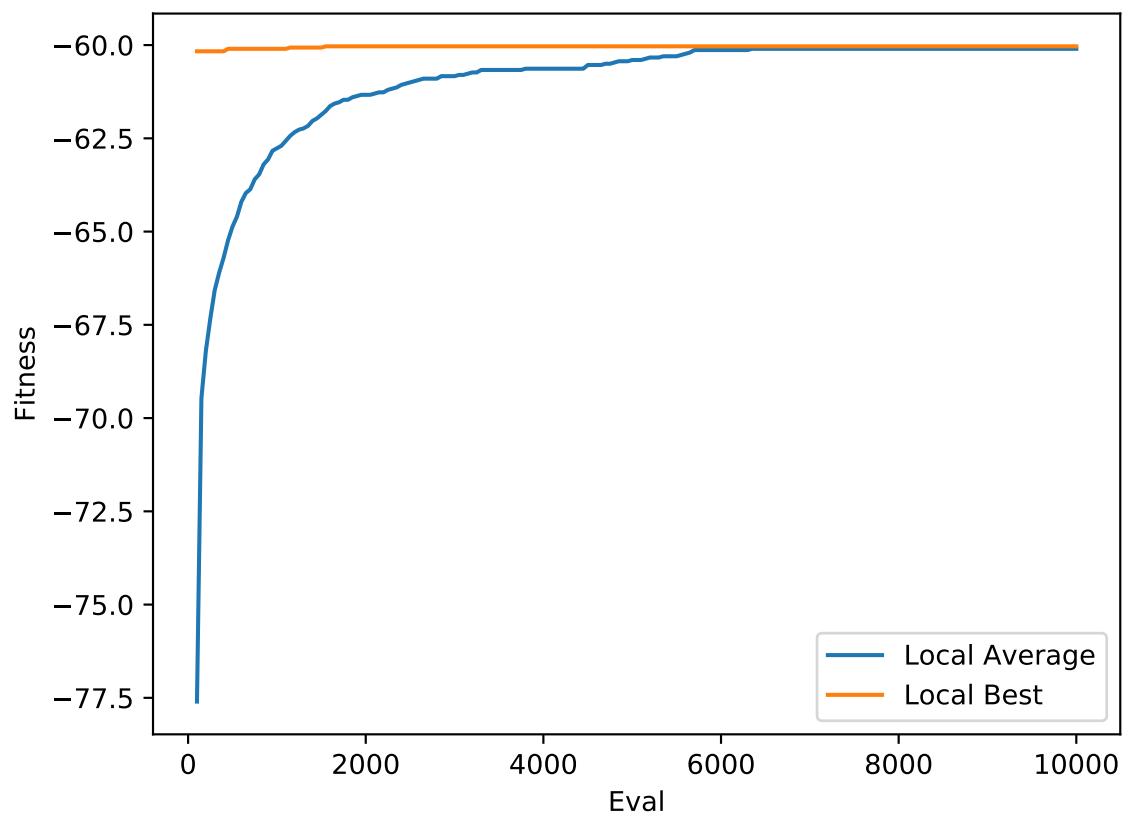


Figure 124: Input 2

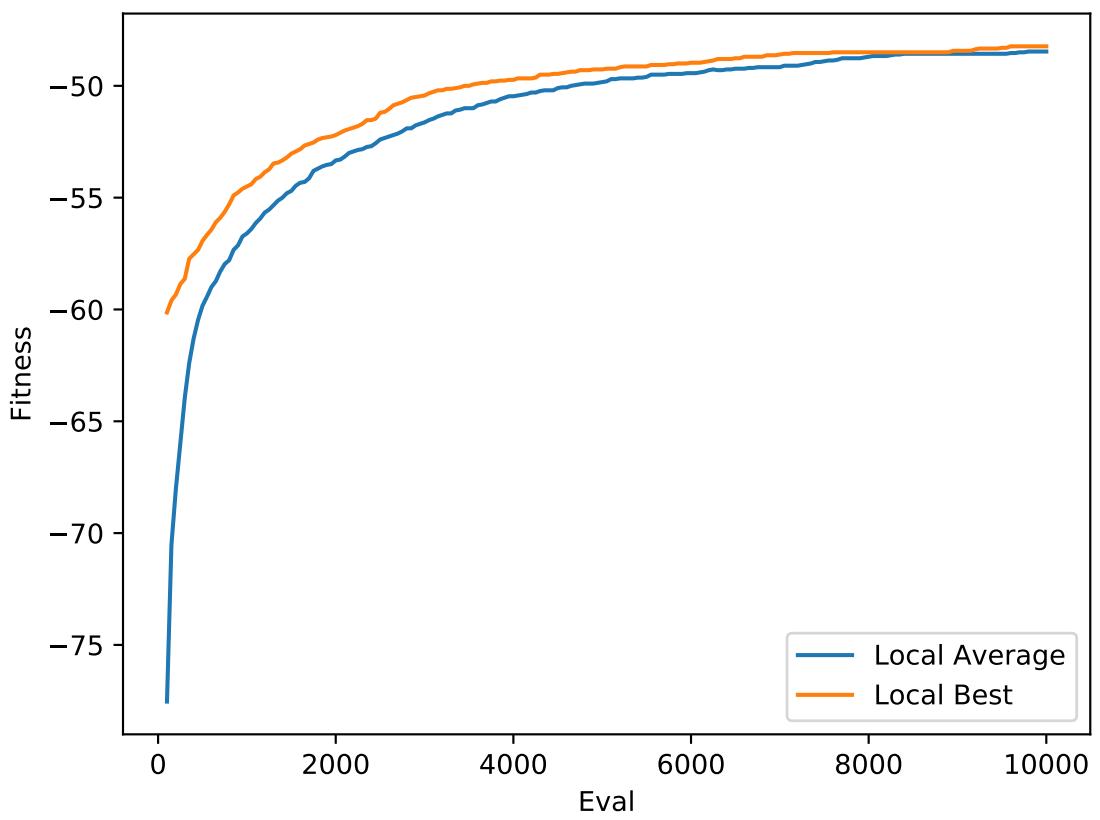


Table 85: Figure 125 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2005
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 86: Figure 126 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2006
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 125: Input 2

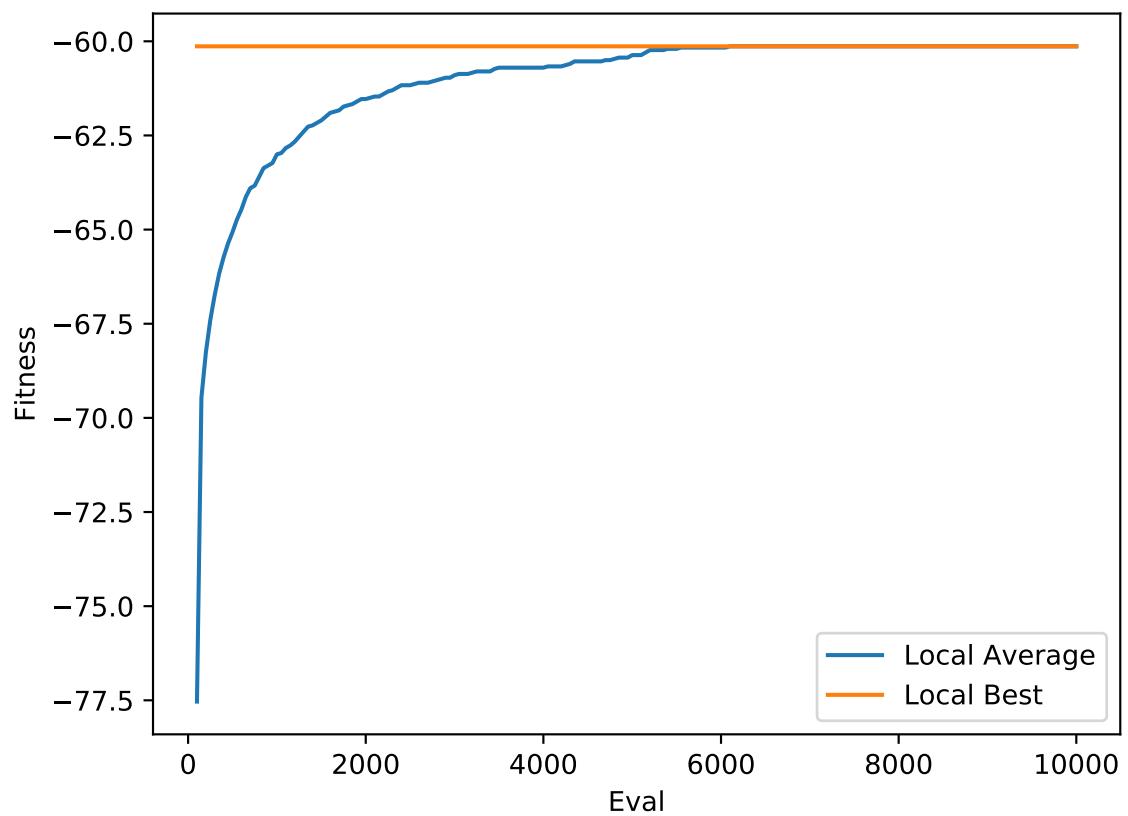


Figure 126: Input 2

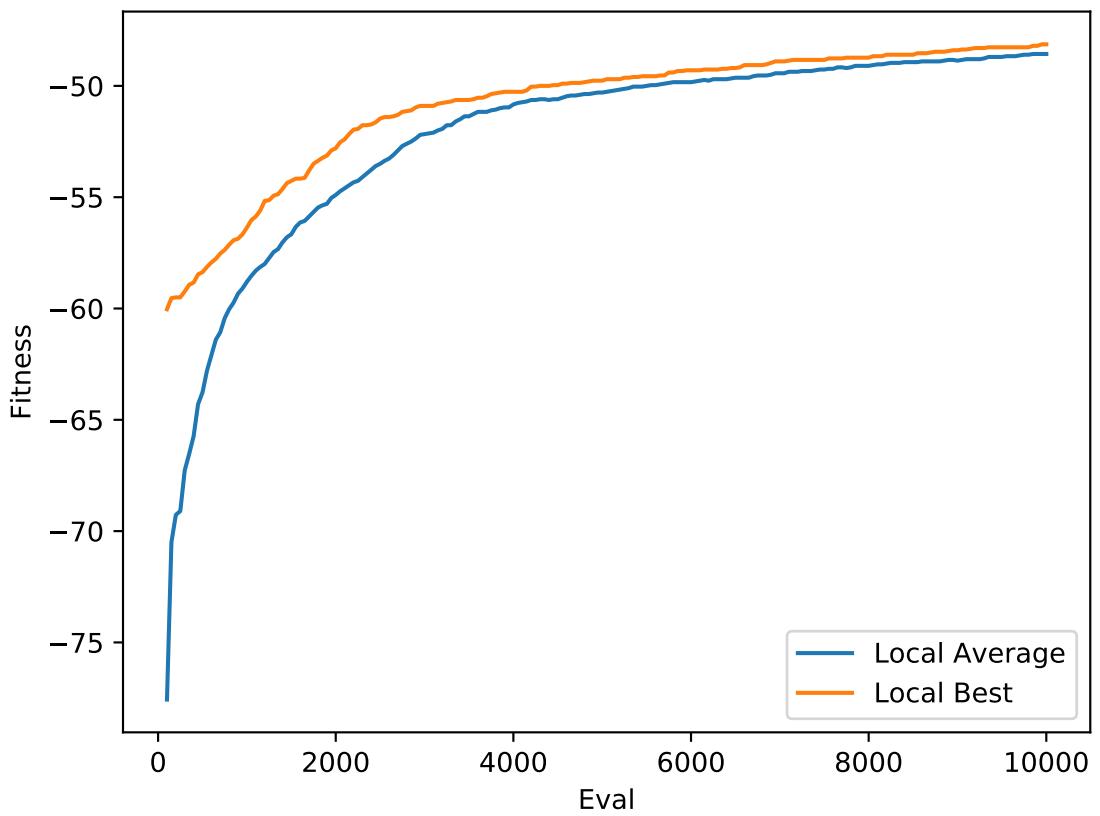


Table 87: Figure 127 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2007
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 88: Figure 128 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2008
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 127: Input 2

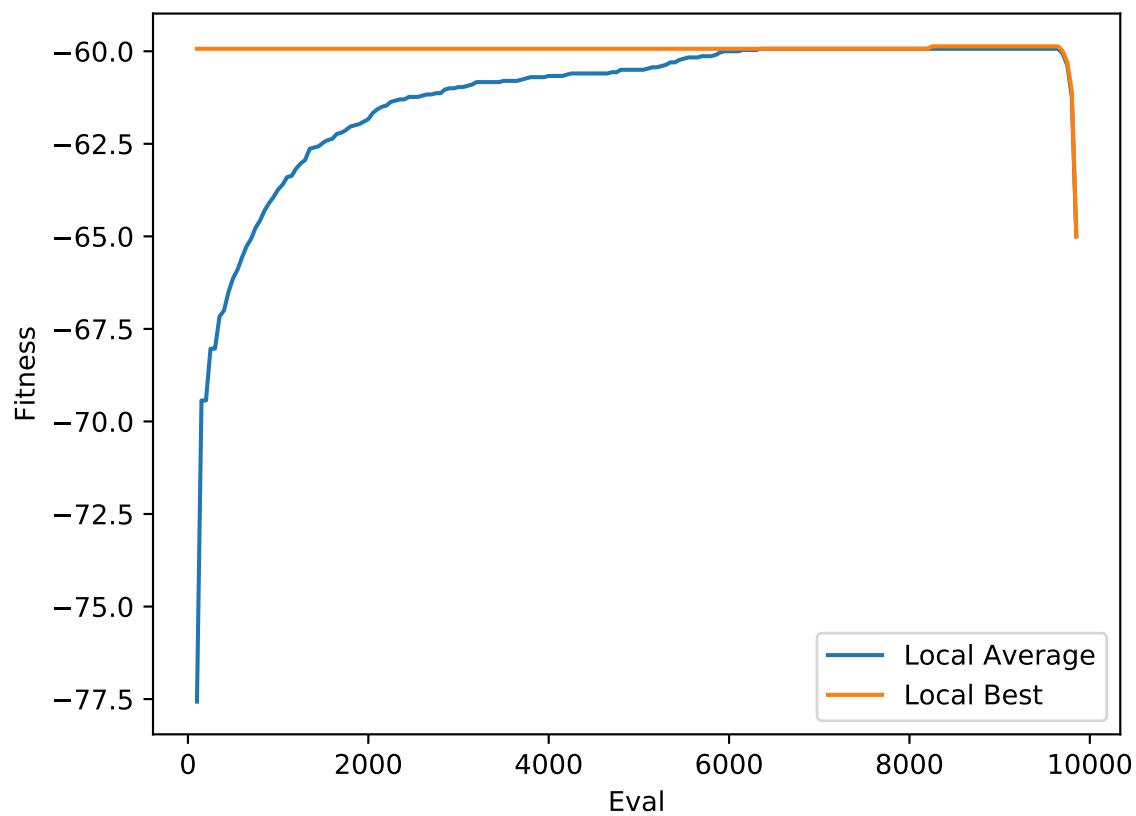


Figure 128: Input 2

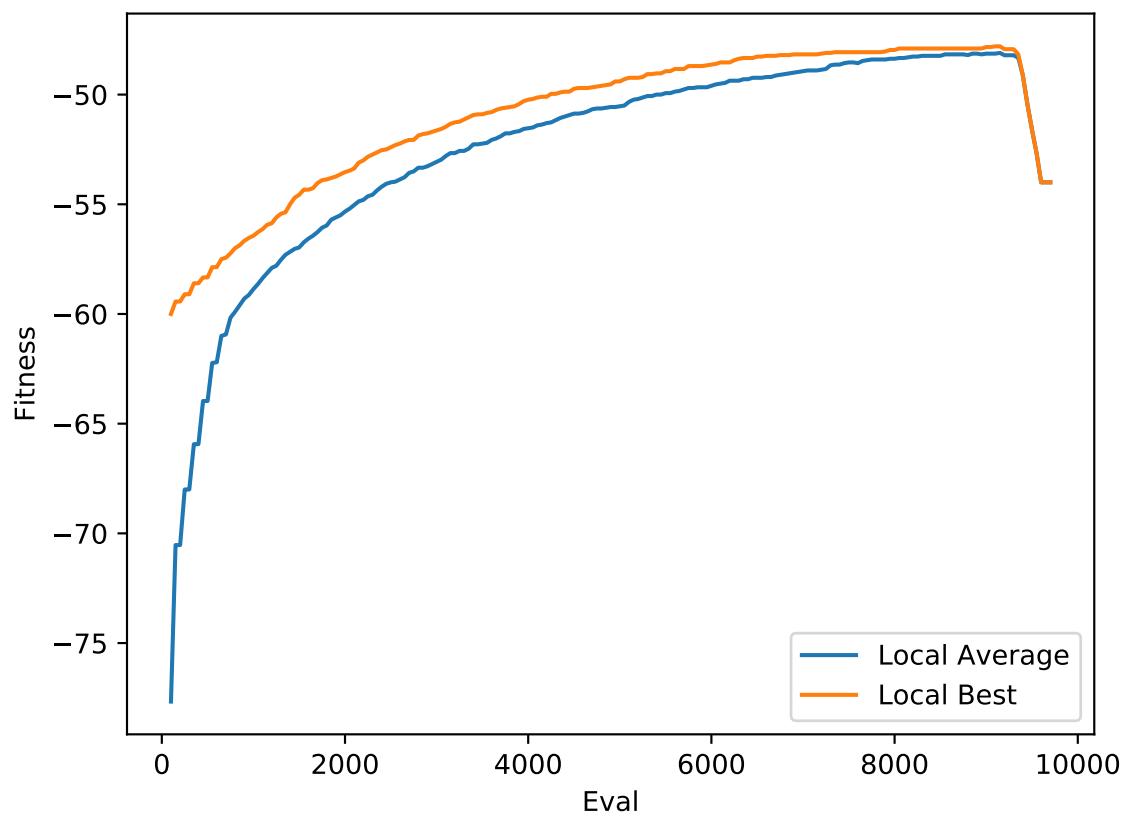


Table 89: Figure 129 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2009
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 90: Figure 130 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2010
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 129: Input 2

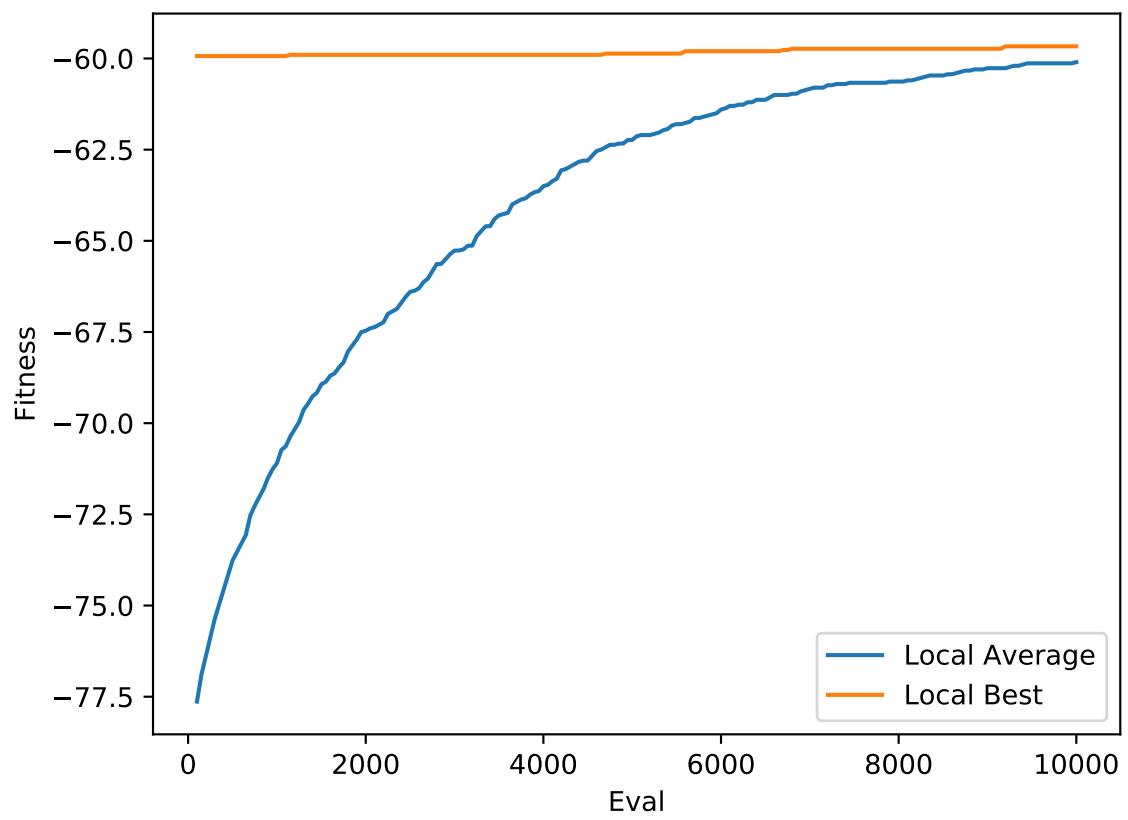


Figure 130: Input 2

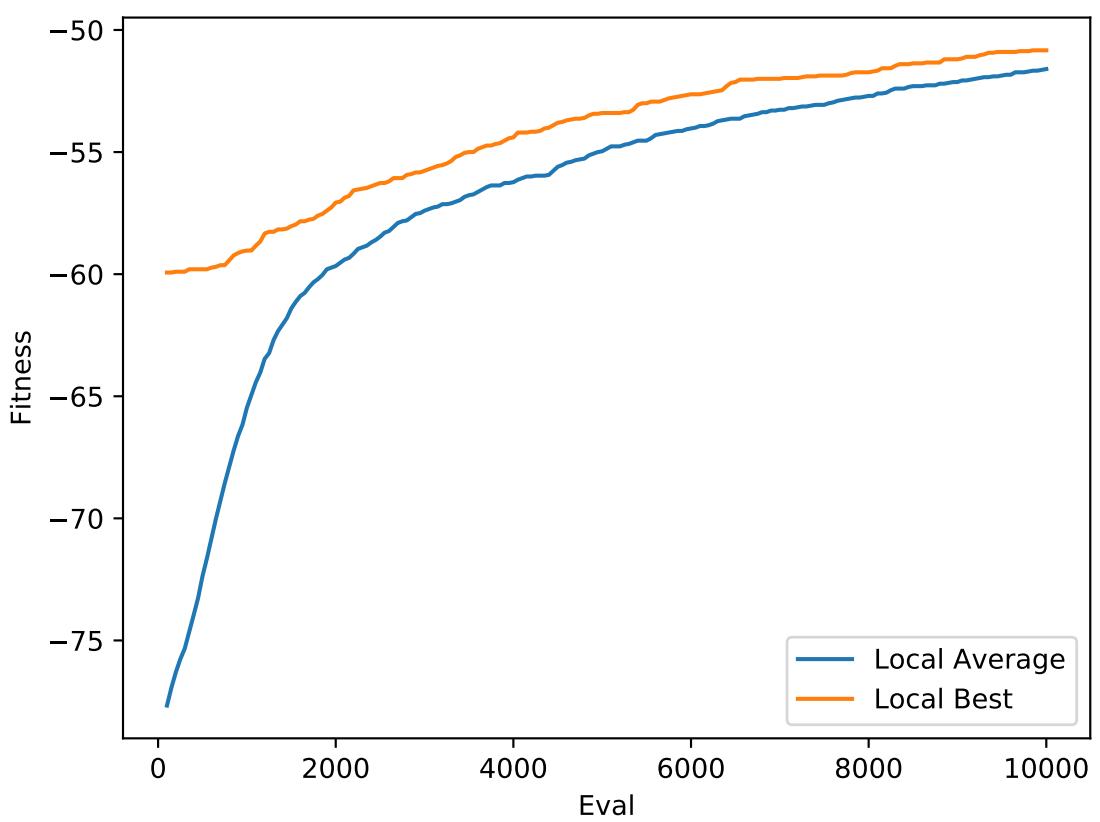


Table 91: Figure 131 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2011
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 92: Figure 132 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2012
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 131: Input 2

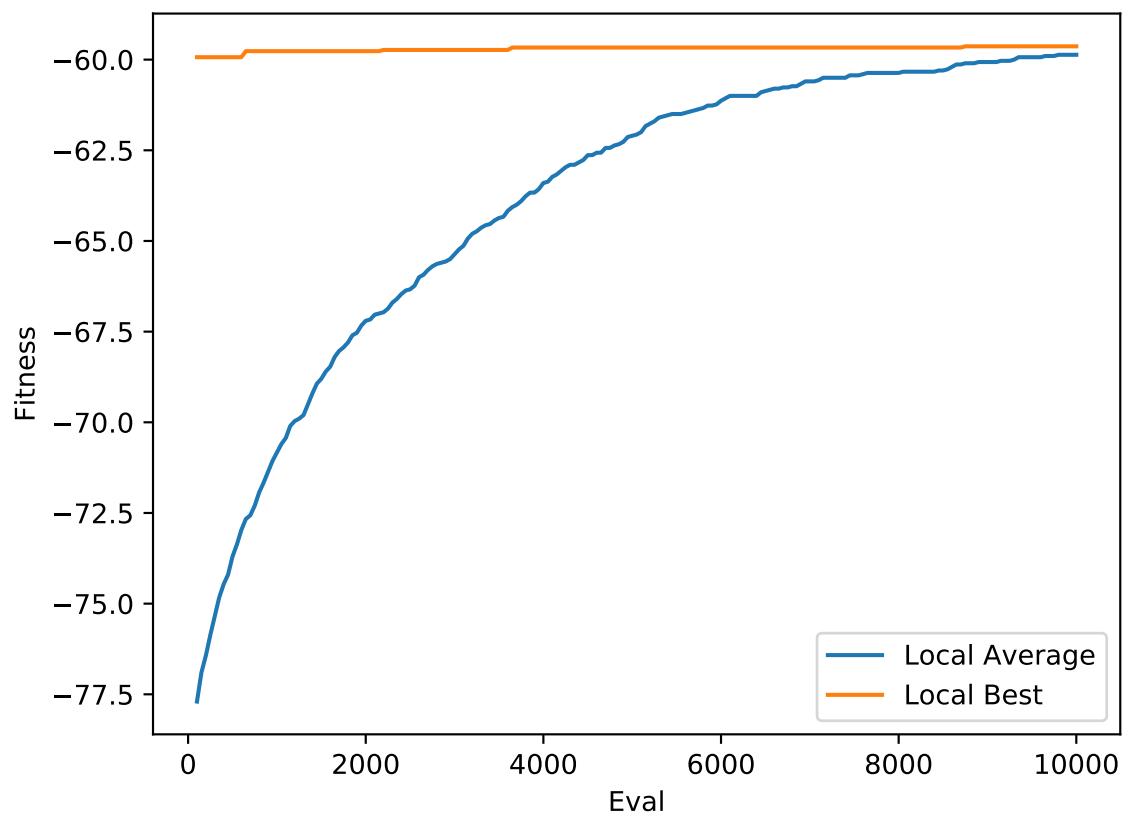


Figure 132: Input 2

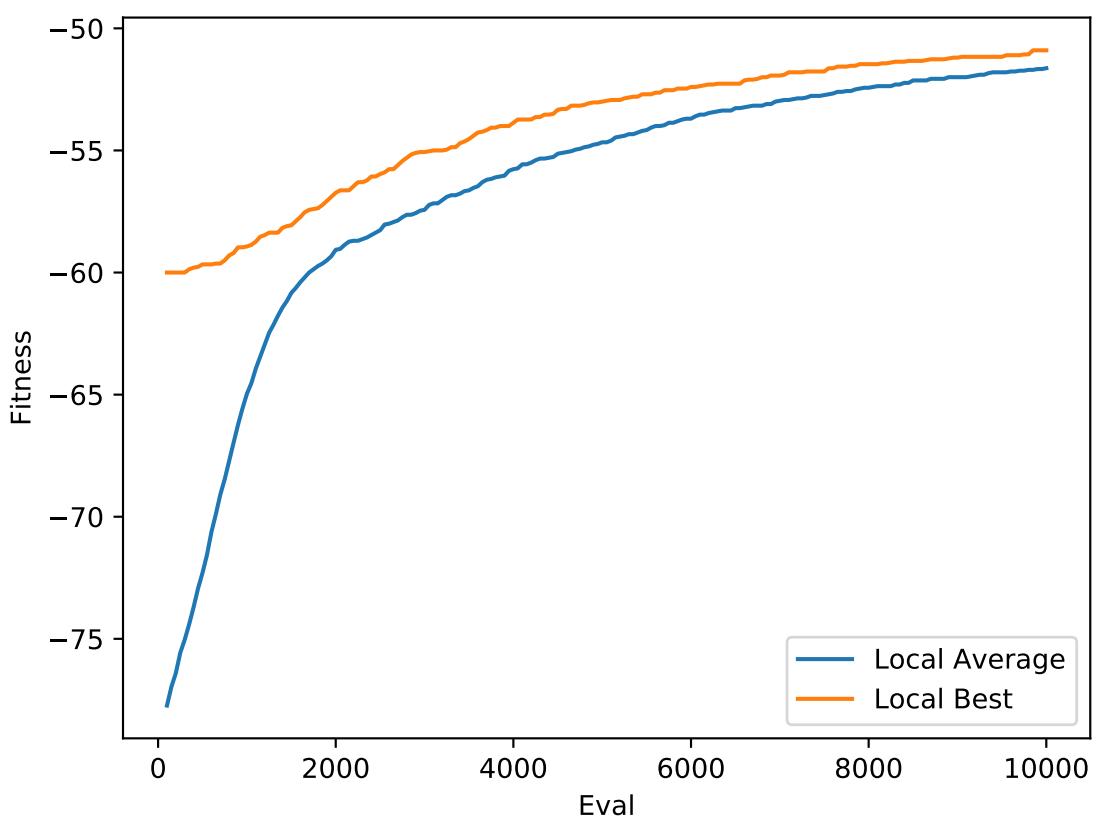


Table 93: Figure 133 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2013
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 94: Figure 134 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2014
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 133: Input 2

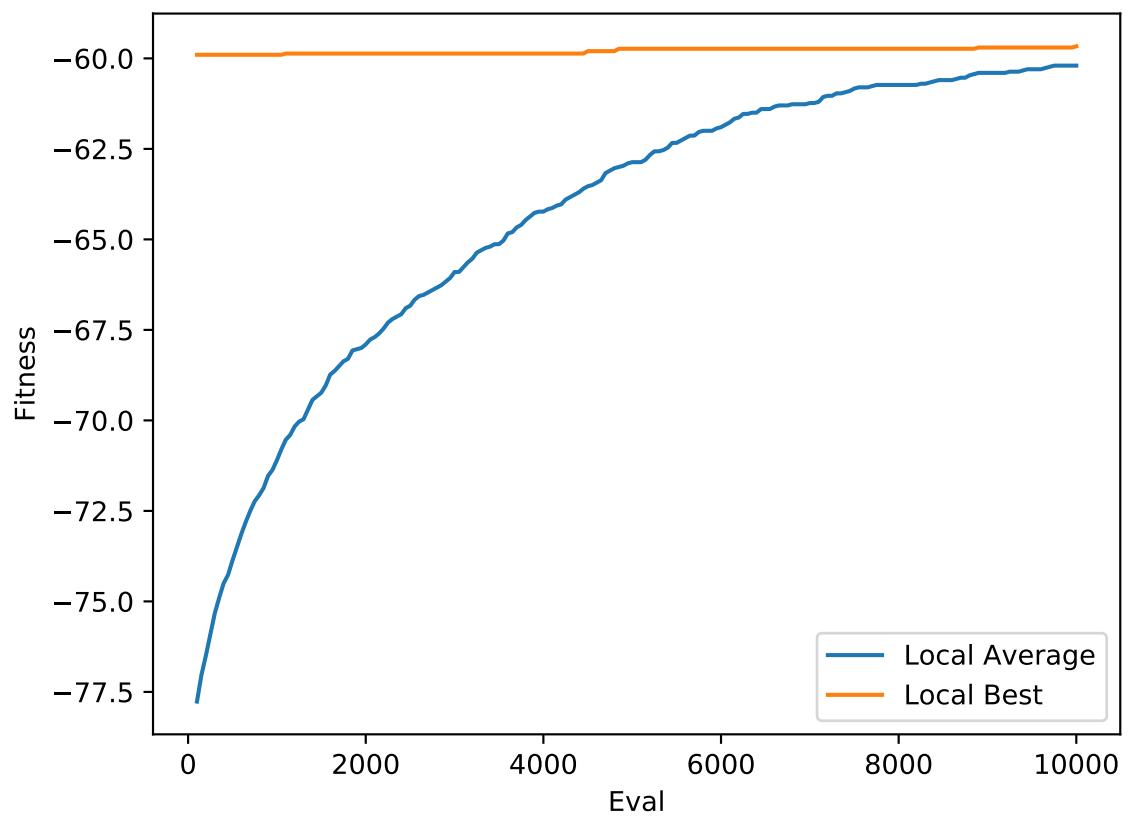


Figure 134: Input 2

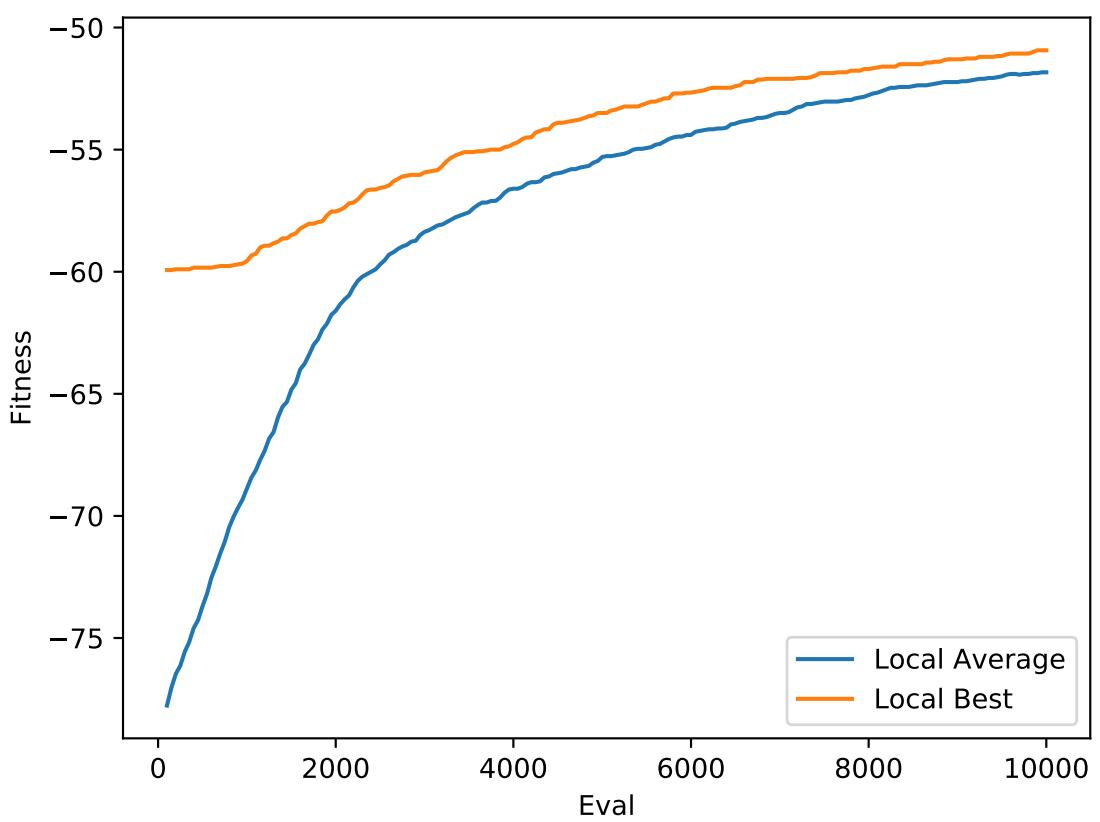


Table 95: Figure 135 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2015
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 96: Figure 136 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	5
Random Seed	2016
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 135: Input 2

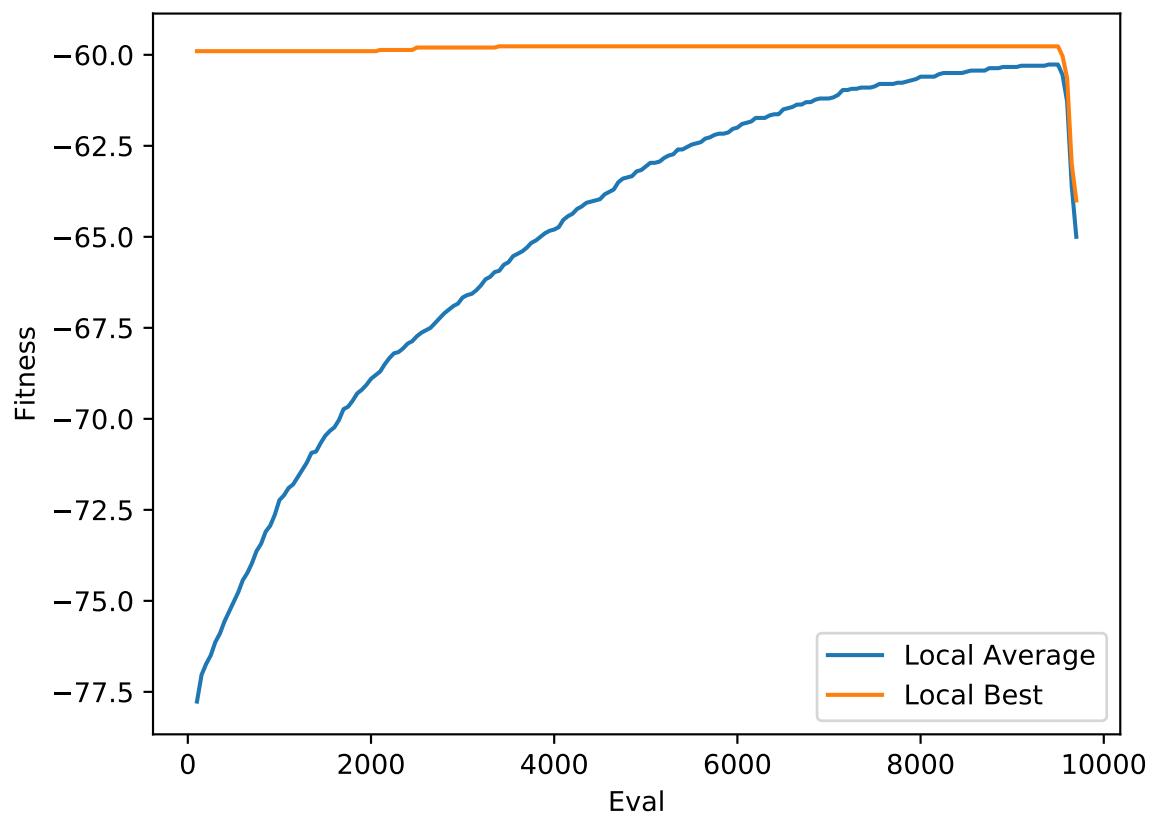


Figure 136: Input 2

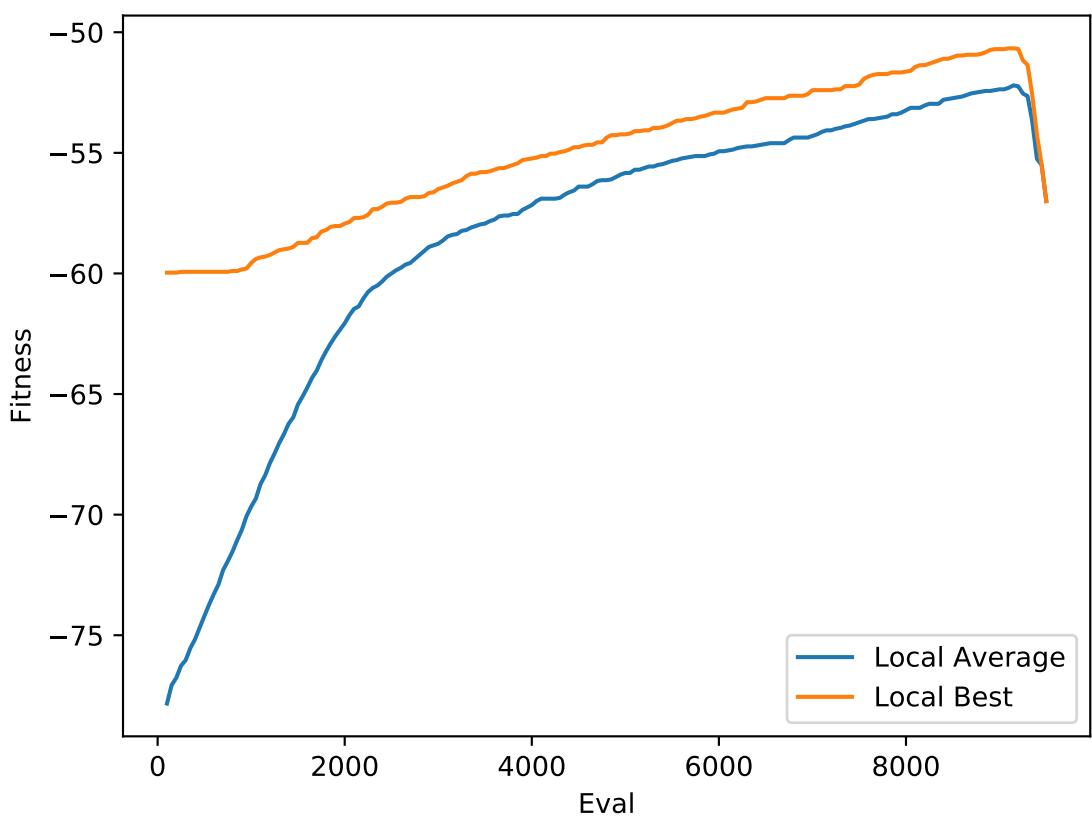


Table 97: Figure 137 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2017
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 98: Figure 138 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2018
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 137: Input 2

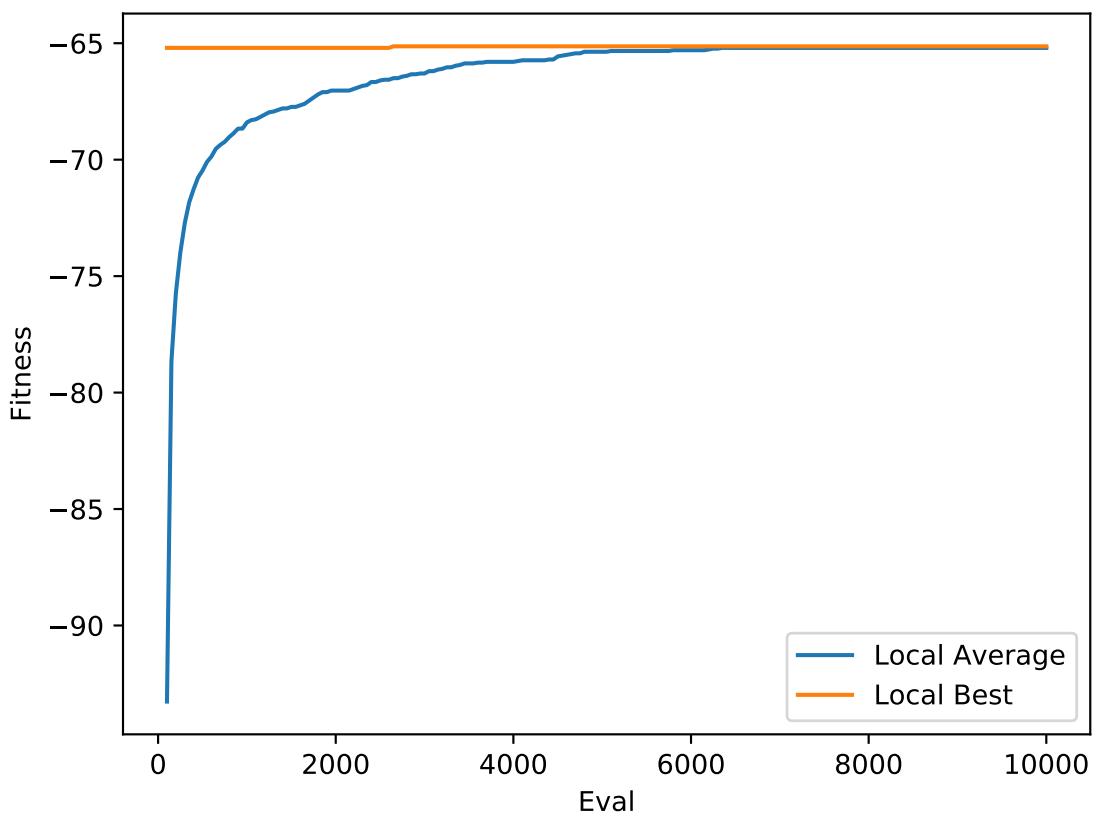


Figure 138: Input 2

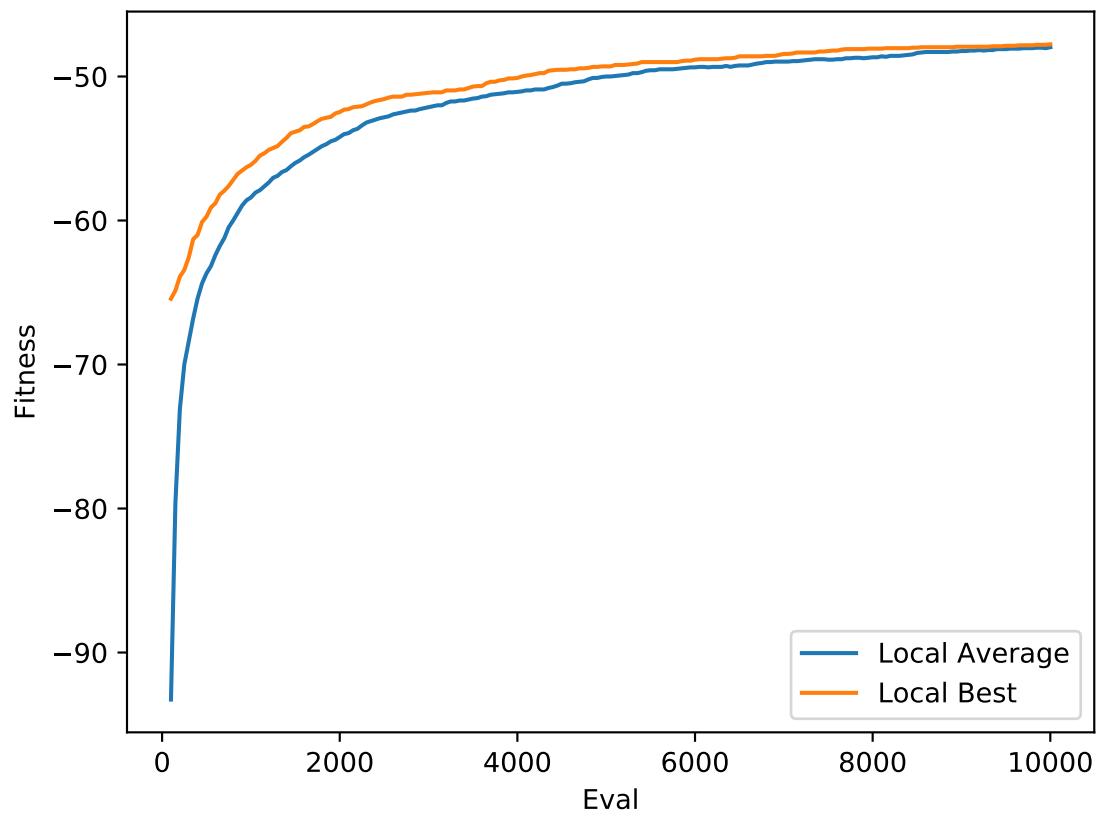


Table 99: Figure 139 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2019
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 100: Figure 140 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2020
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 139: Input 2

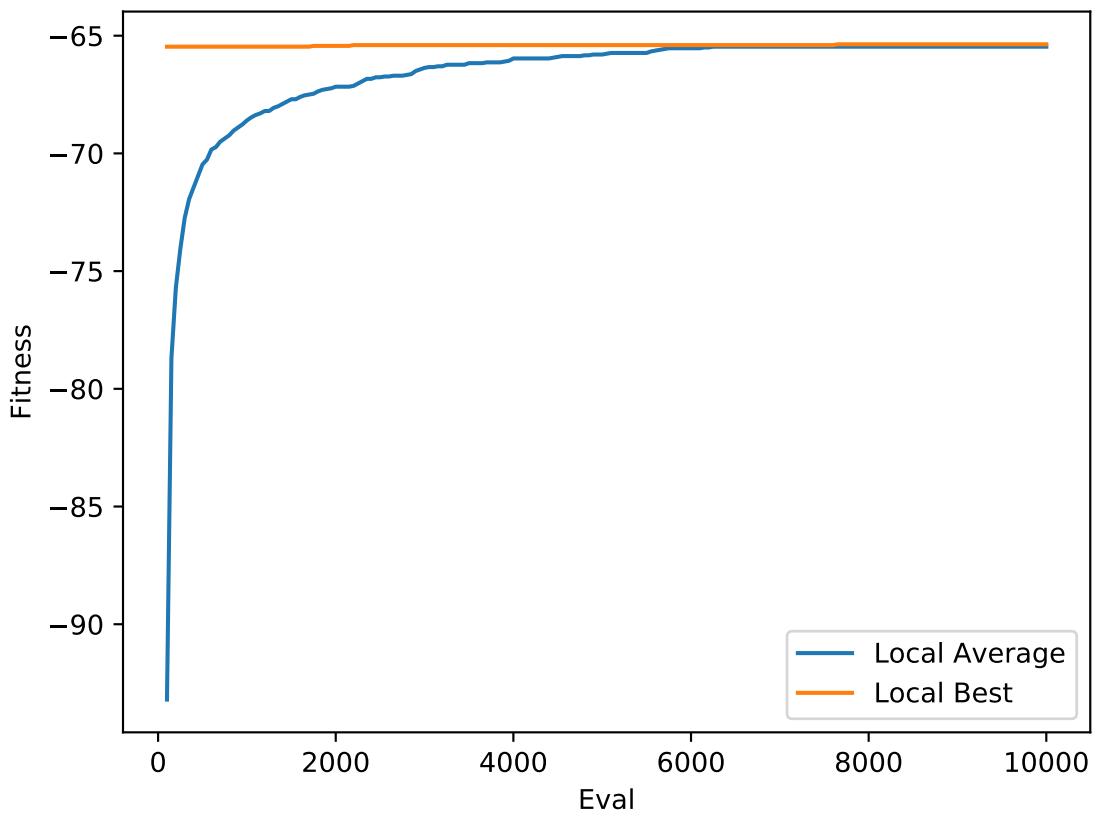


Figure 140: Input 2

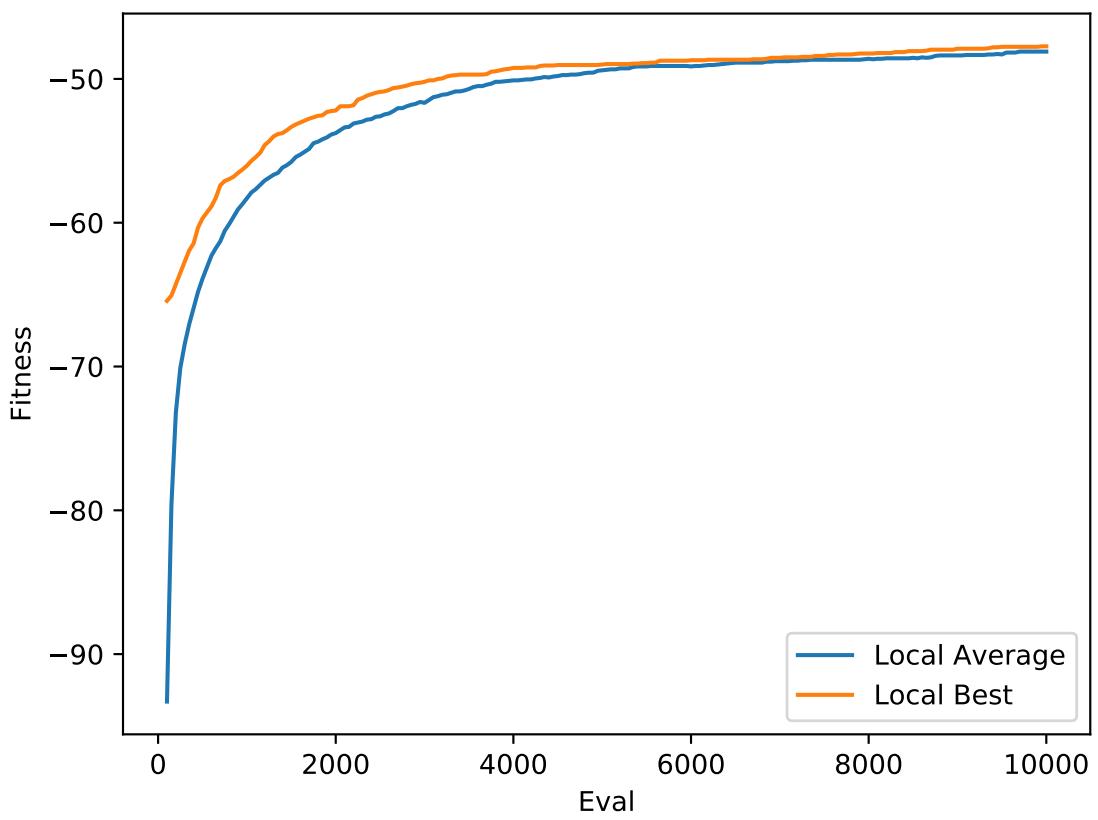


Table 101: Figure 141 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2021
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 102: Figure 142 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2022
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 141: Input 2

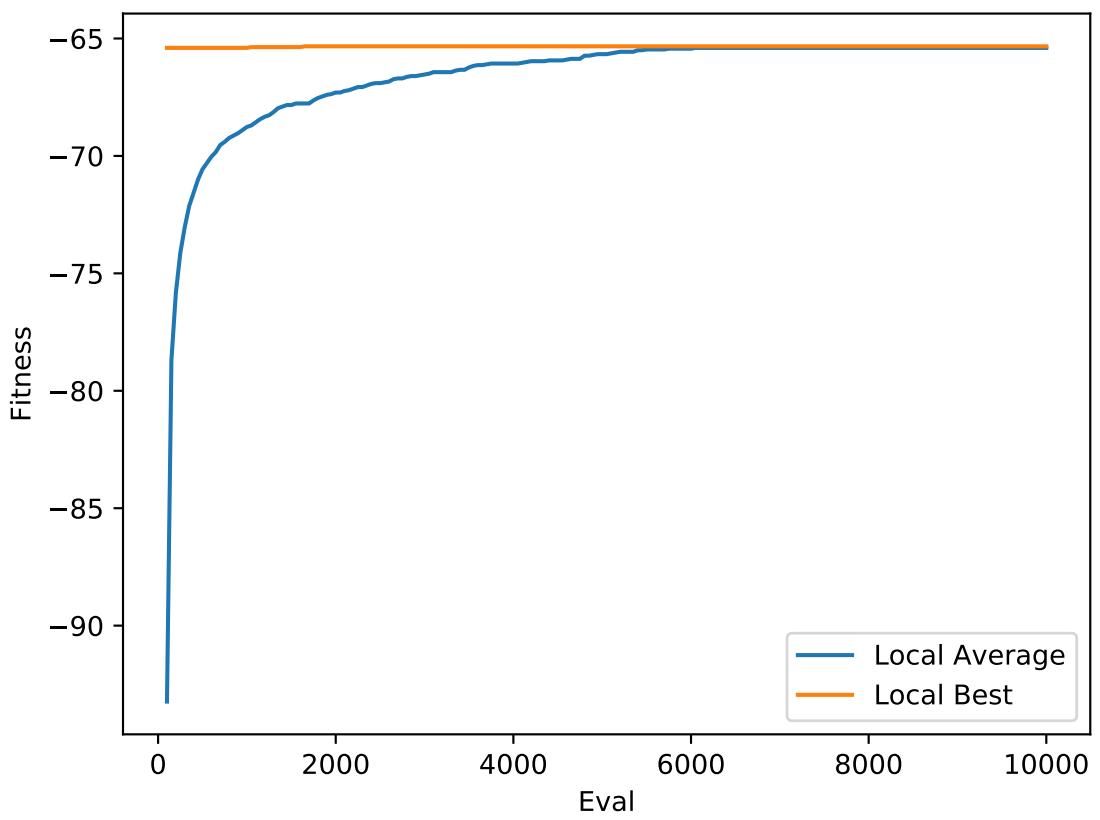


Figure 142: Input 2

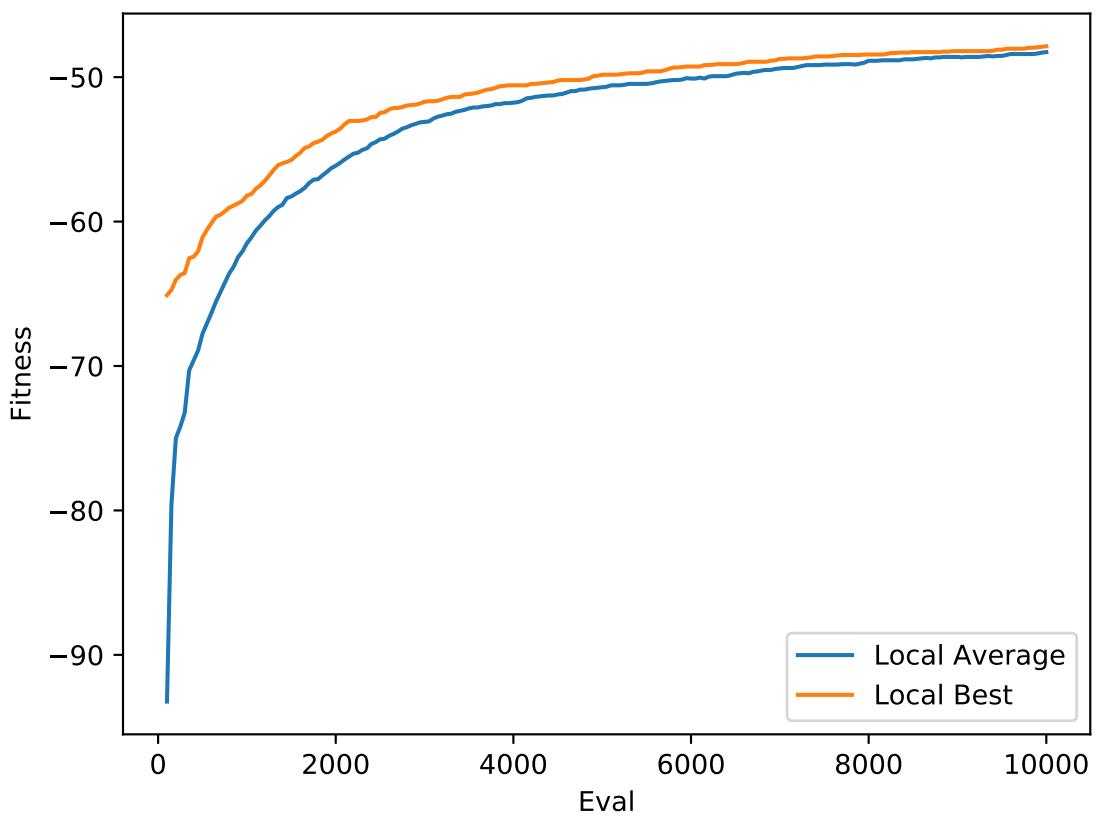


Table 103: Figure 143 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2023
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 104: Figure 144 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2024
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 143: Input 2

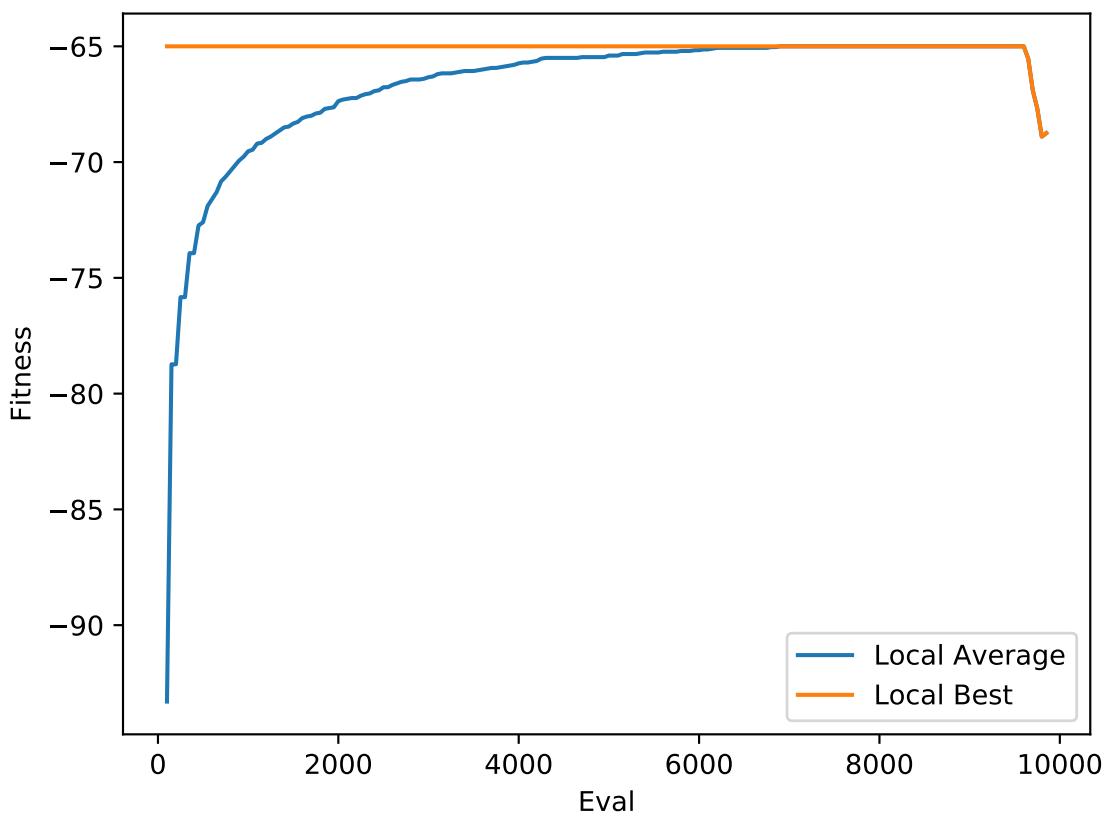


Figure 144: Input 2

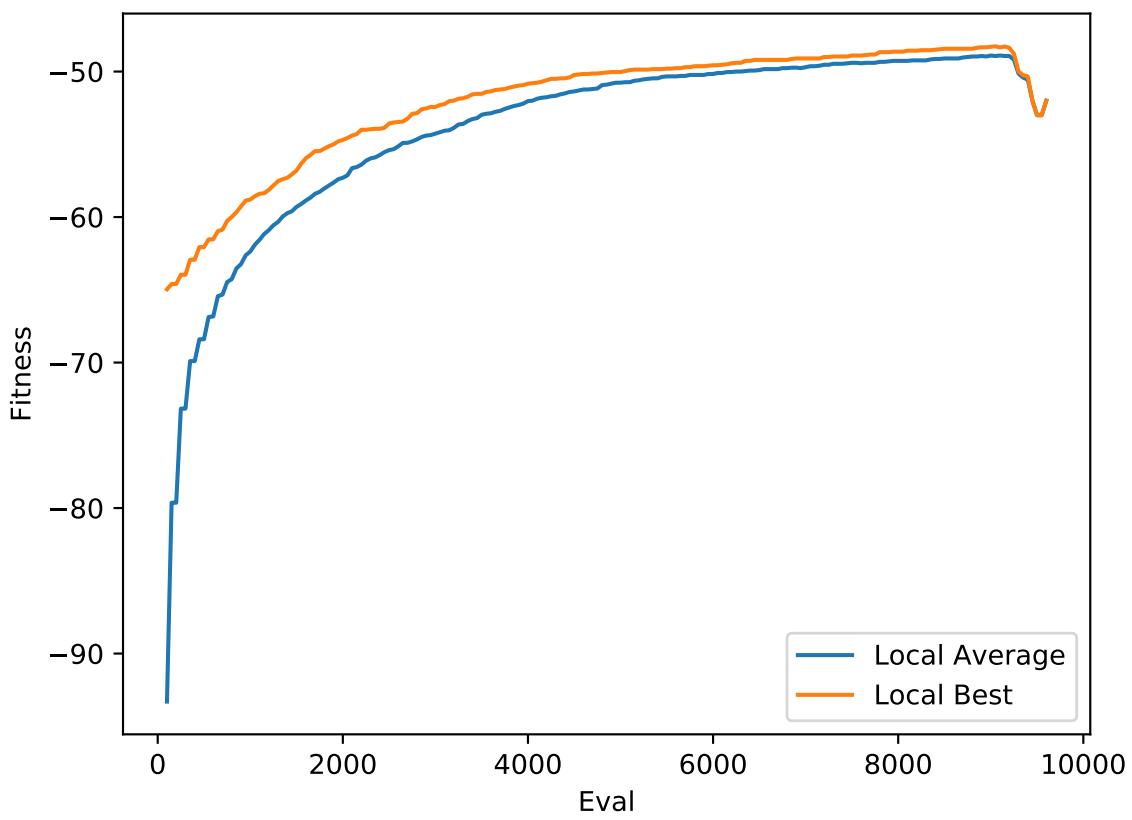


Table 105: Figure 145 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2025
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 106: Figure 146 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2026
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 145: Input 2

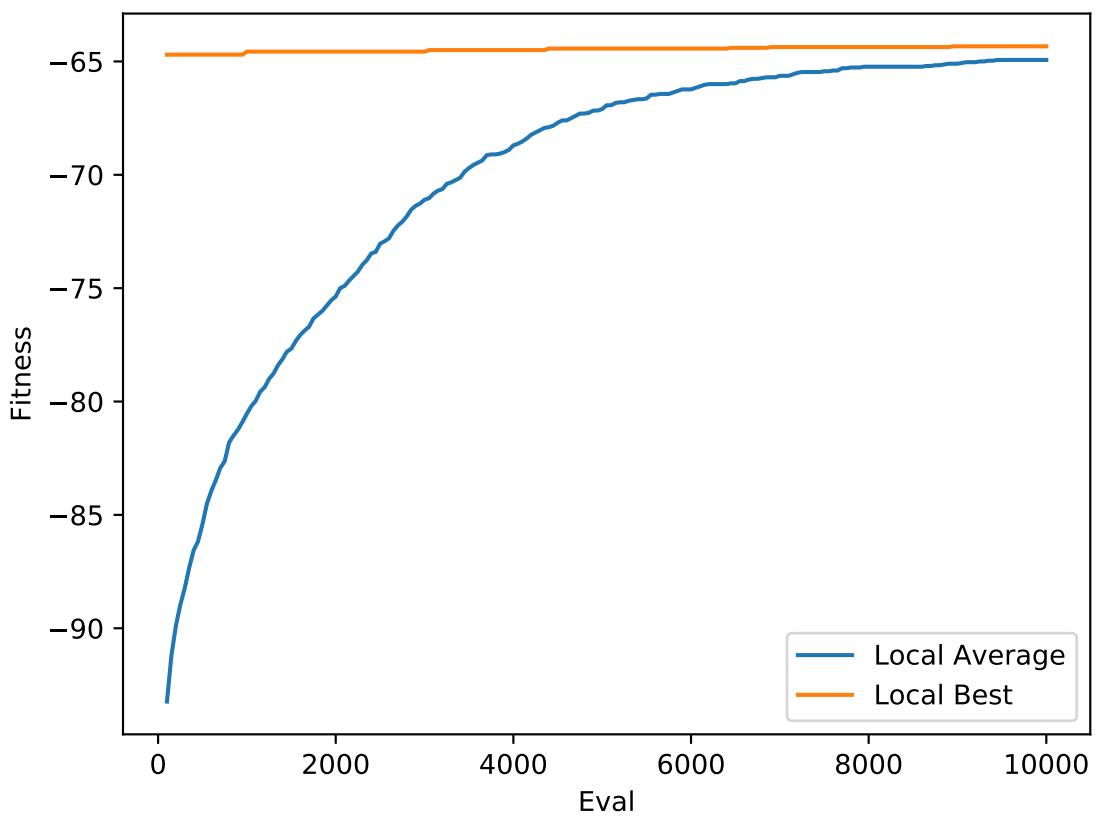


Figure 146: Input 2

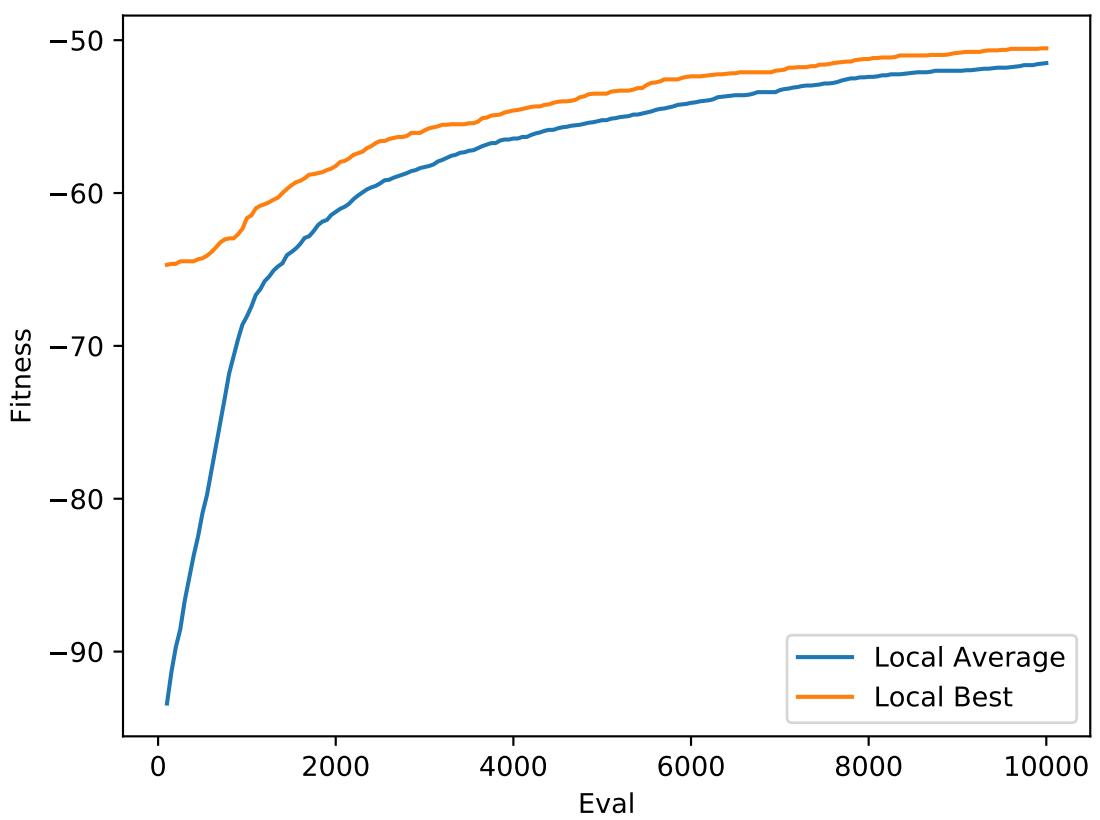


Table 107: Figure 147 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2027
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 108: Figure 148 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2028
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 147: Input 2

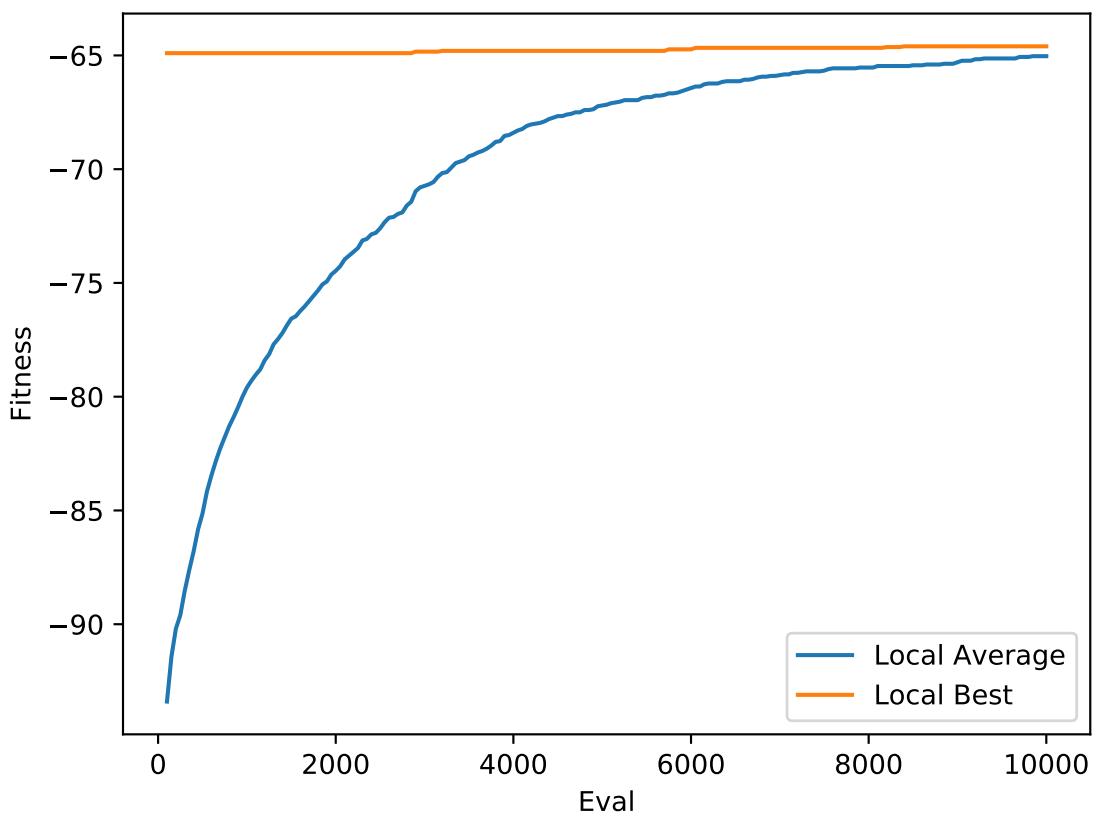


Figure 148: Input 2

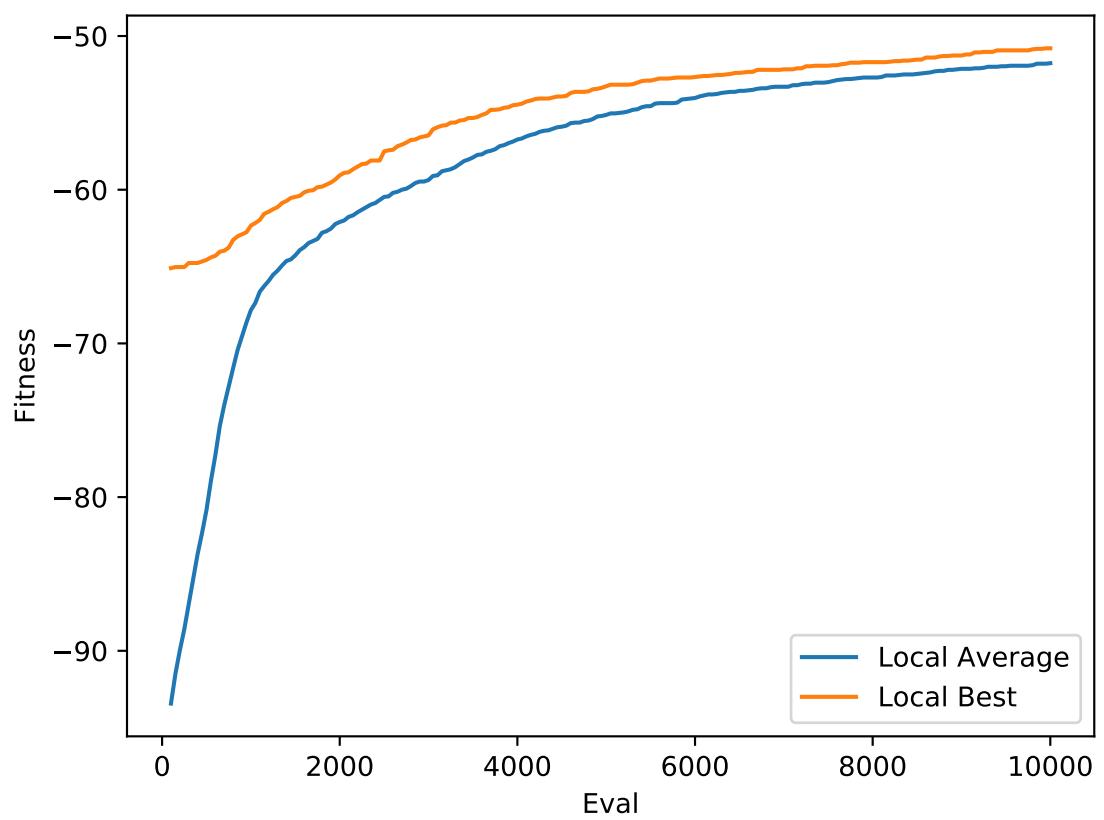


Table 109: Figure 149 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2029
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 110: Figure 150 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2030
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 149: Input 2

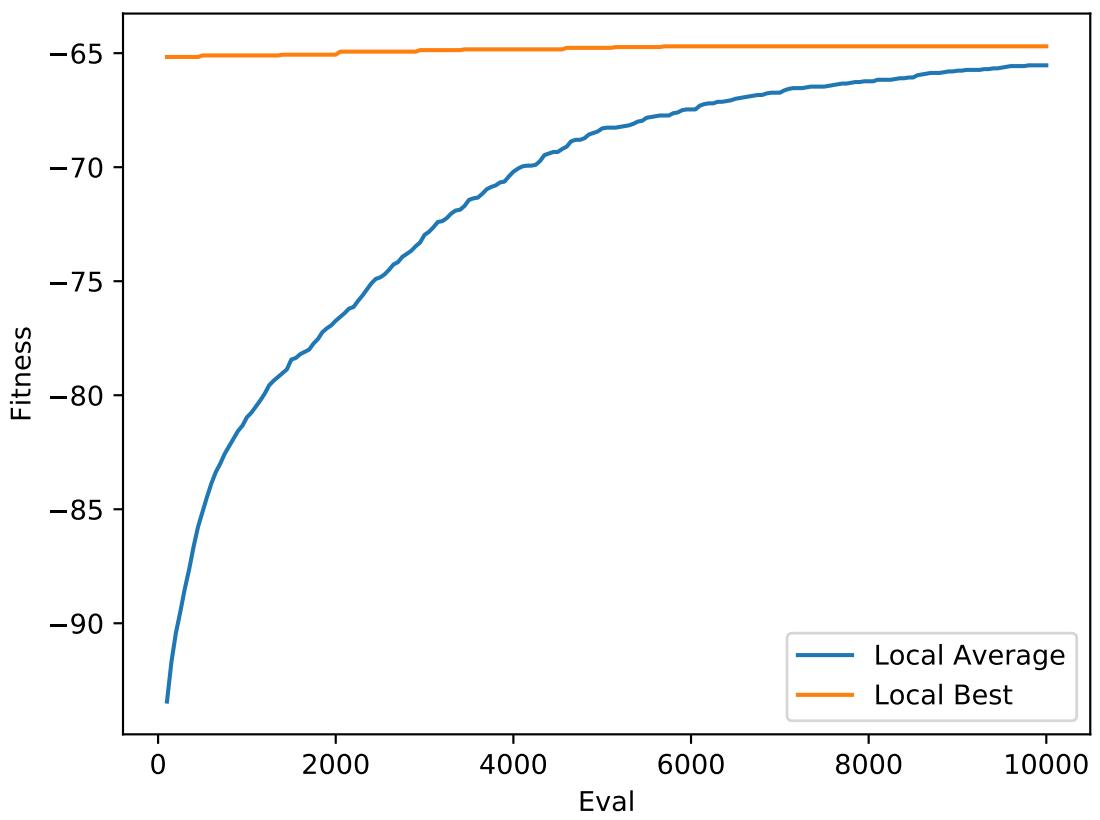


Figure 150: Input 2

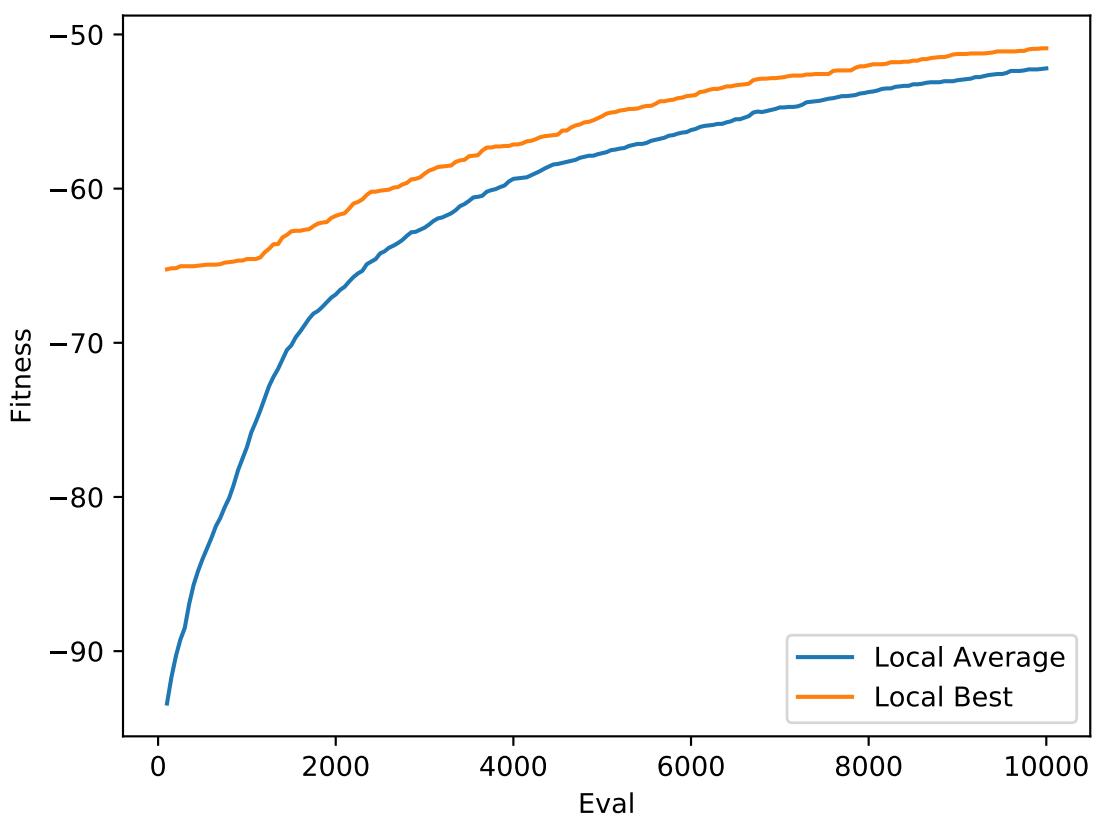


Table 111: Figure 151 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2031
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 112: Figure 152 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	5
Random Seed	2032
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 151: Input 2

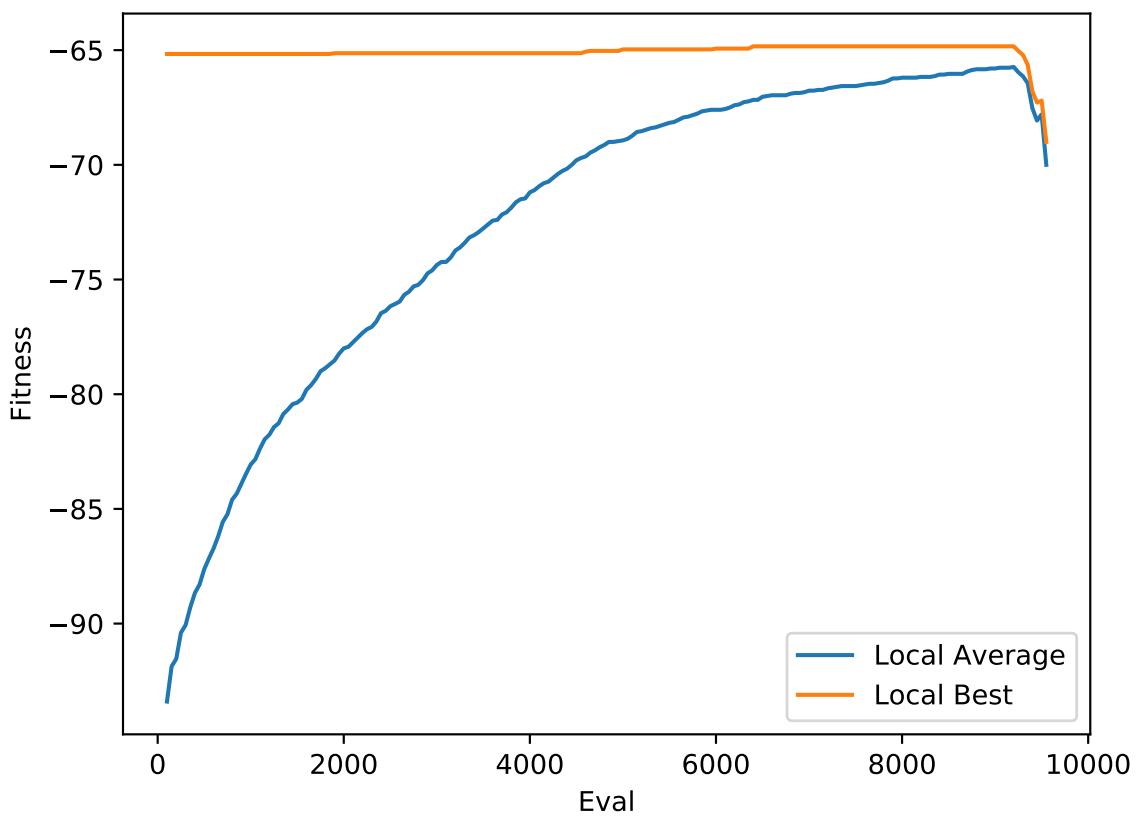


Figure 152: Input 2

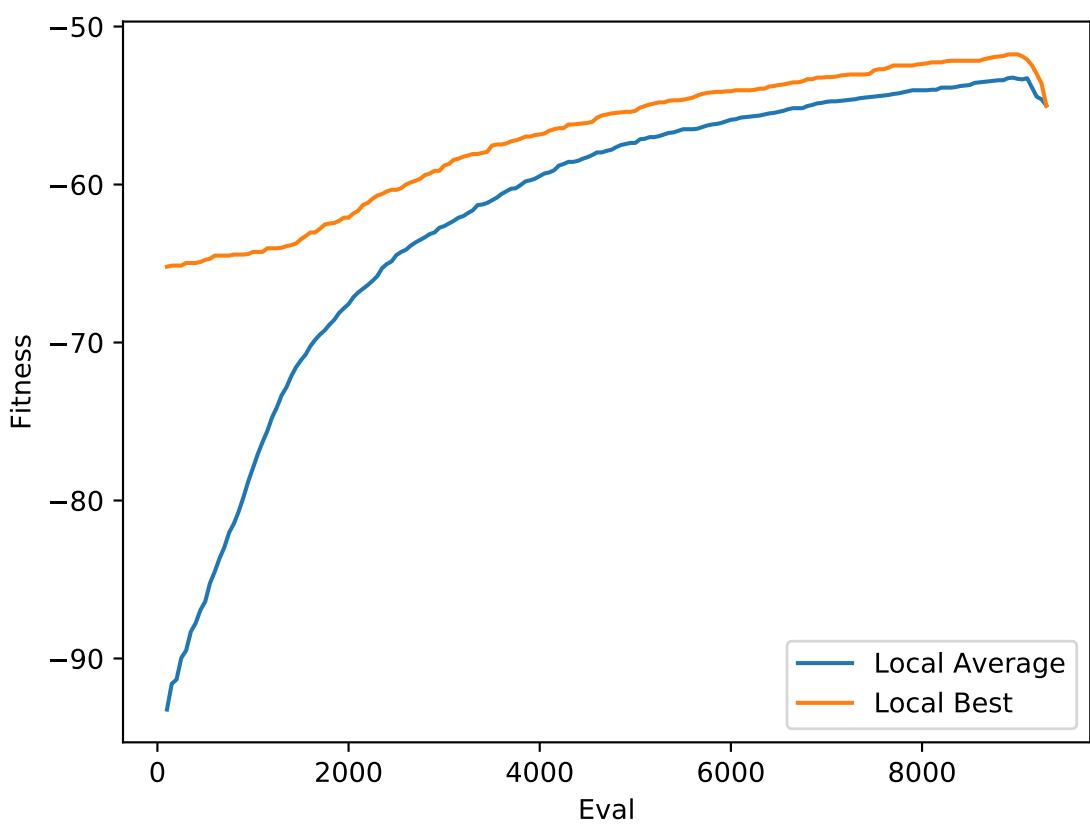


Table 113: Figure 153 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2033
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 114: Figure 154 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2034
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 153: Input 2

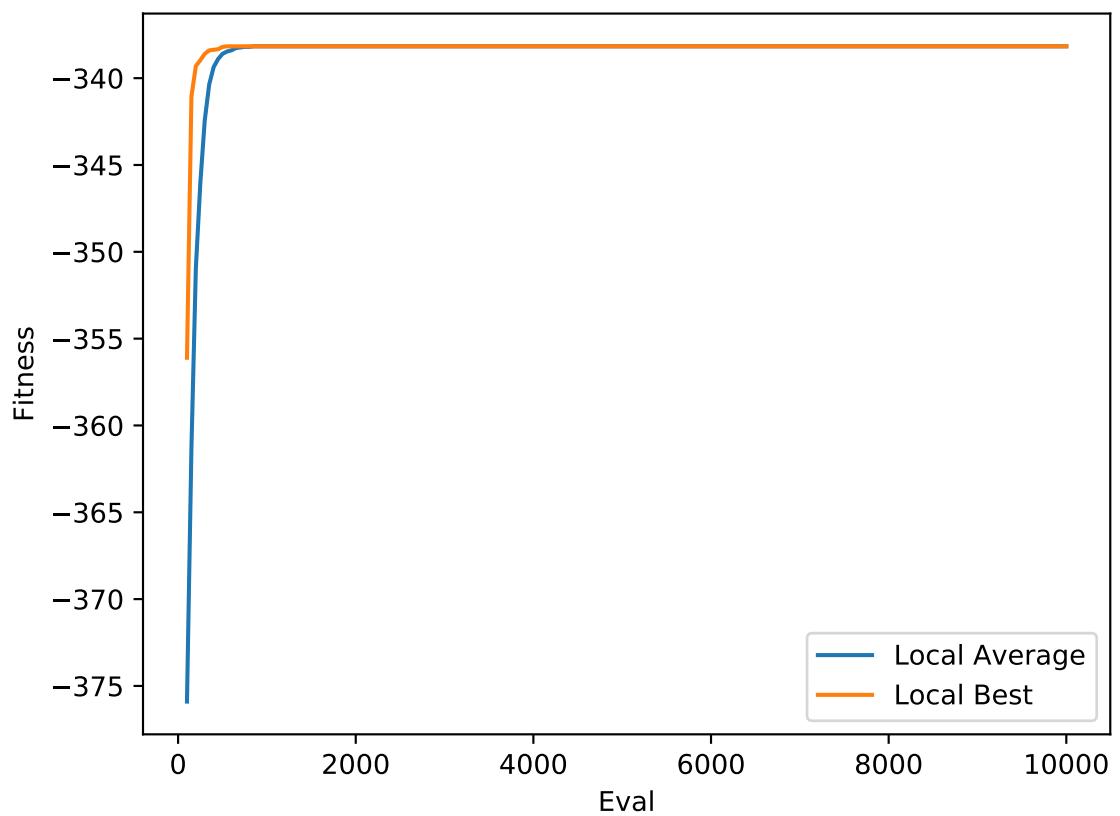


Figure 154: Input 2

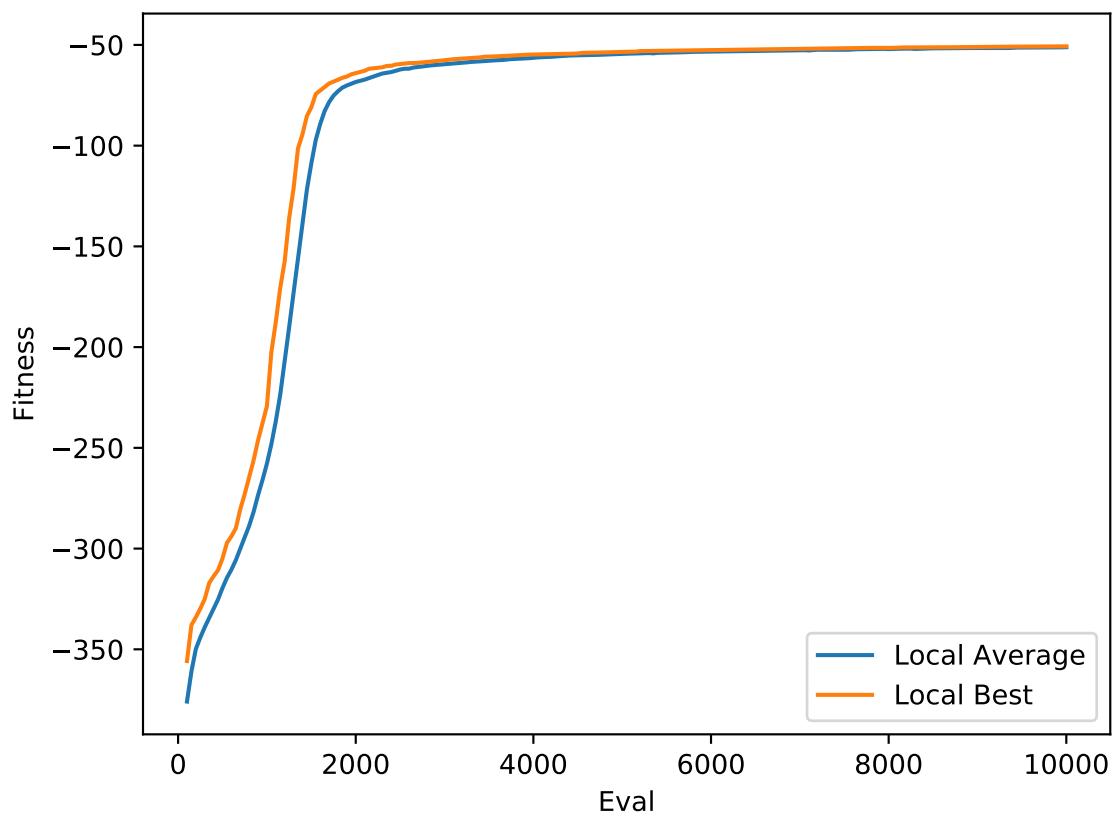


Table 115: Figure 155 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2035
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 116: Figure 156 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2036
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 155: Input 2

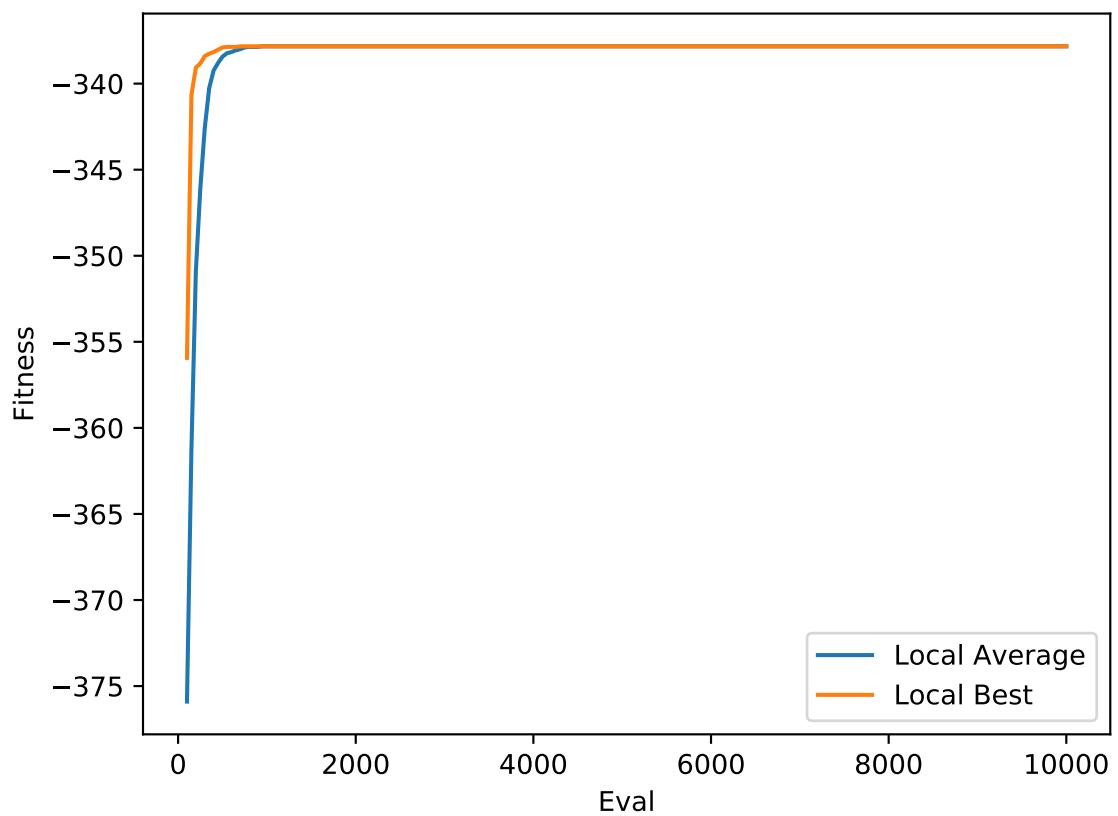


Figure 156: Input 2

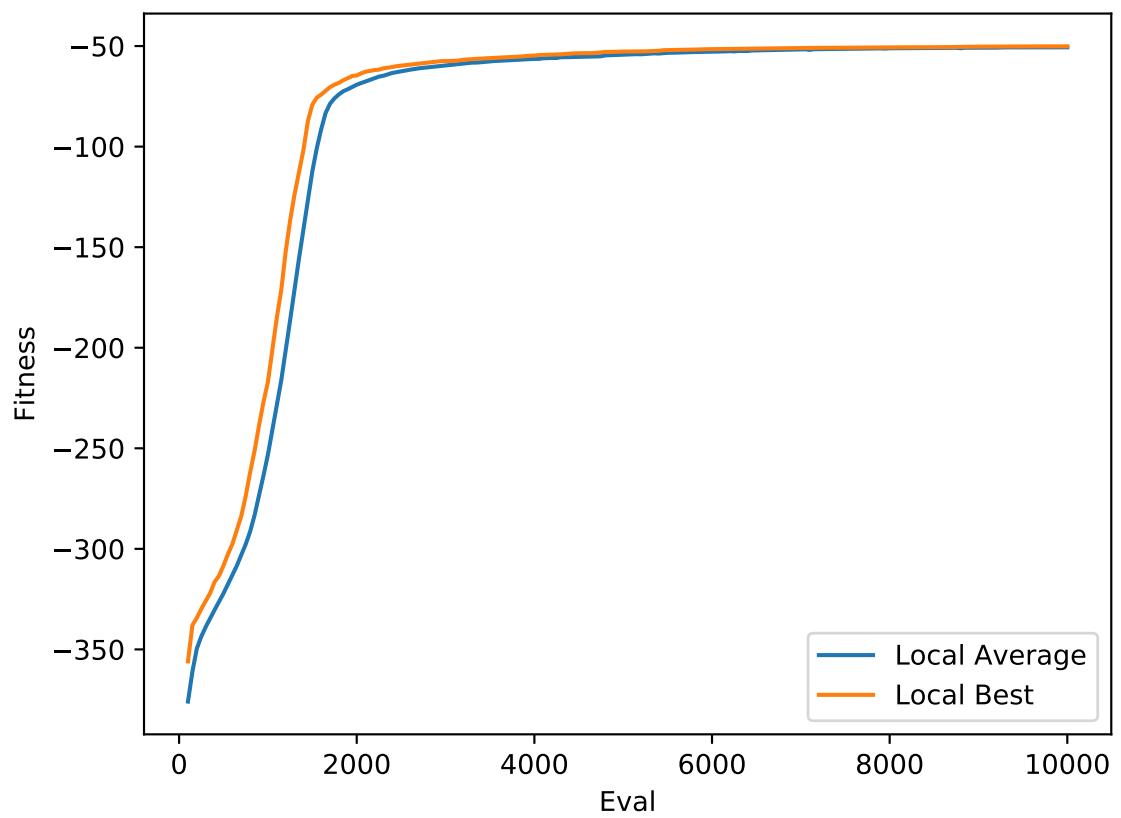


Table 117: Figure 157 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2037
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 118: Figure 158 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2038
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 157: Input 2

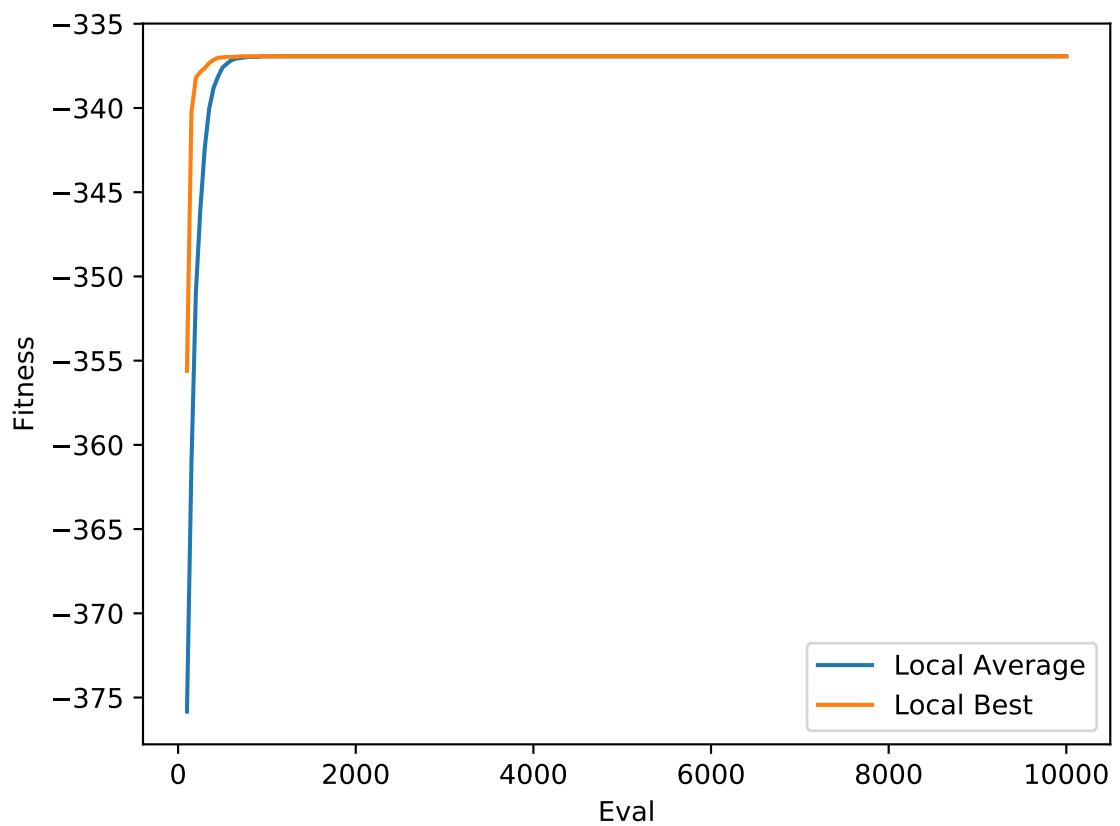


Figure 158: Input 2

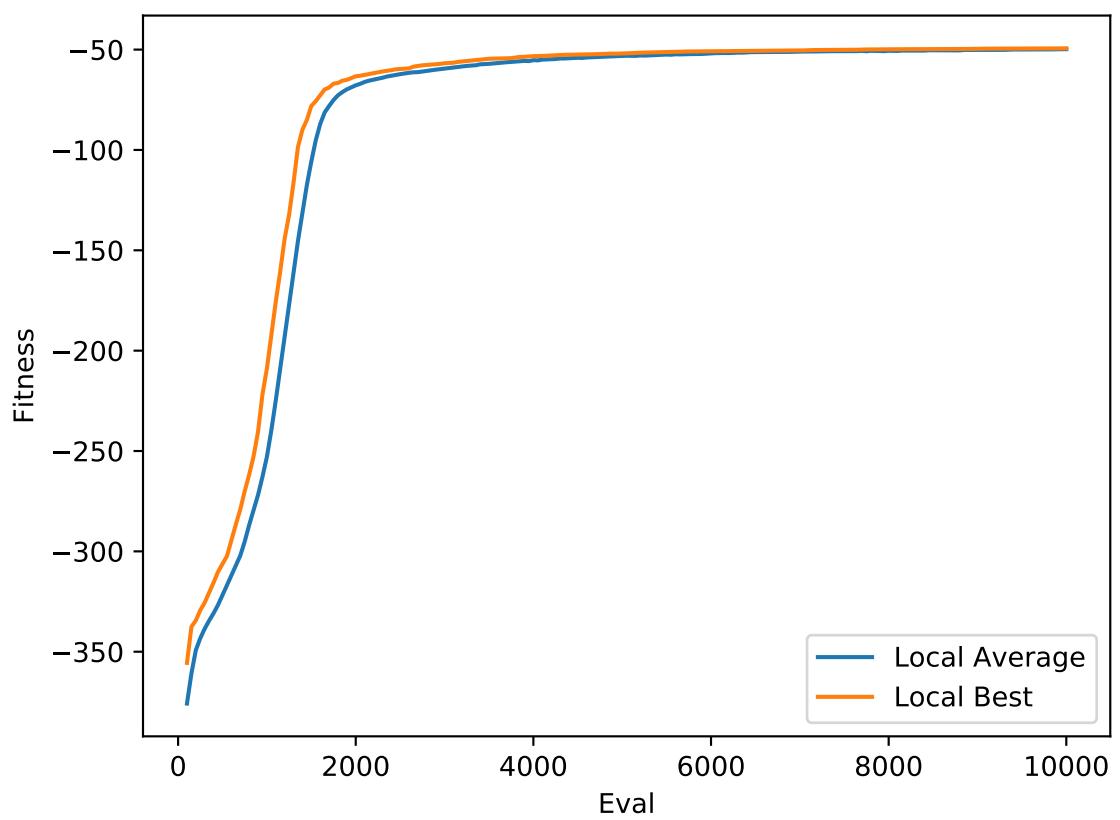


Table 119: Figure 159 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2039
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 120: Figure 160 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2040
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 159: Input 2

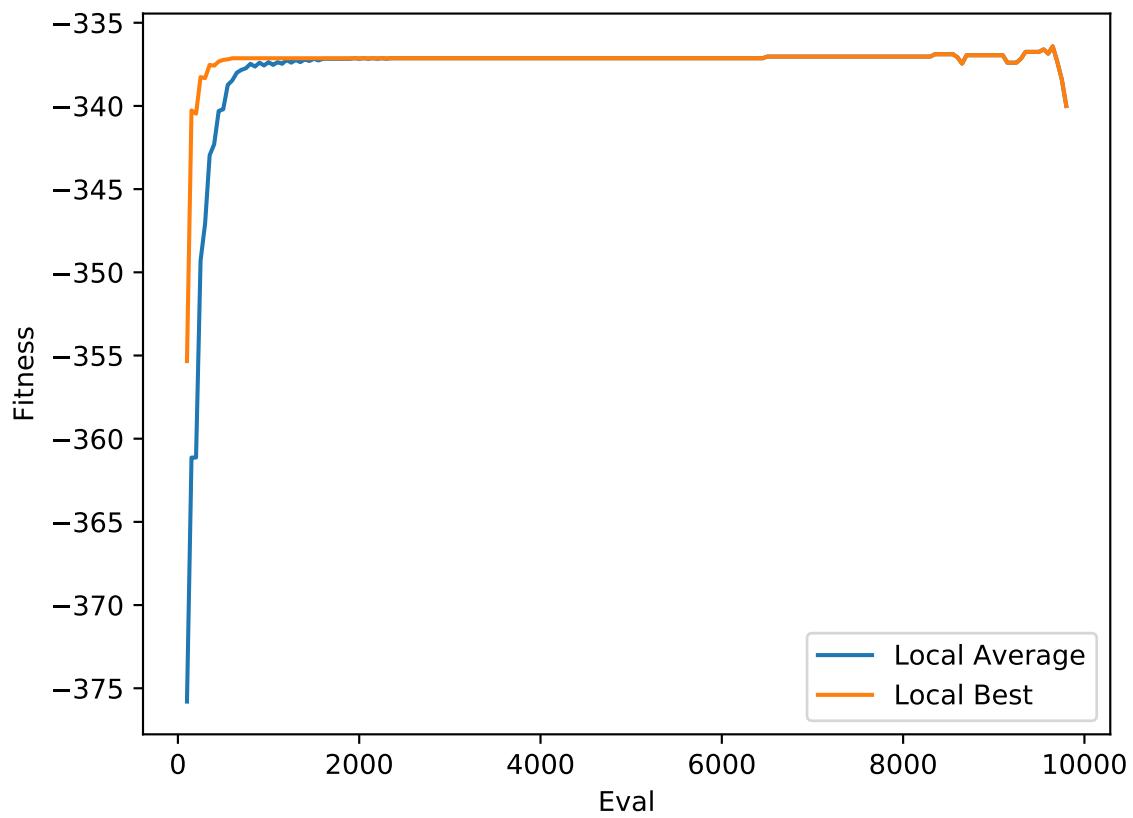


Figure 160: Input 2

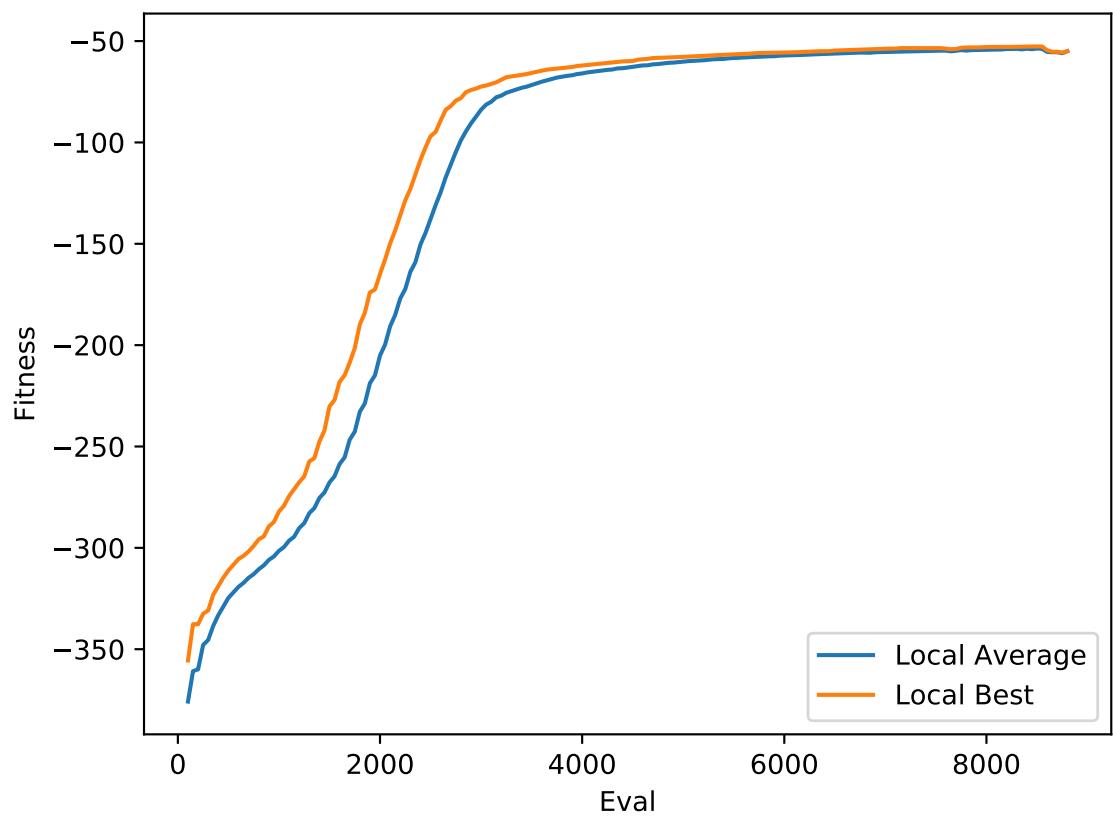


Table 121: Figure 161 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2041
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 122: Figure 162 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2042
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 161: Input 2

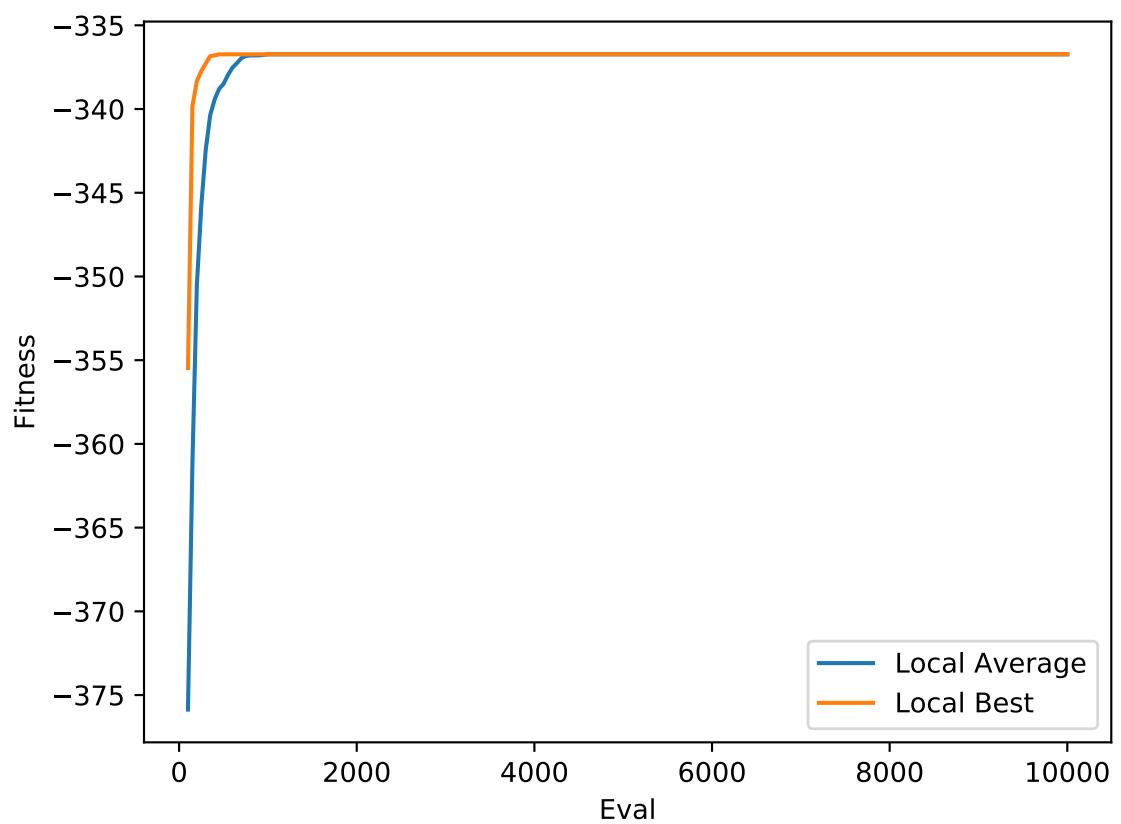


Figure 162: Input 2

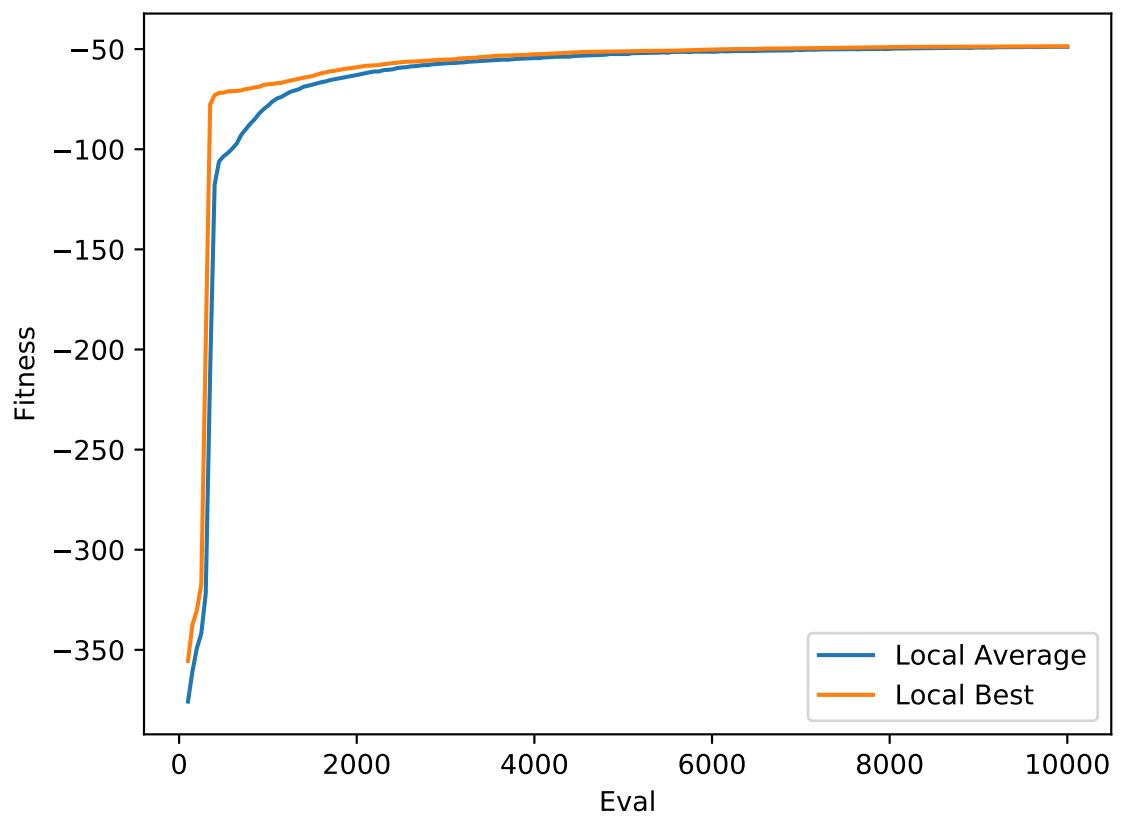


Table 123: Figure 163 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2043
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 124: Figure 164 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2044
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 163: Input 2

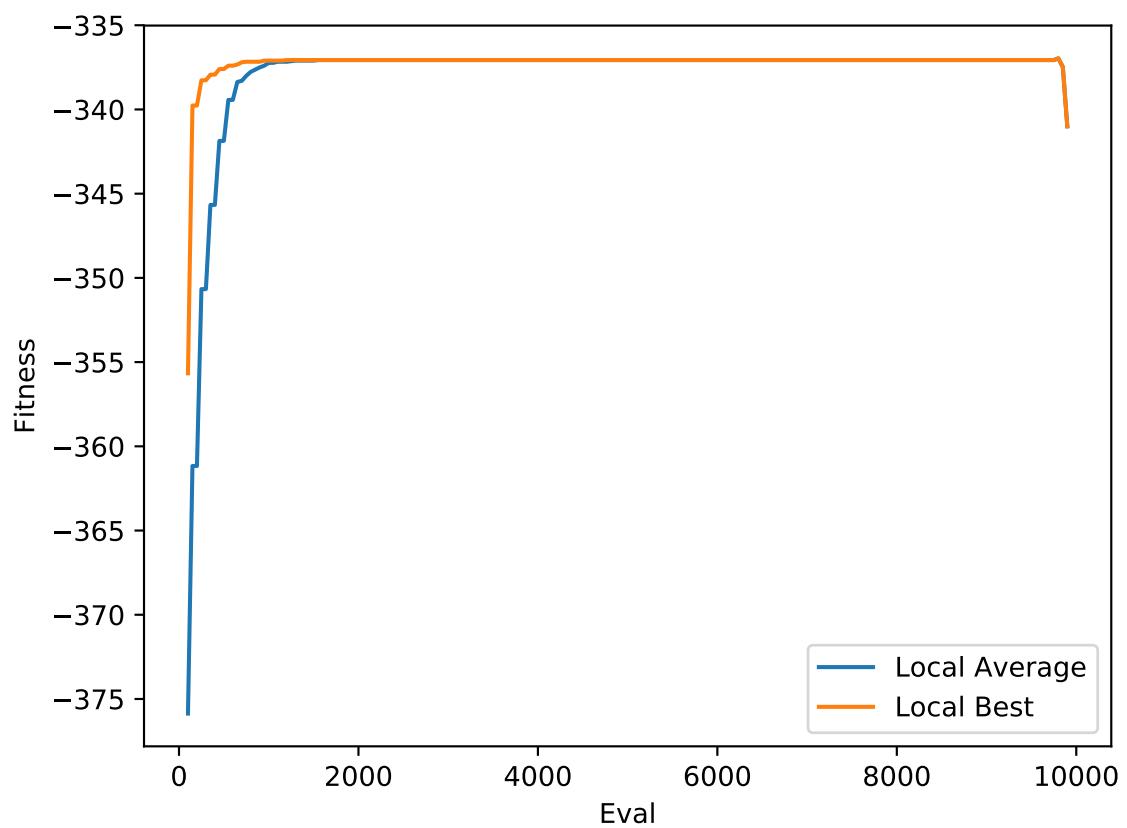


Figure 164: Input 2

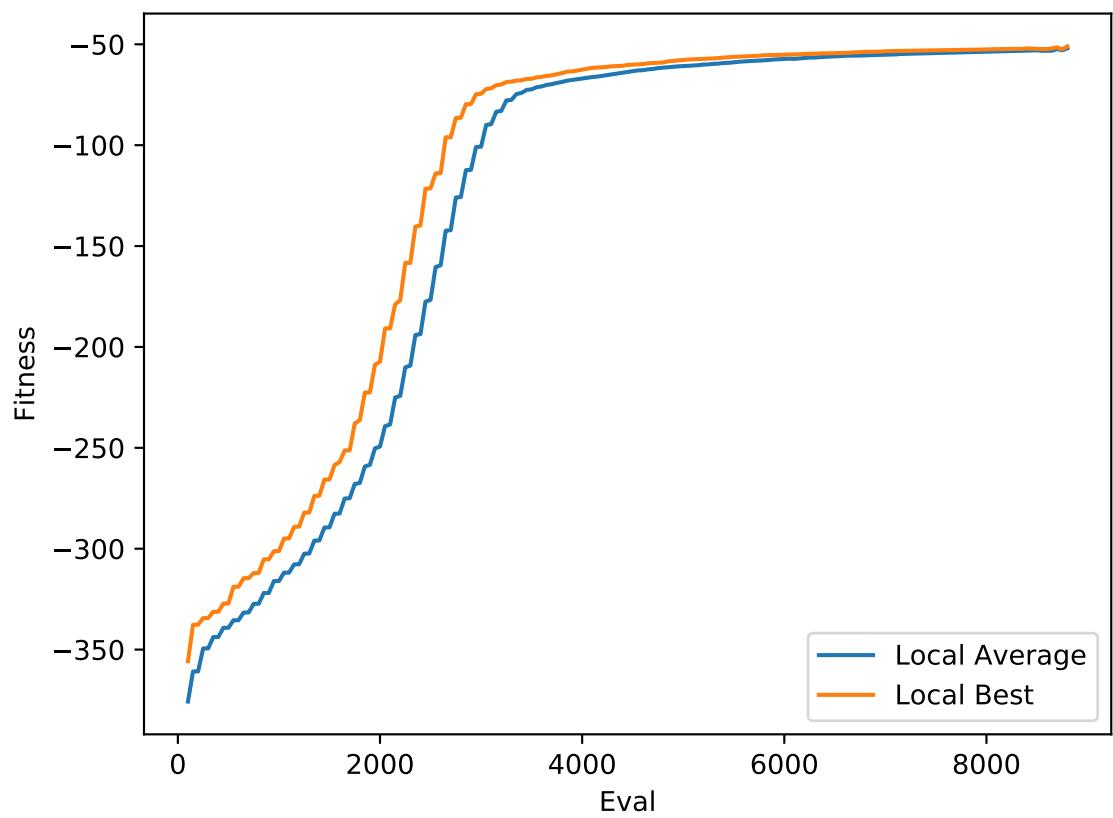


Table 125: Figure 165 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2045
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 126: Figure 166 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2046
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 165: Input 2

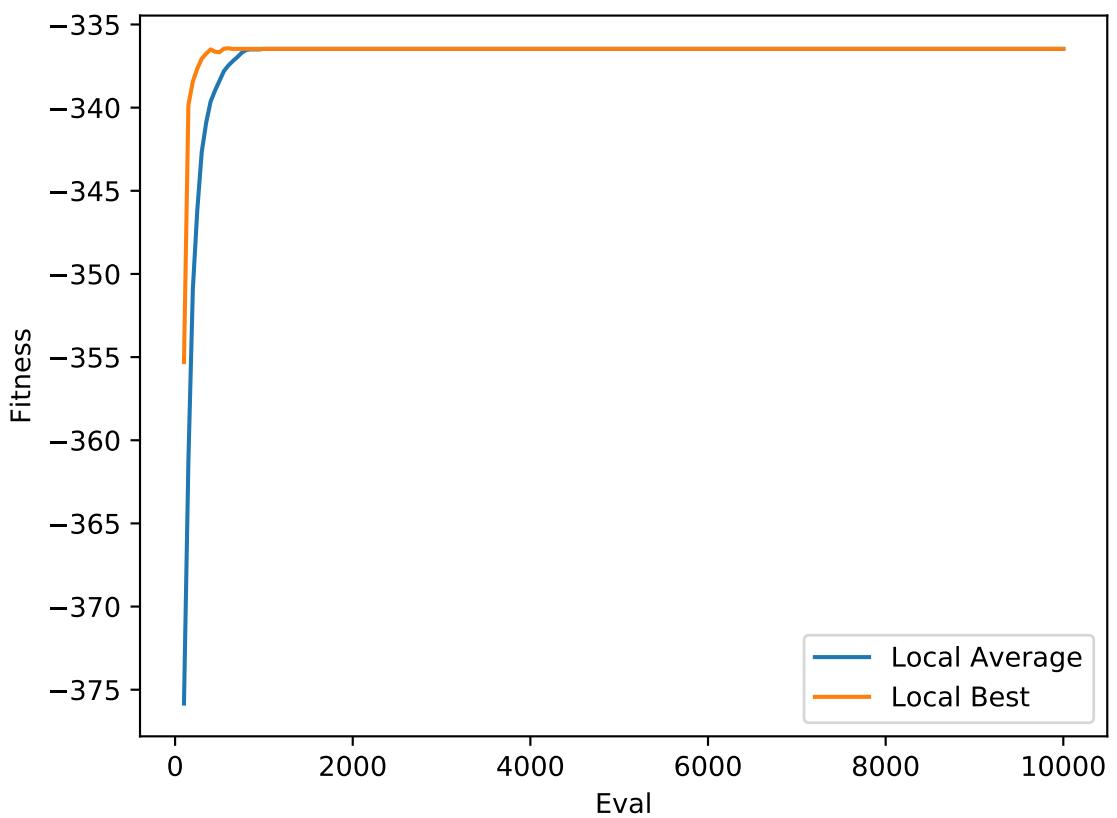


Figure 166: Input 2

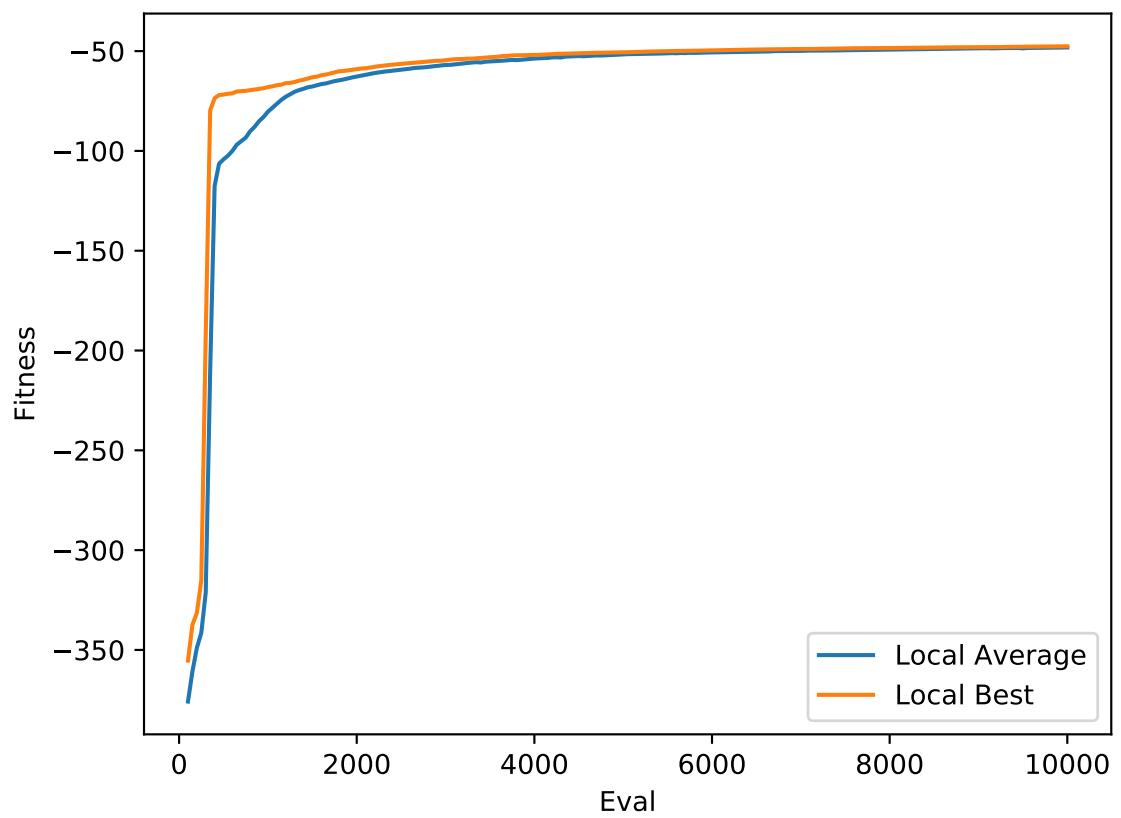


Table 127: Figure 167 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2047
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 128: Figure 168 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2048
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 167: Input 2

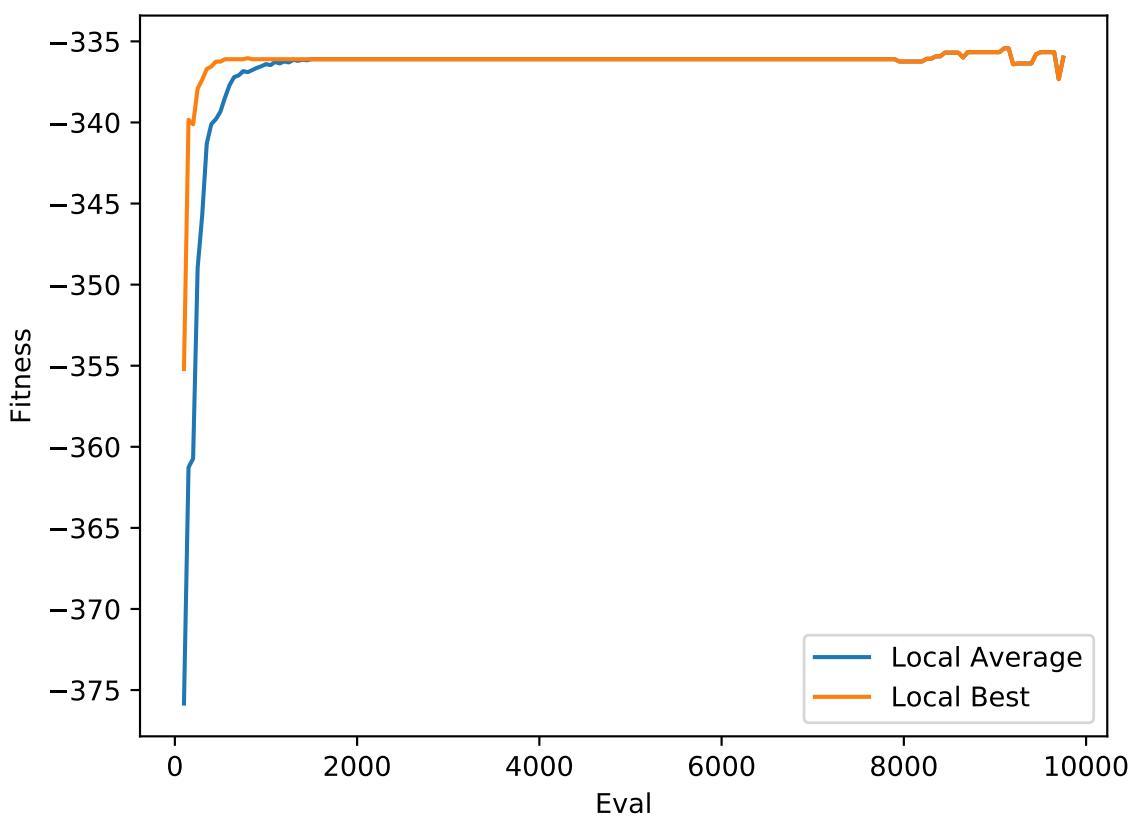


Figure 168: Input 2

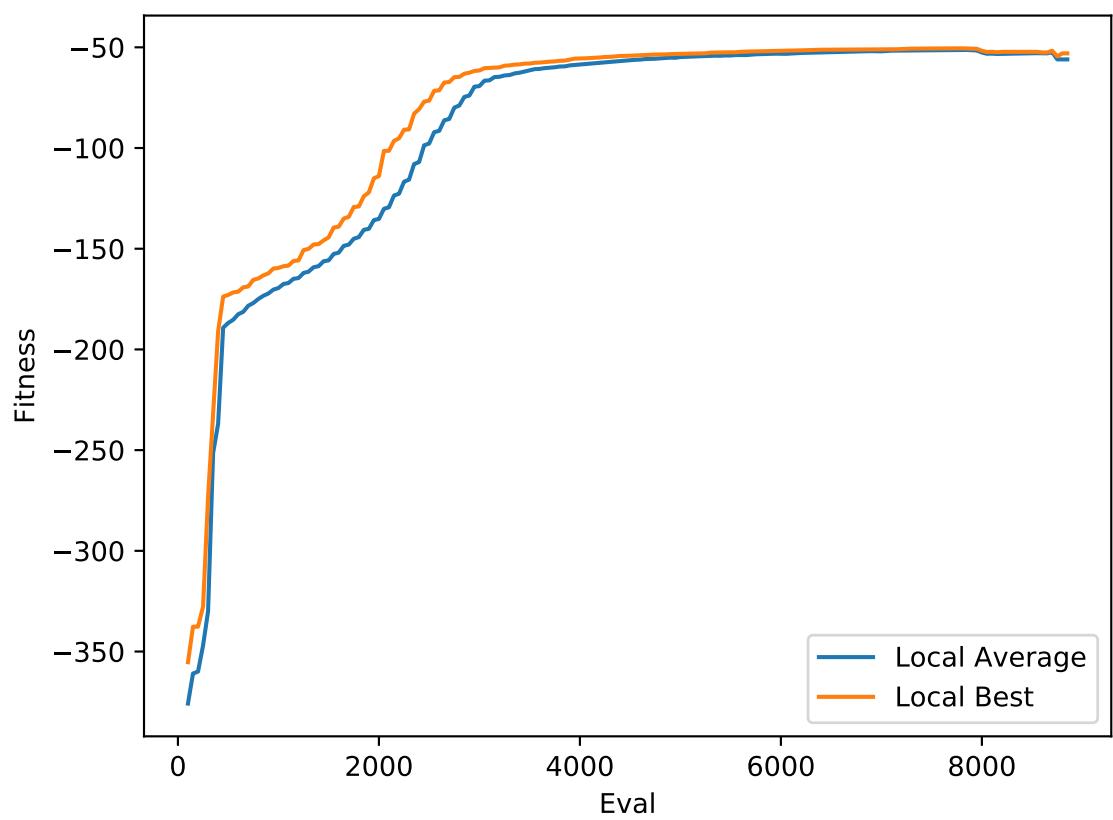


Table 129: Figure 169 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2049
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 130: Figure 170 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2050
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 169: Input 2

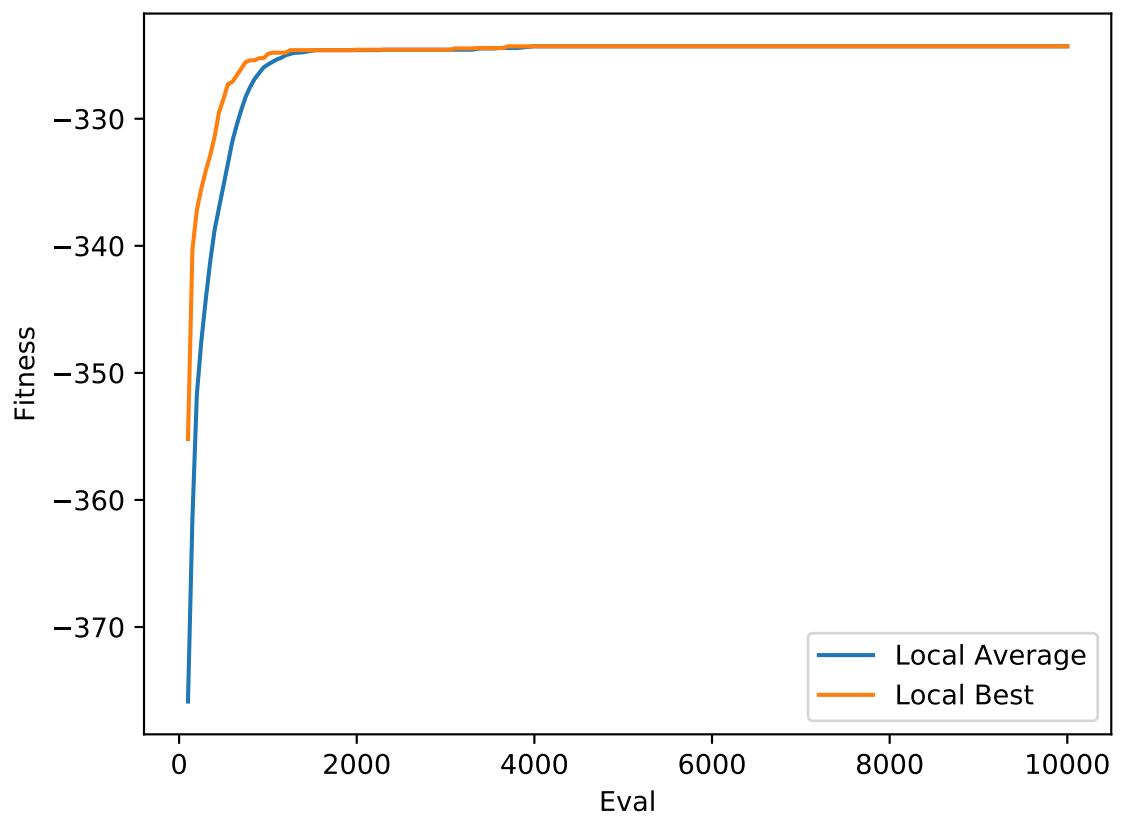


Figure 170: Input 2

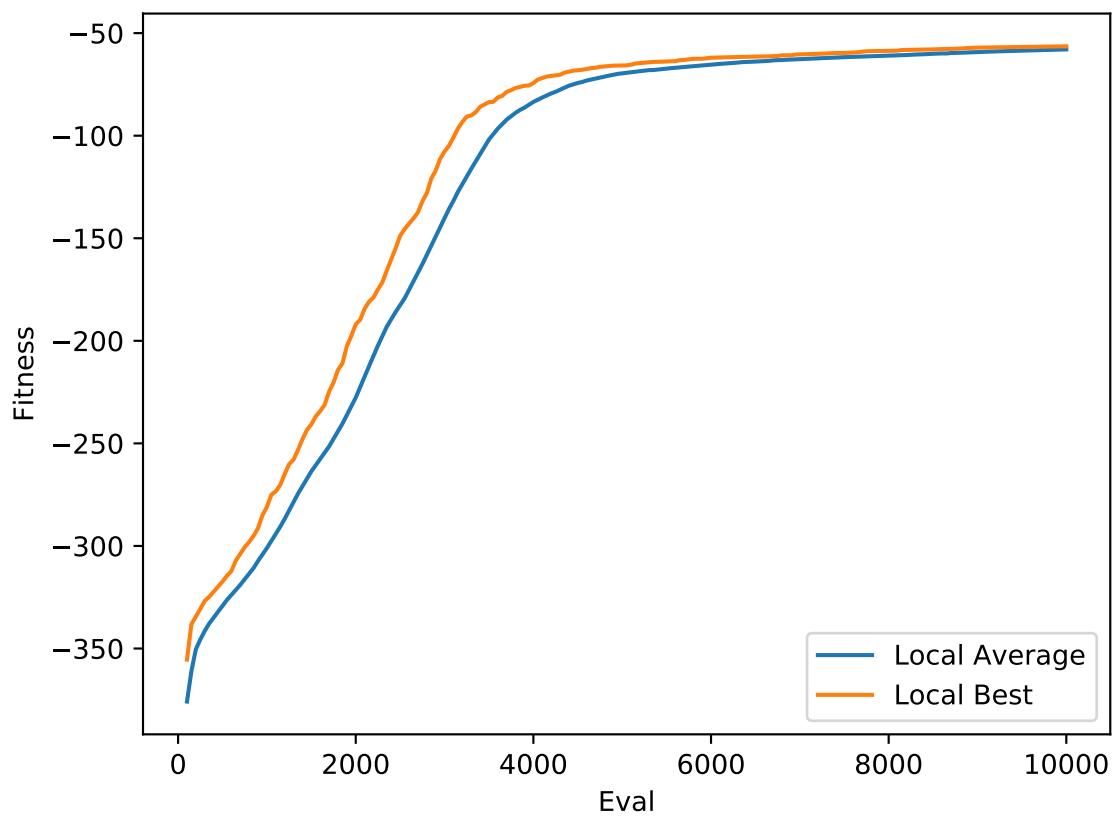


Table 131: Figure 171 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2051
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 132: Figure 172 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2052
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 171: Input 2

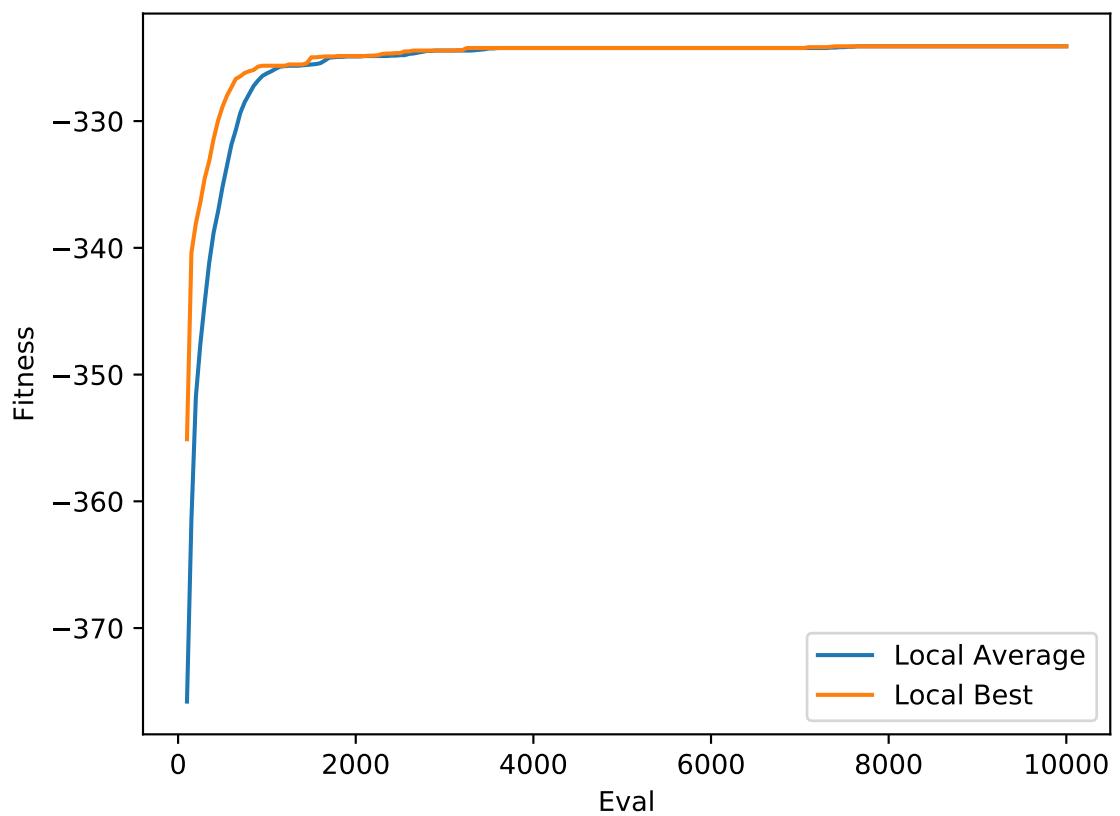


Figure 172: Input 2

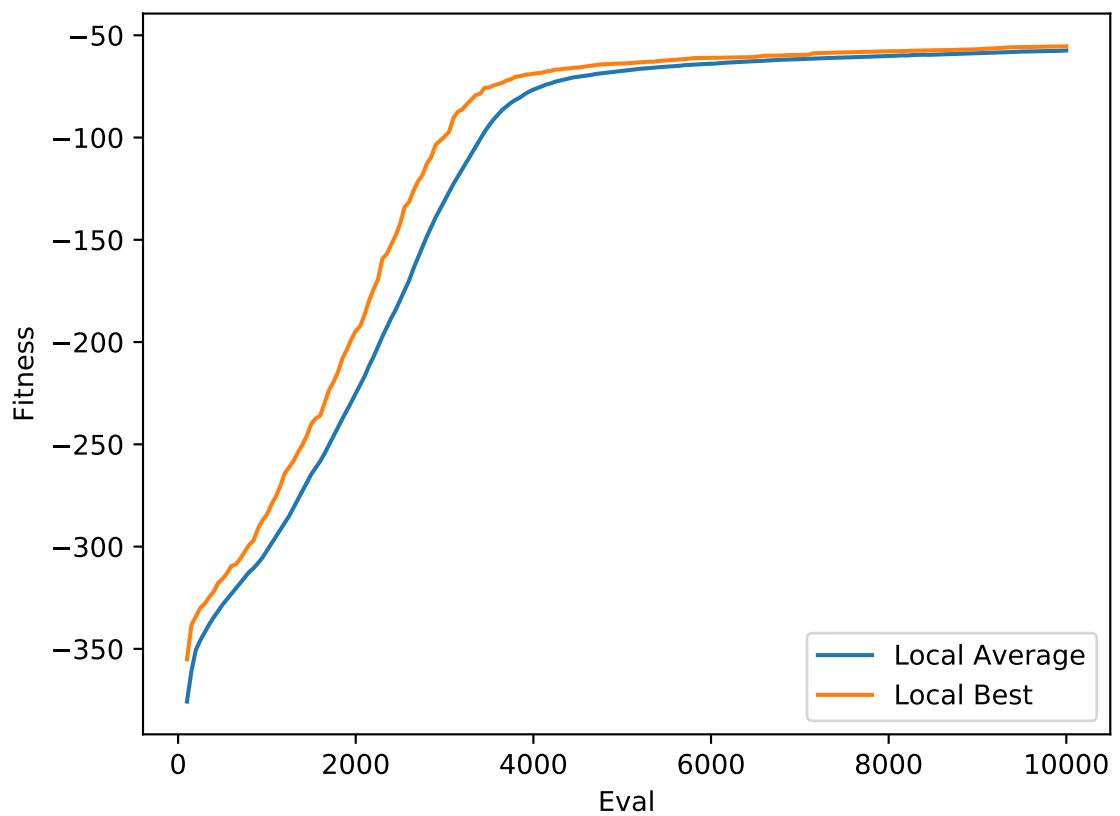


Table 133: Figure 173 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2053
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 134: Figure 174 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2054
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 173: Input 2

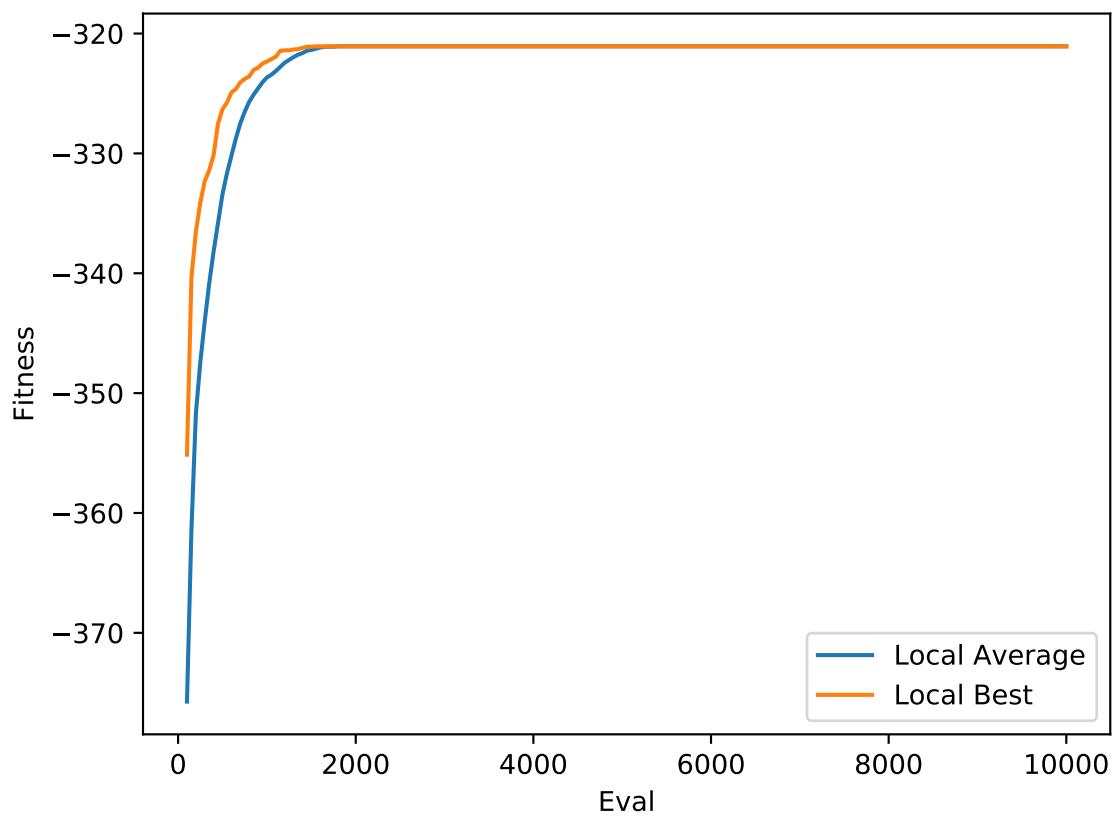


Figure 174: Input 2

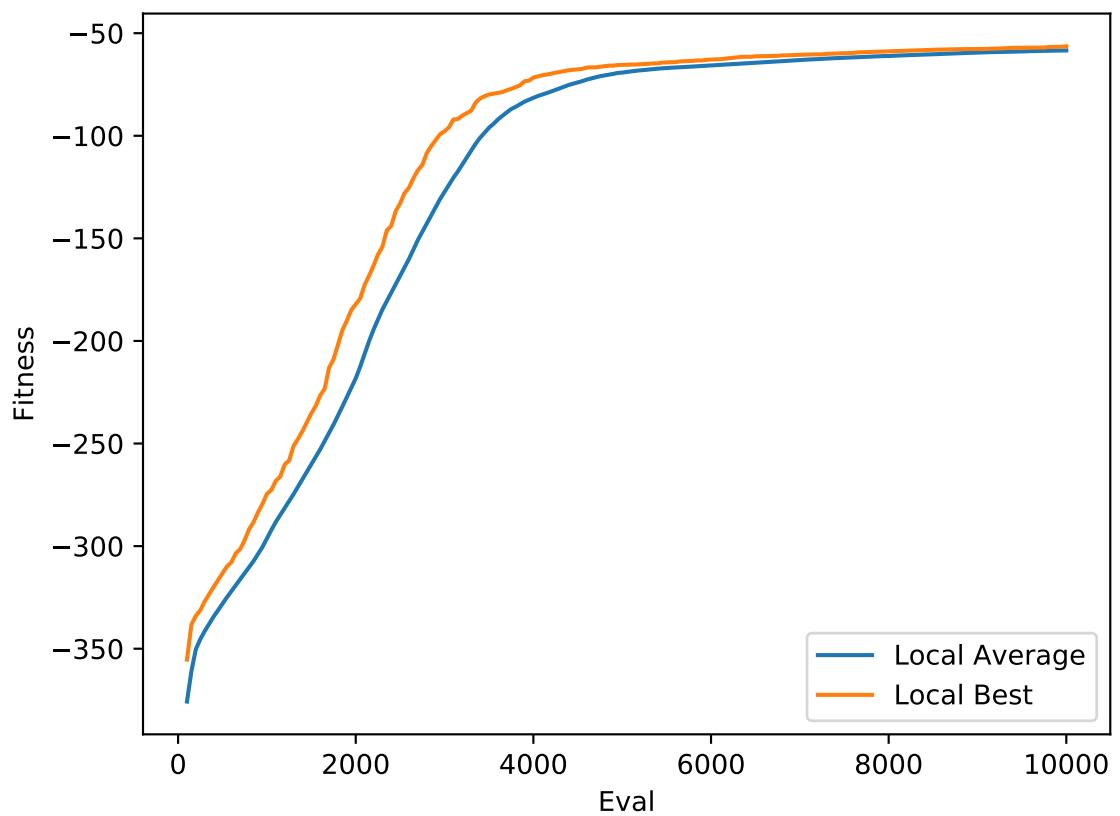


Table 135: Figure 175 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2055
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 136: Figure 176 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2056
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 175: Input 2

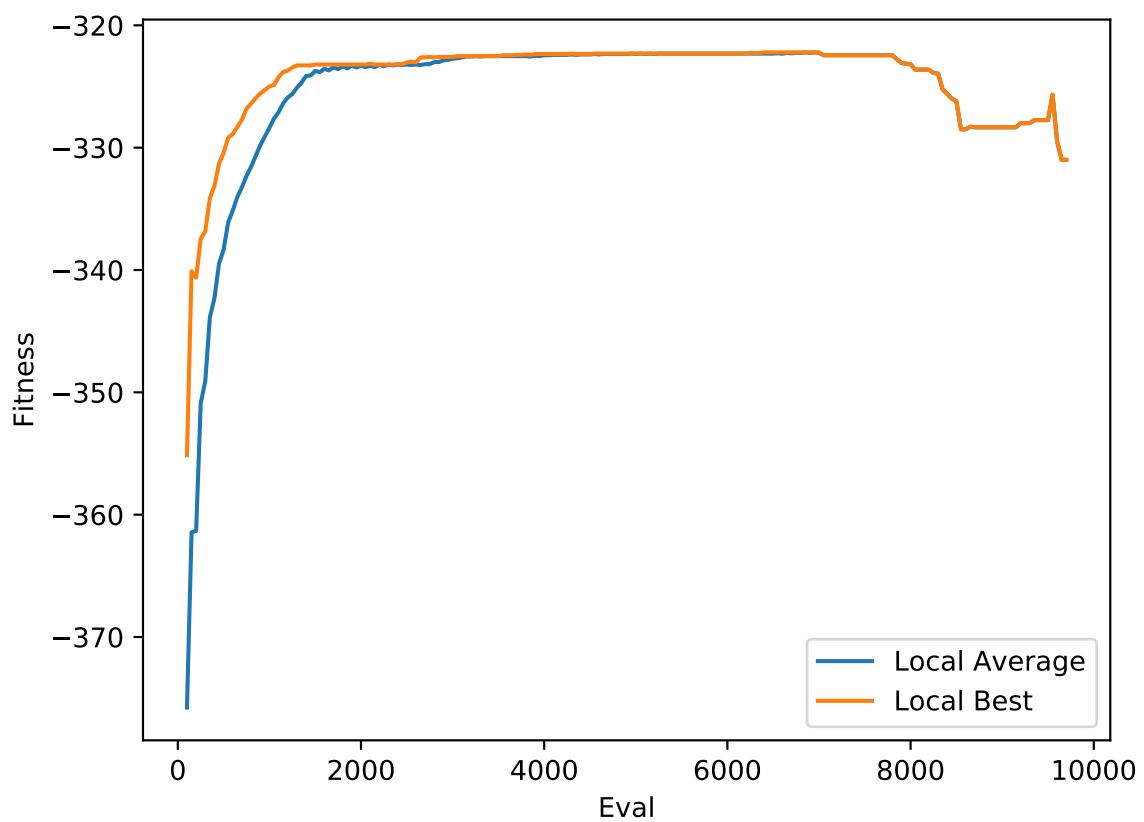


Figure 176: Input 2

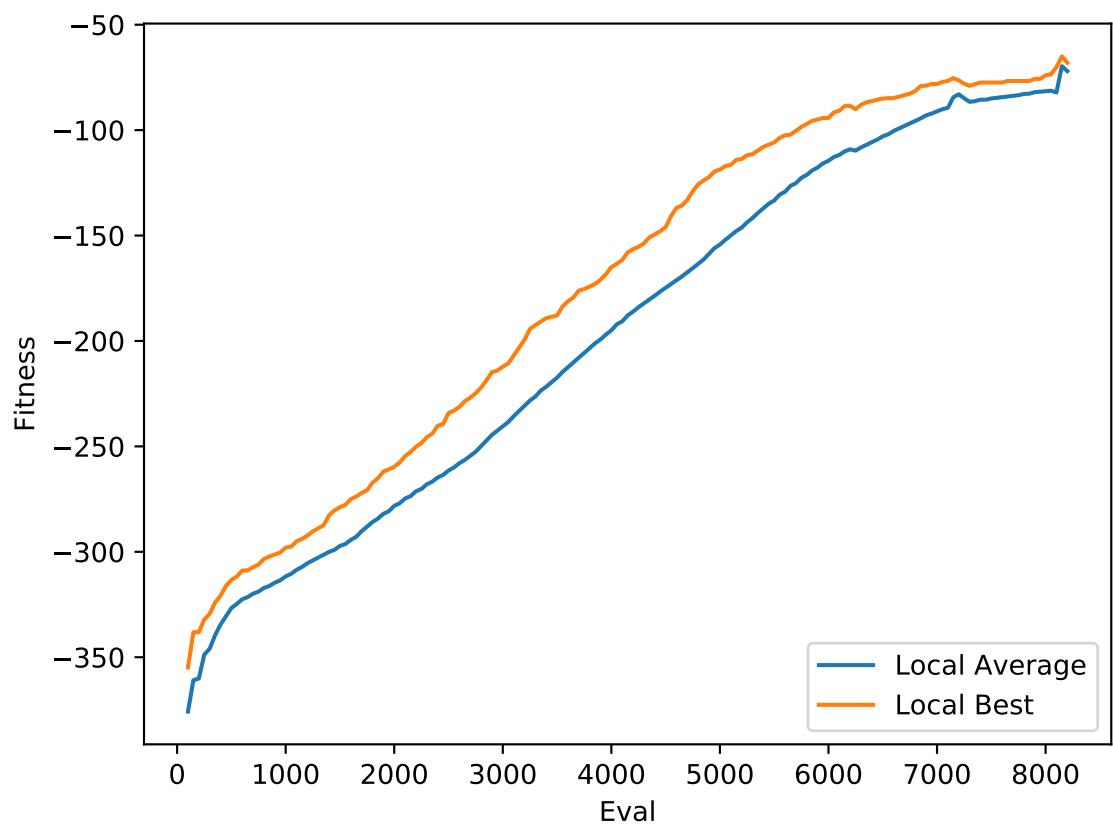


Table 137: Figure 177 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2057
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 138: Figure 178 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2058
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 177: Input 2

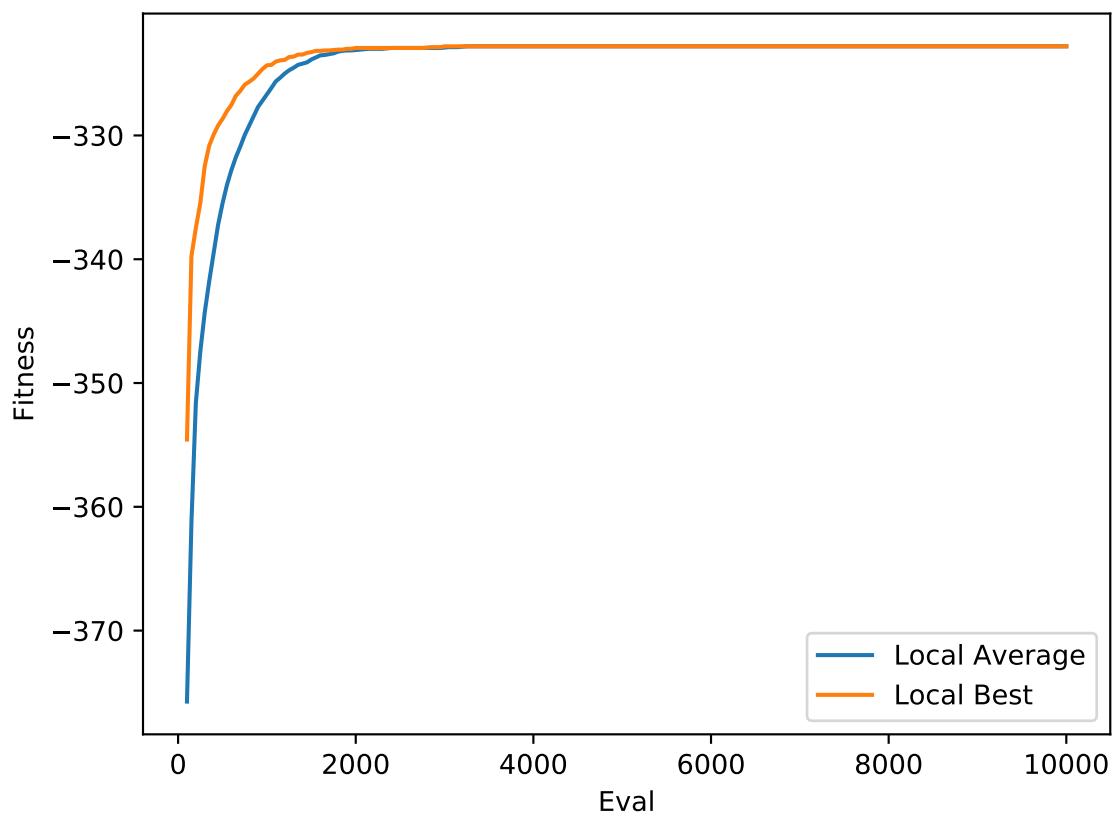


Figure 178: Input 2

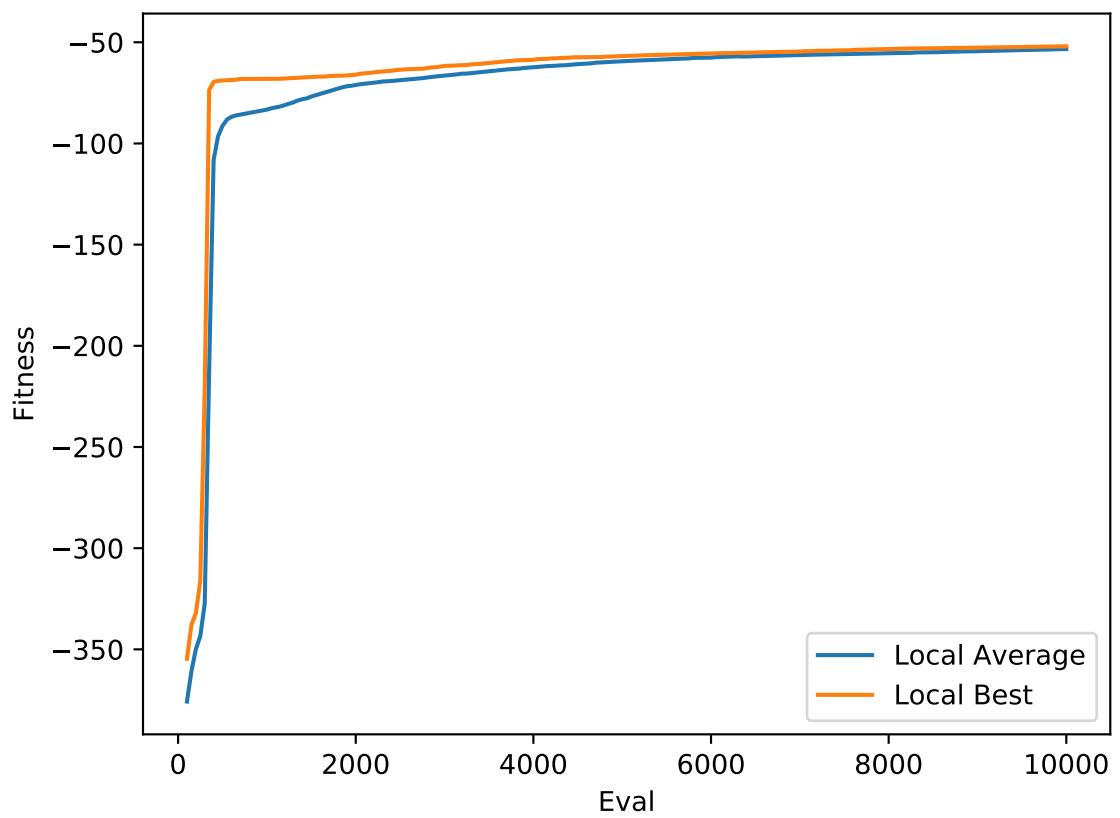


Table 139: Figure 179 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2059
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 140: Figure 180 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2060
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 179: Input 2

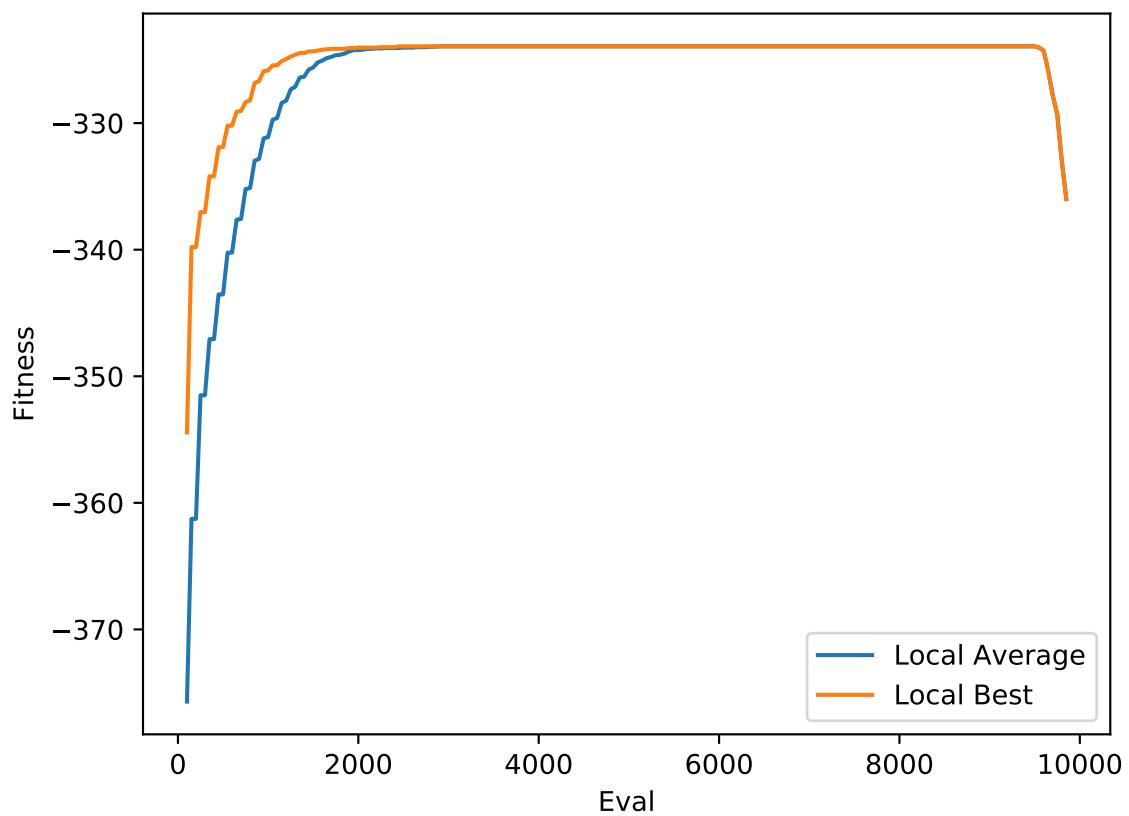


Figure 180: Input 2

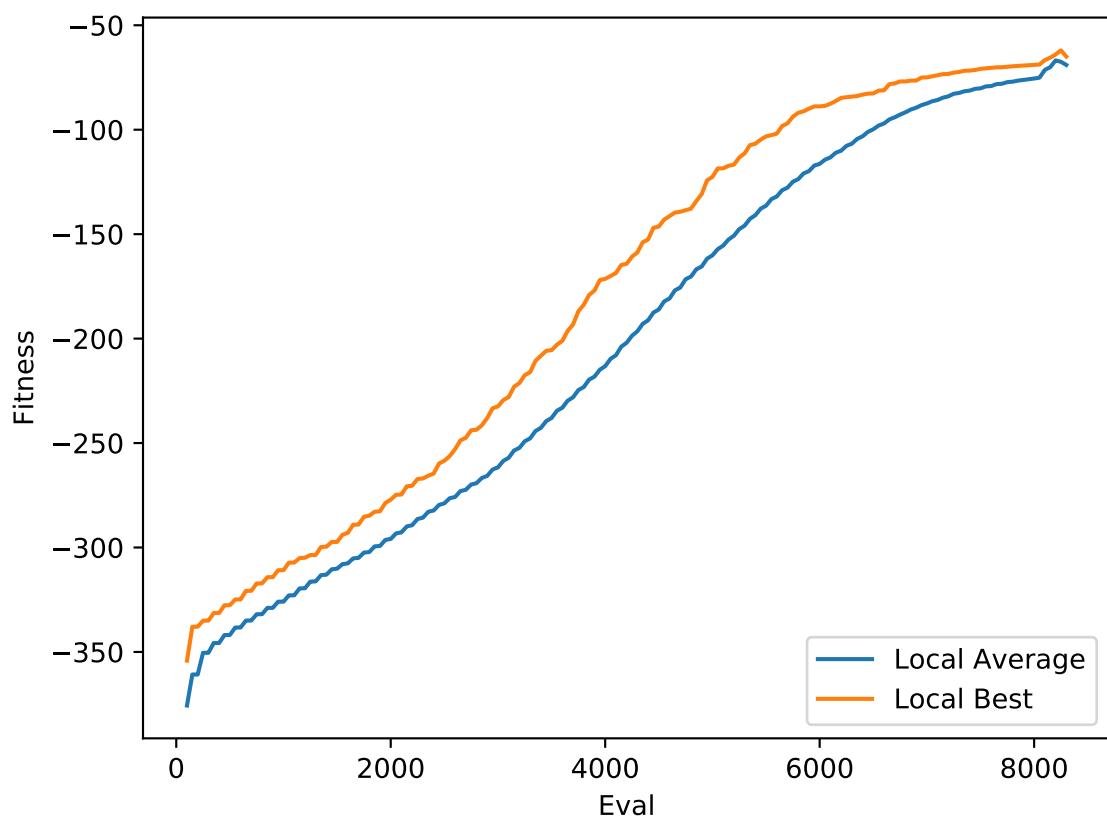


Table 141: Figure 181 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2061
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 142: Figure 182 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2062
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 181: Input 2

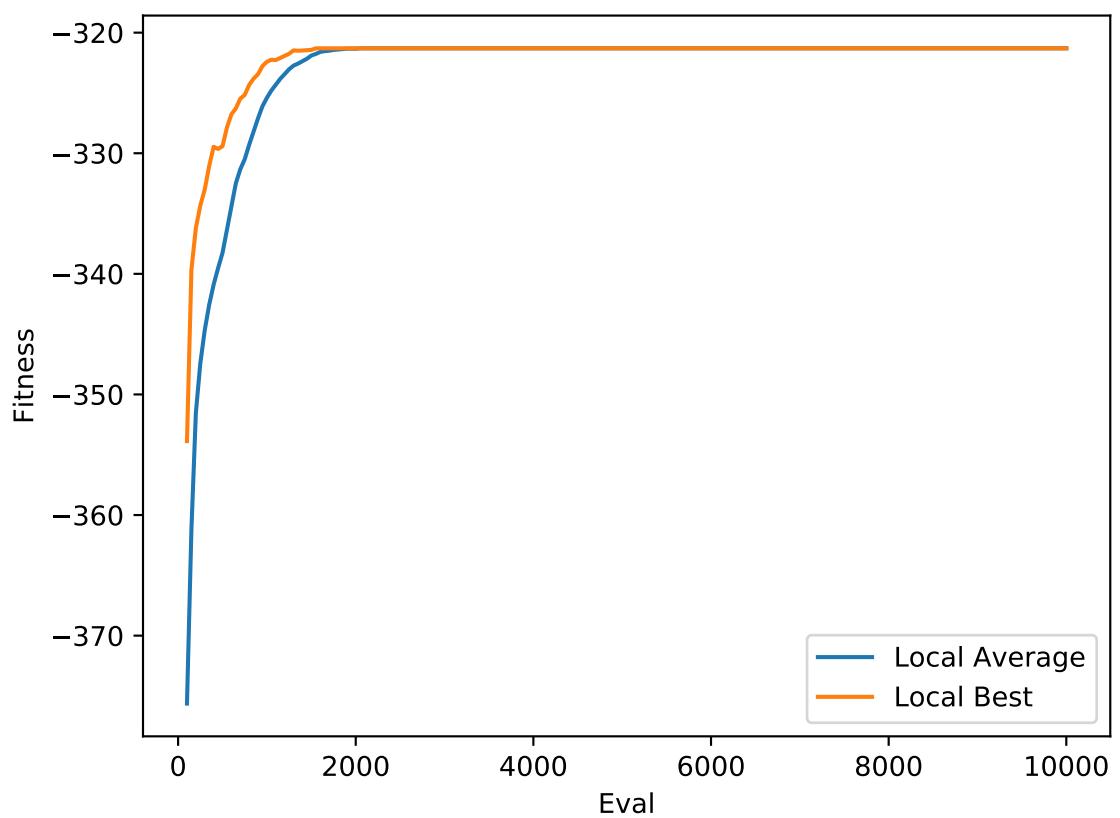


Figure 182: Input 2

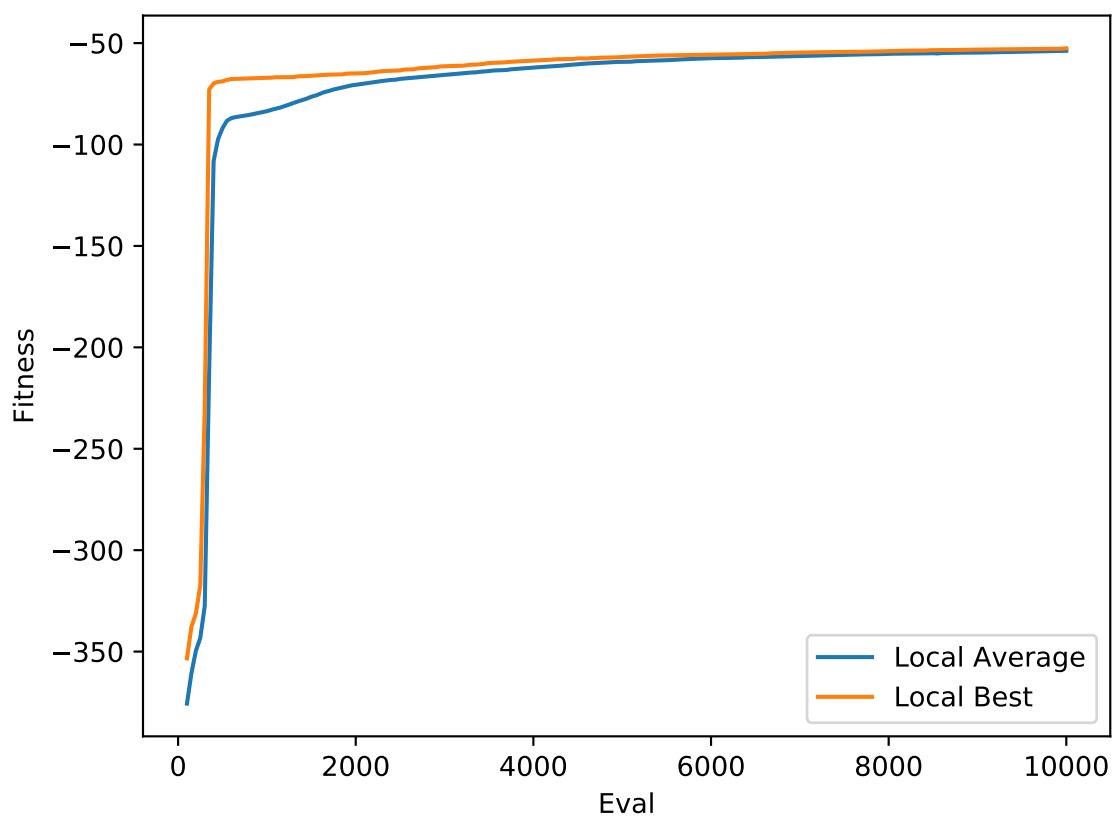


Table 143: Figure 183 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2063
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 144: Figure 184 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	5
Random Seed	2064
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	5
Population Size	100
Survivor Algorithm	Truncation
Offspring Count	50
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 183: Input 2

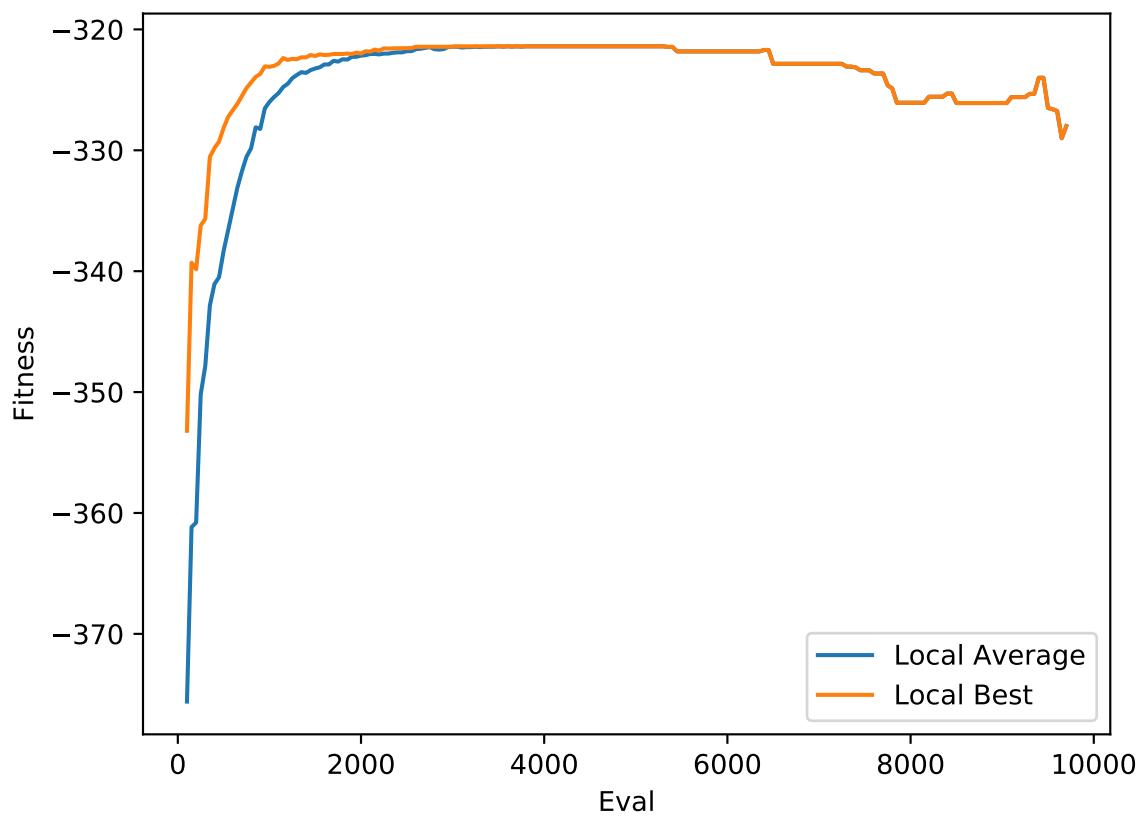


Figure 184: Input 2

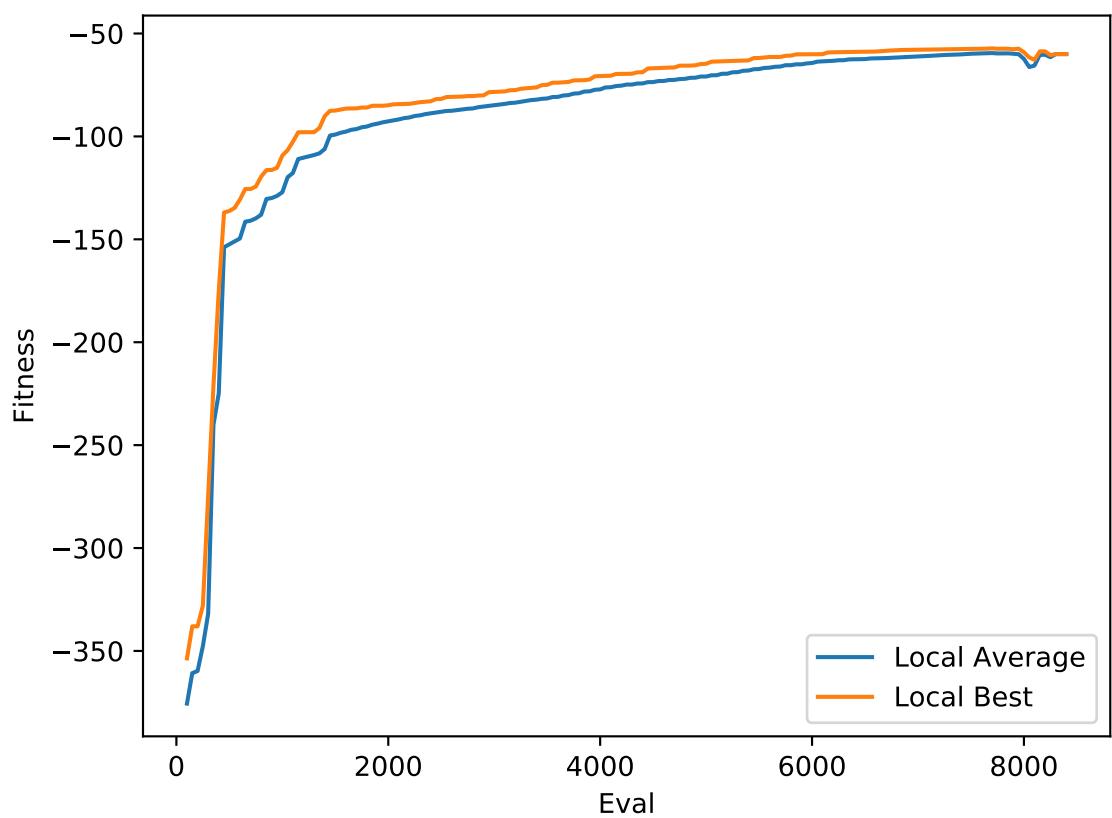


Table 145: Figure 185 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3001
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 146: Figure 186 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3002
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 185: Input 3

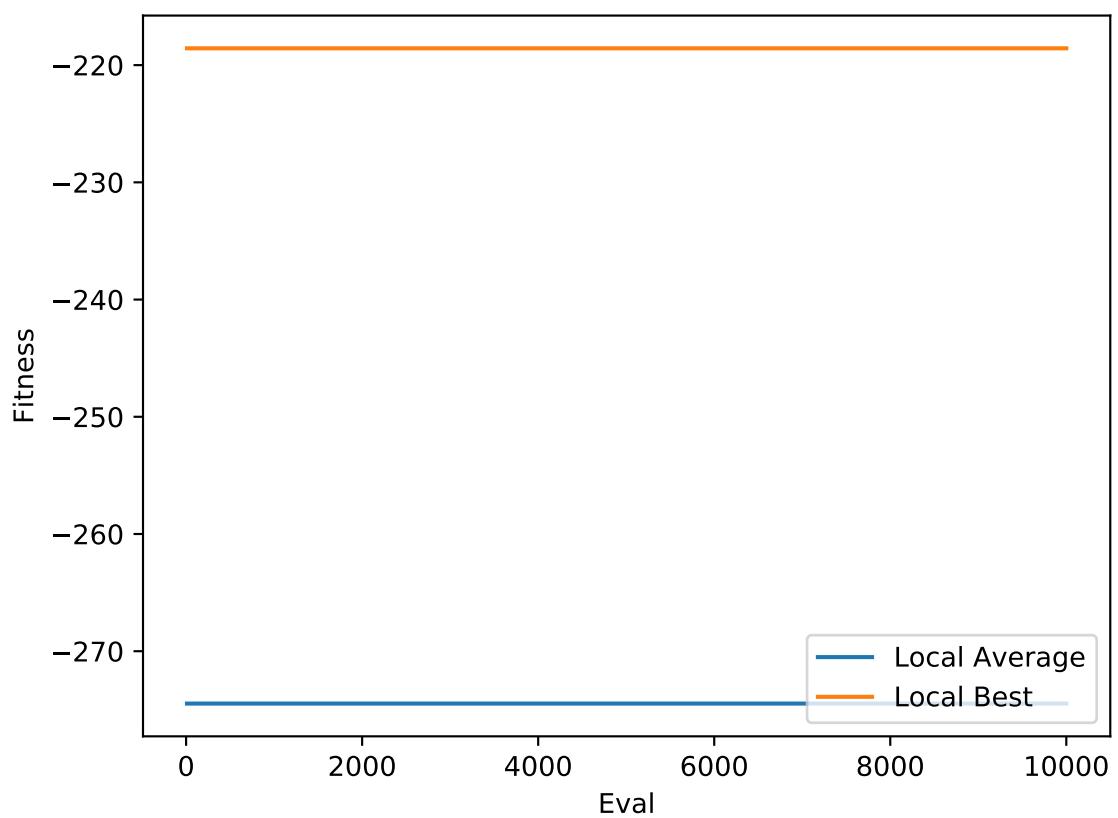


Figure 186: Input 3

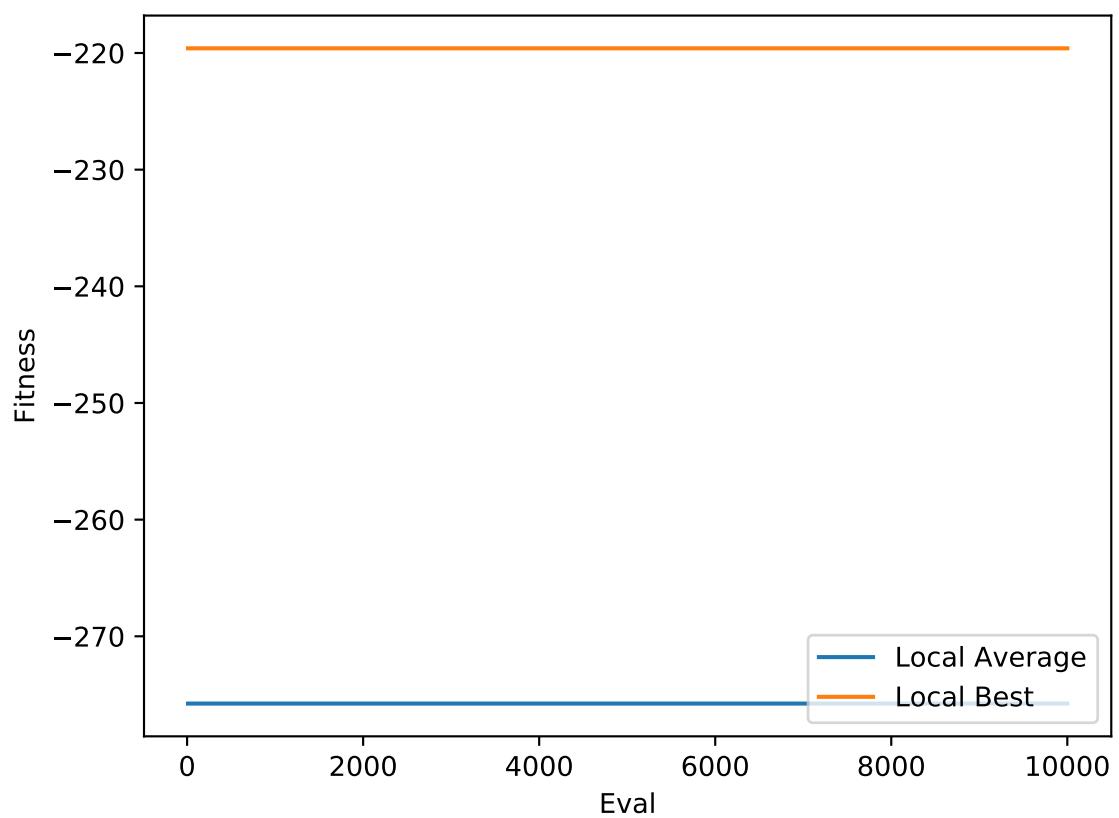


Table 147: Figure 187 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3003
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 148: Figure 188 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3004
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 187: Input 3

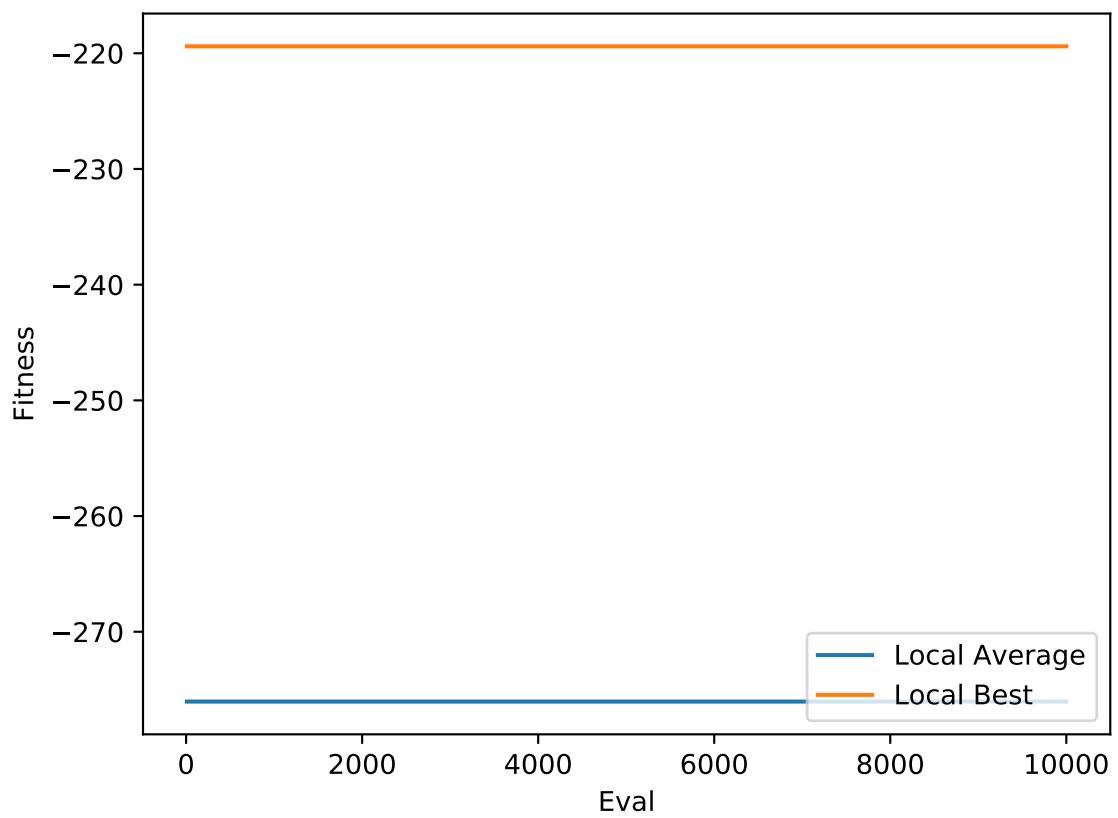


Figure 188: Input 3

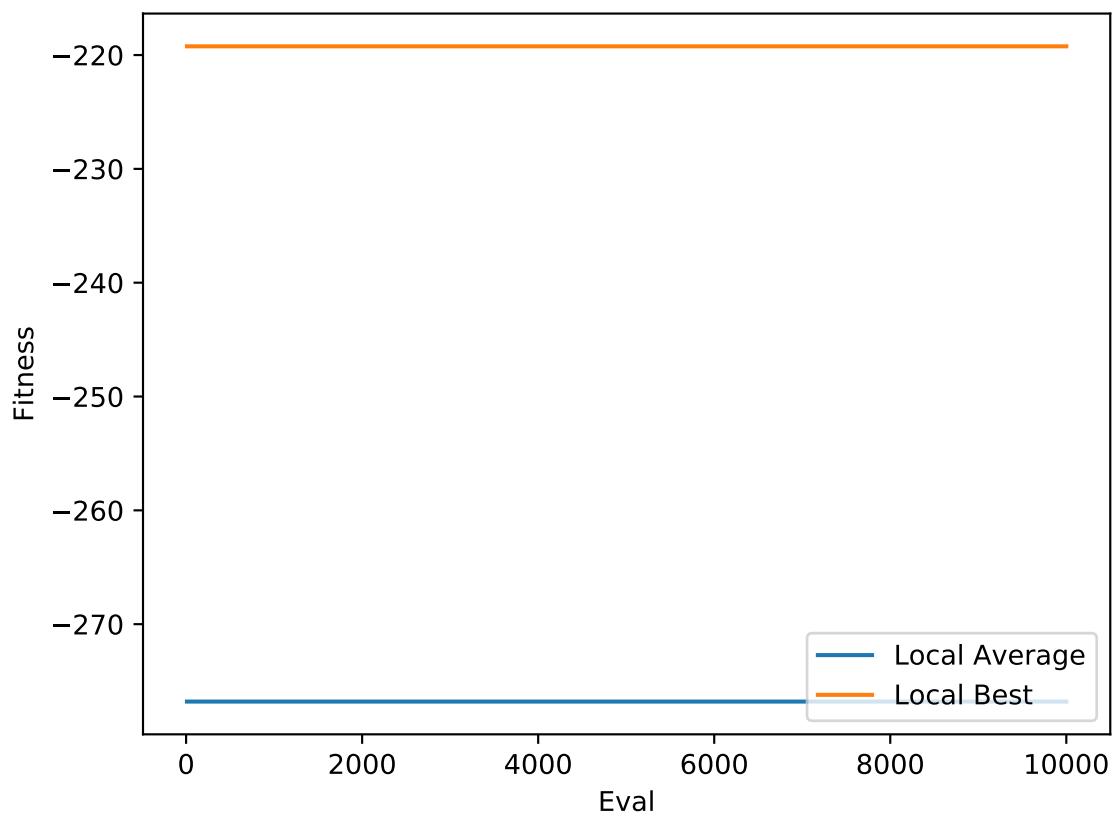


Table 149: Figure 189 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3005
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 150: Figure 190 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3006
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 189: Input 3

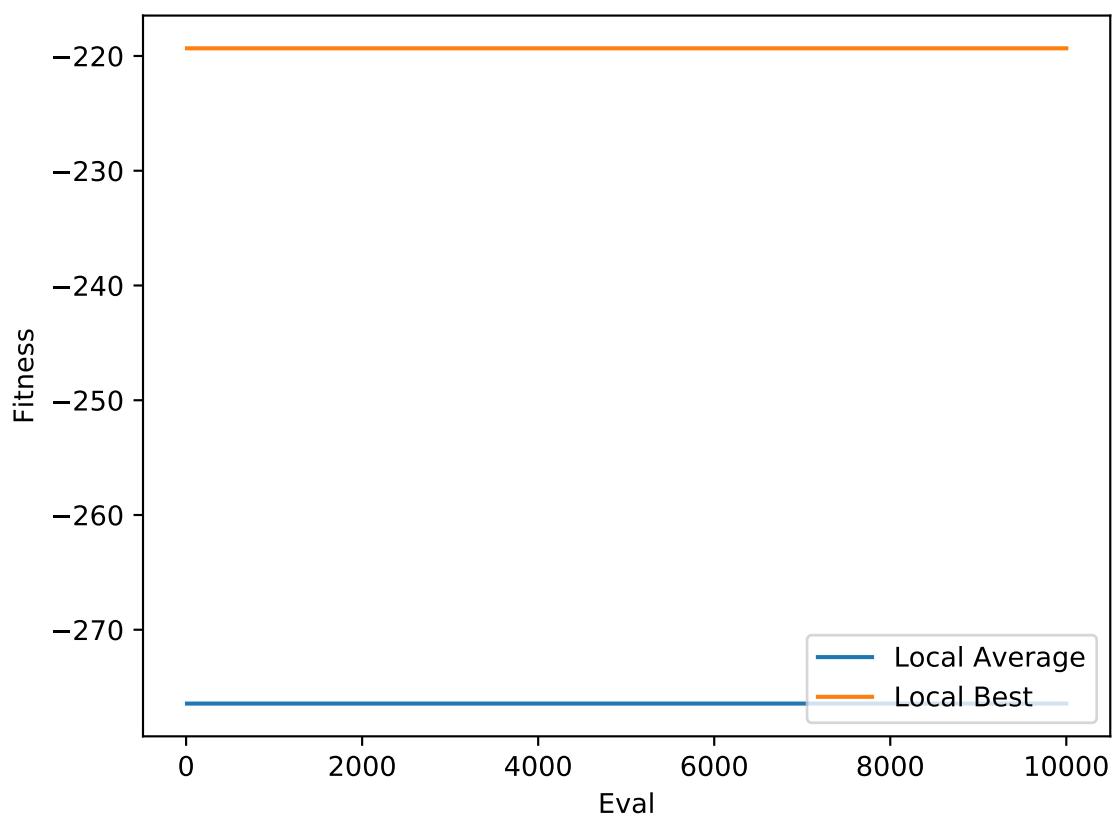


Figure 190: Input 3

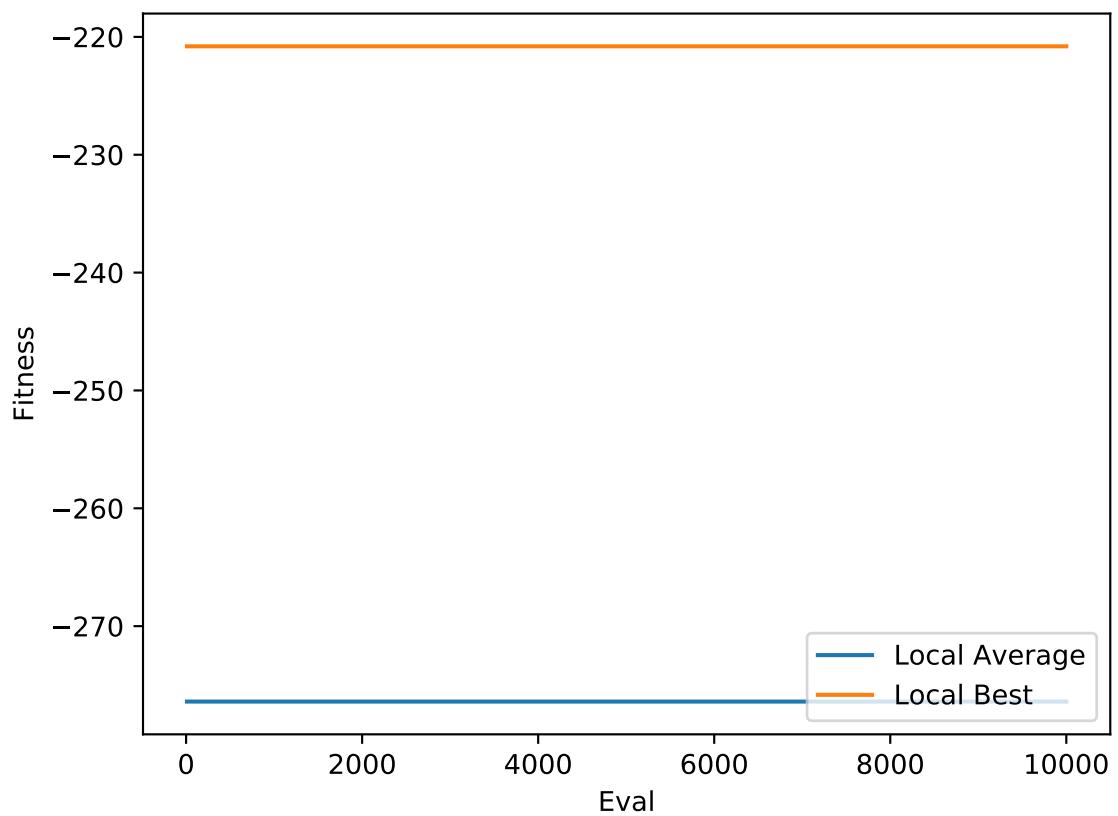


Table 151: Figure 191 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3007
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 152: Figure 192 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3008
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 191: Input 3

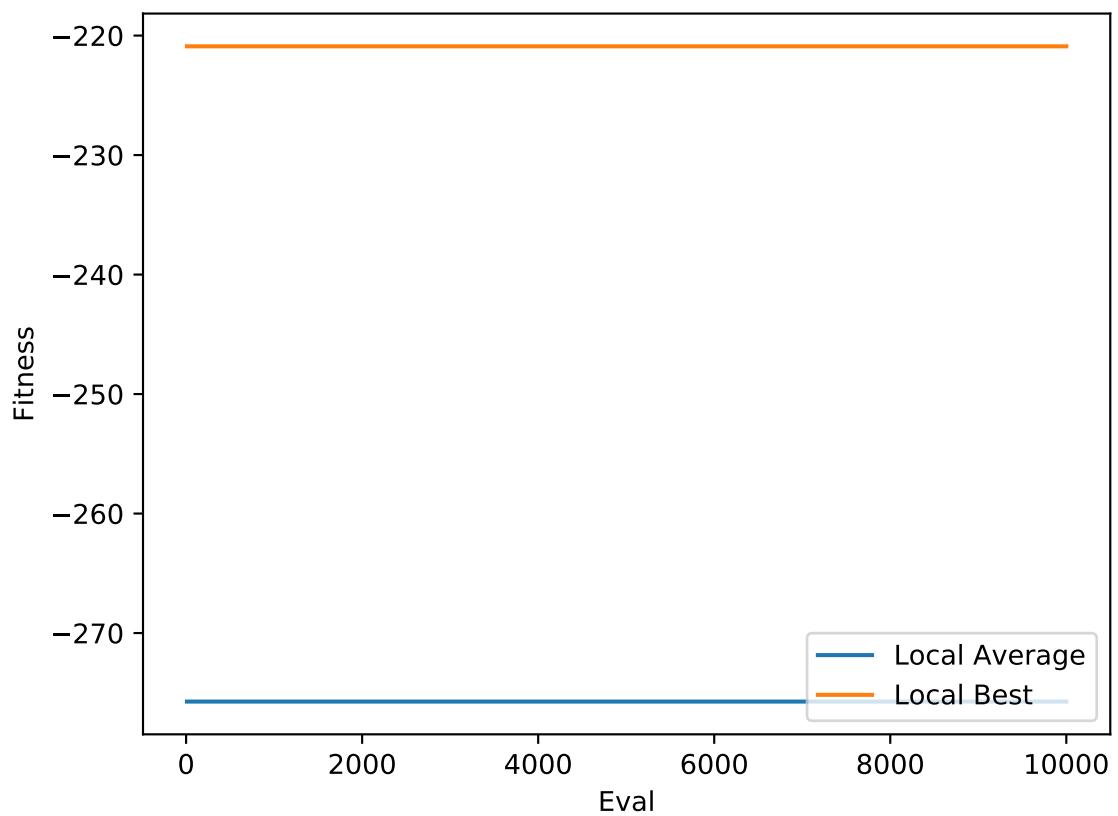


Figure 192: Input 3

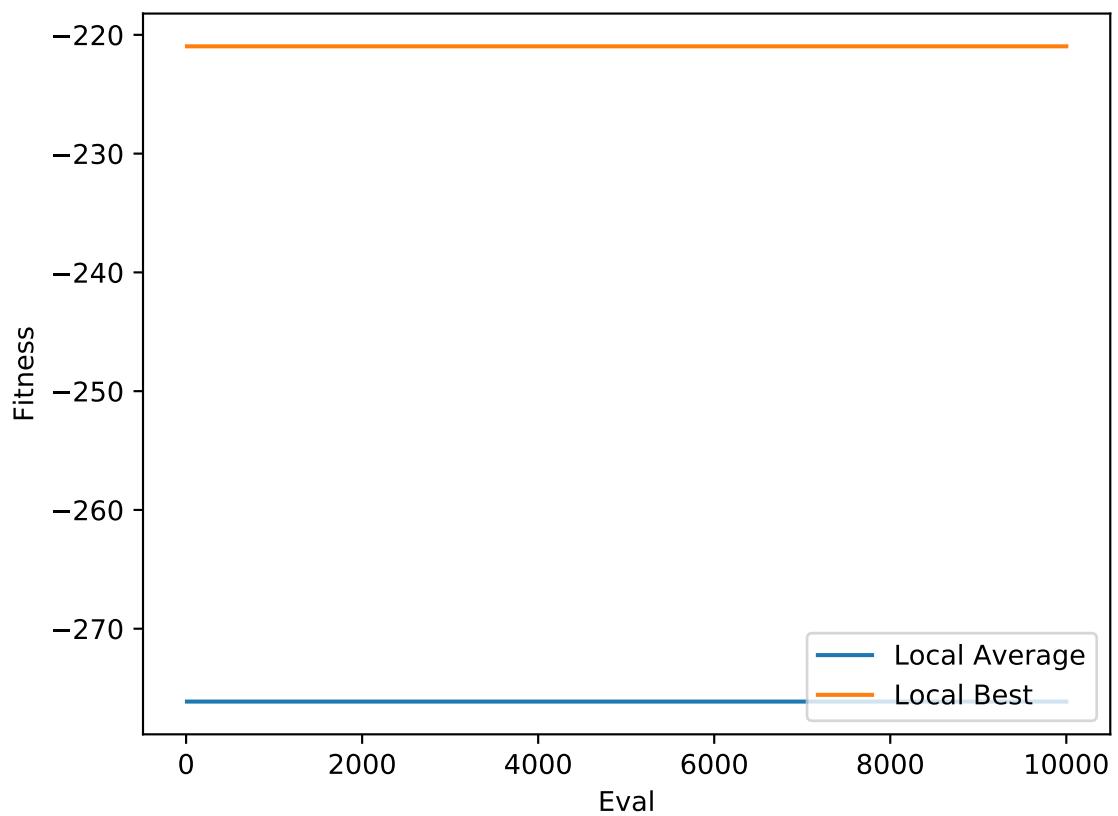


Table 153: Figure 193 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3009
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 154: Figure 194 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3010
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 193: Input 3

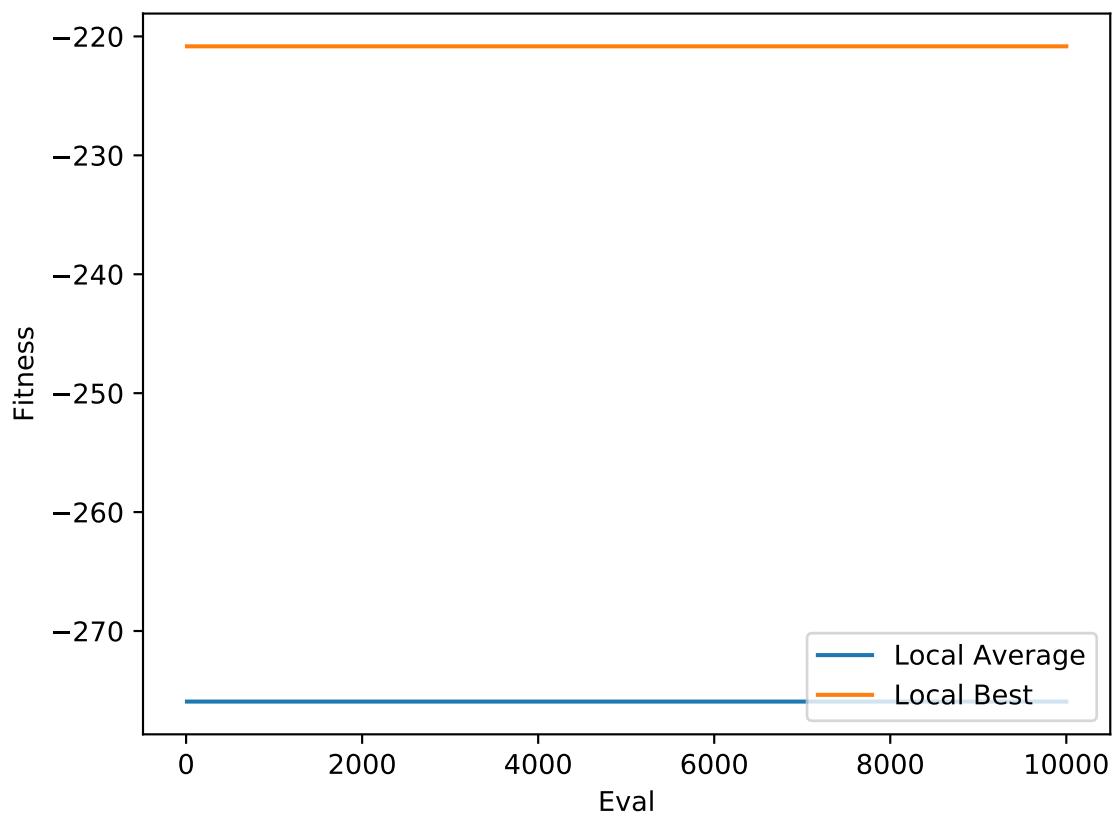


Figure 194: Input 3

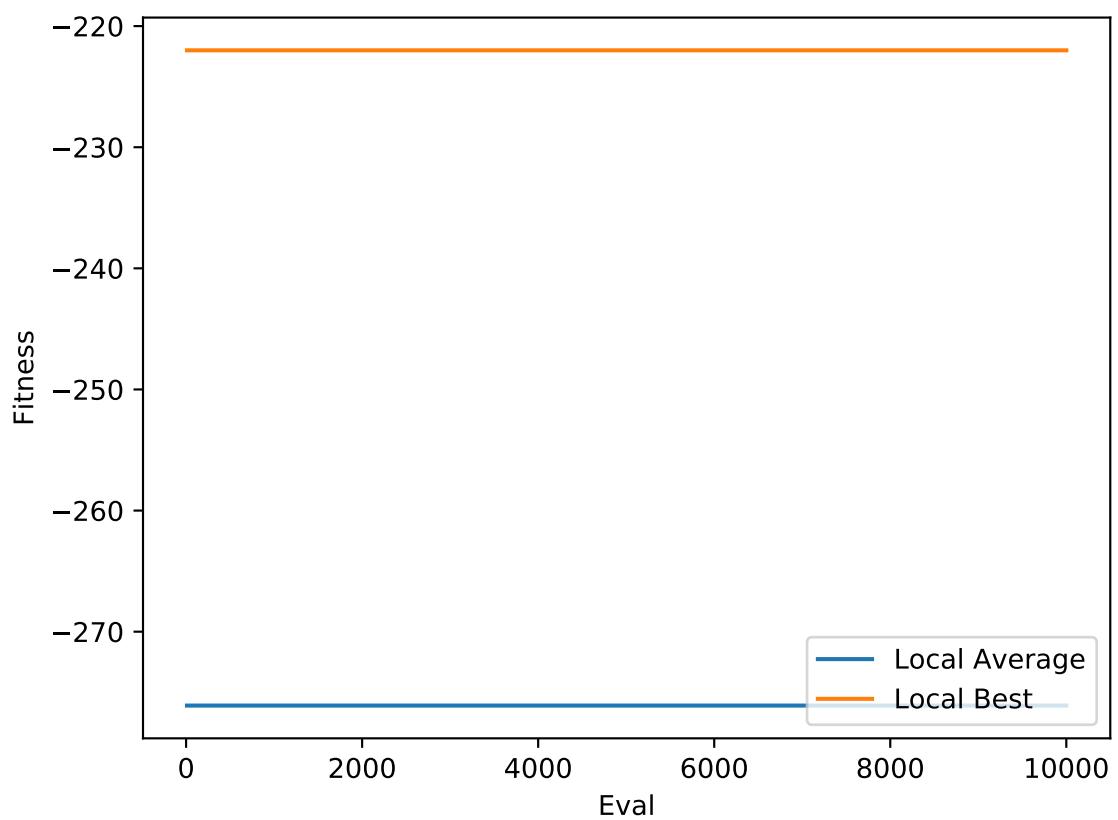


Table 155: Figure 195 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3011
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 156: Figure 196 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3012
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 195: Input 3

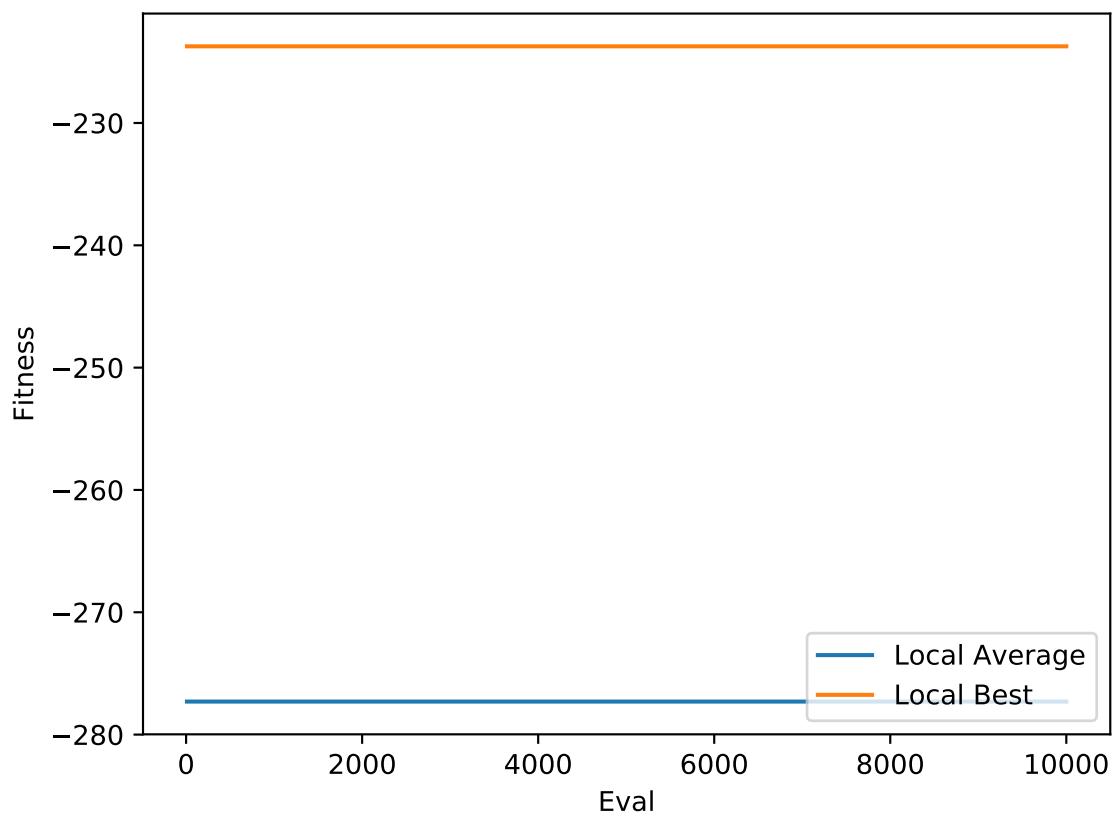


Figure 196: Input 3

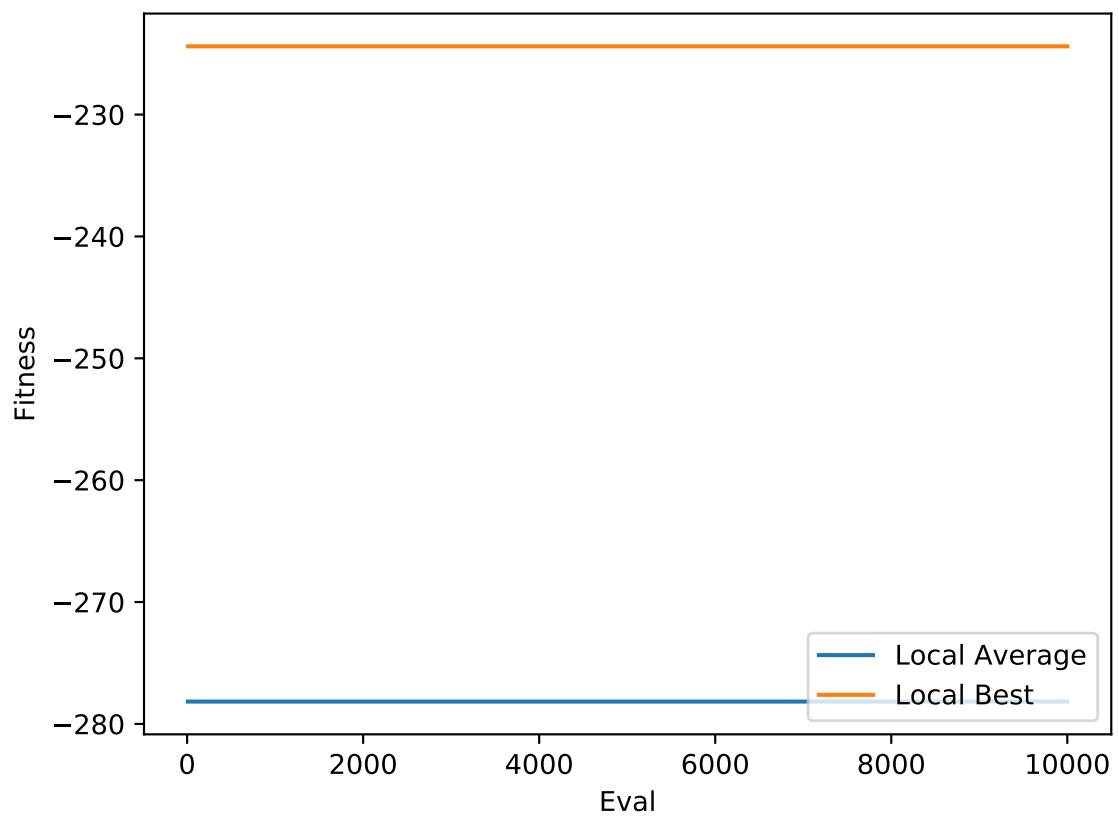


Table 157: Figure 197 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3013
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 158: Figure 198 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3014
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 197: Input 3

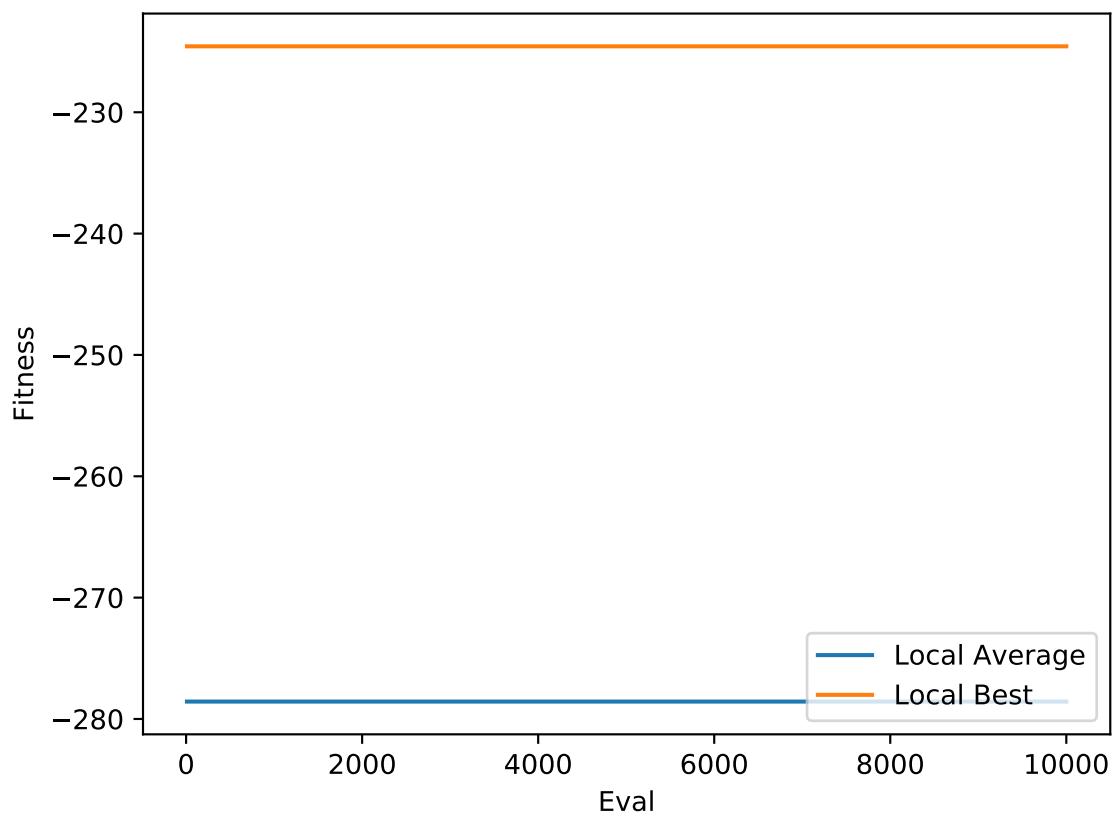


Figure 198: Input 3

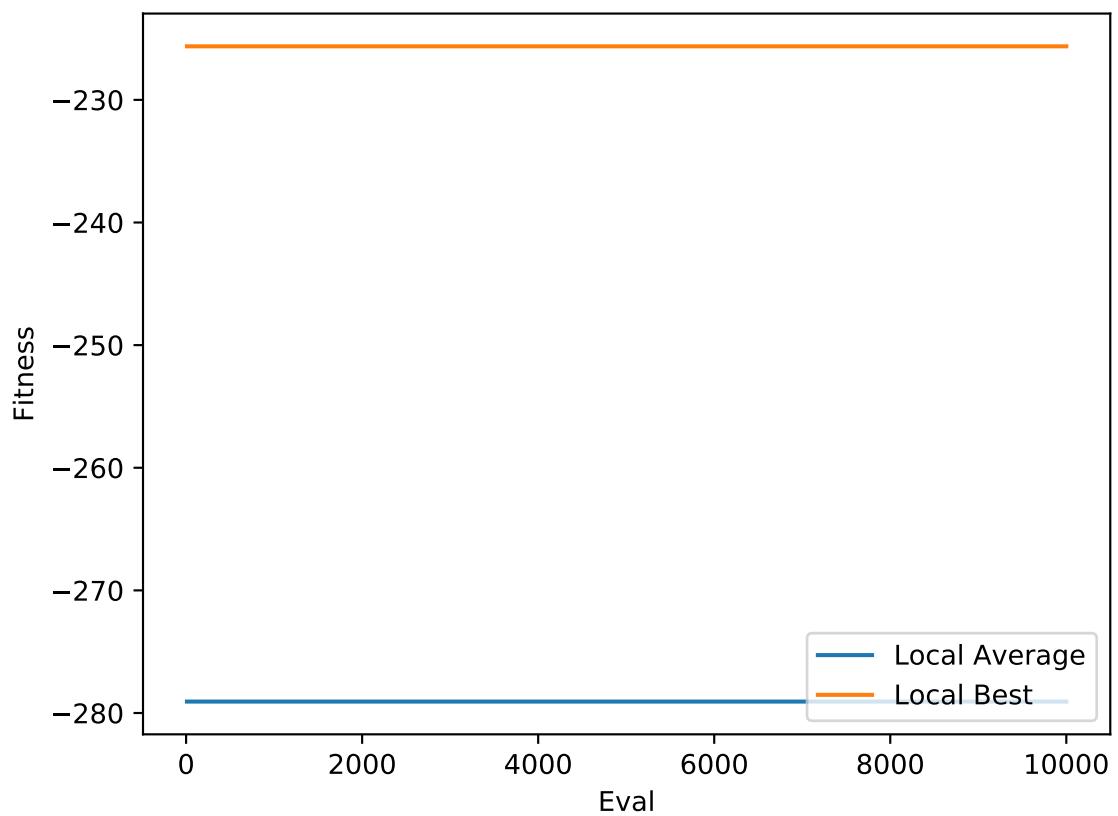


Table 159: Figure 199 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3015
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 160: Figure 200 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random
Tournament Size For Parent Selection	2
Random Seed	3016
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 199: Input 3

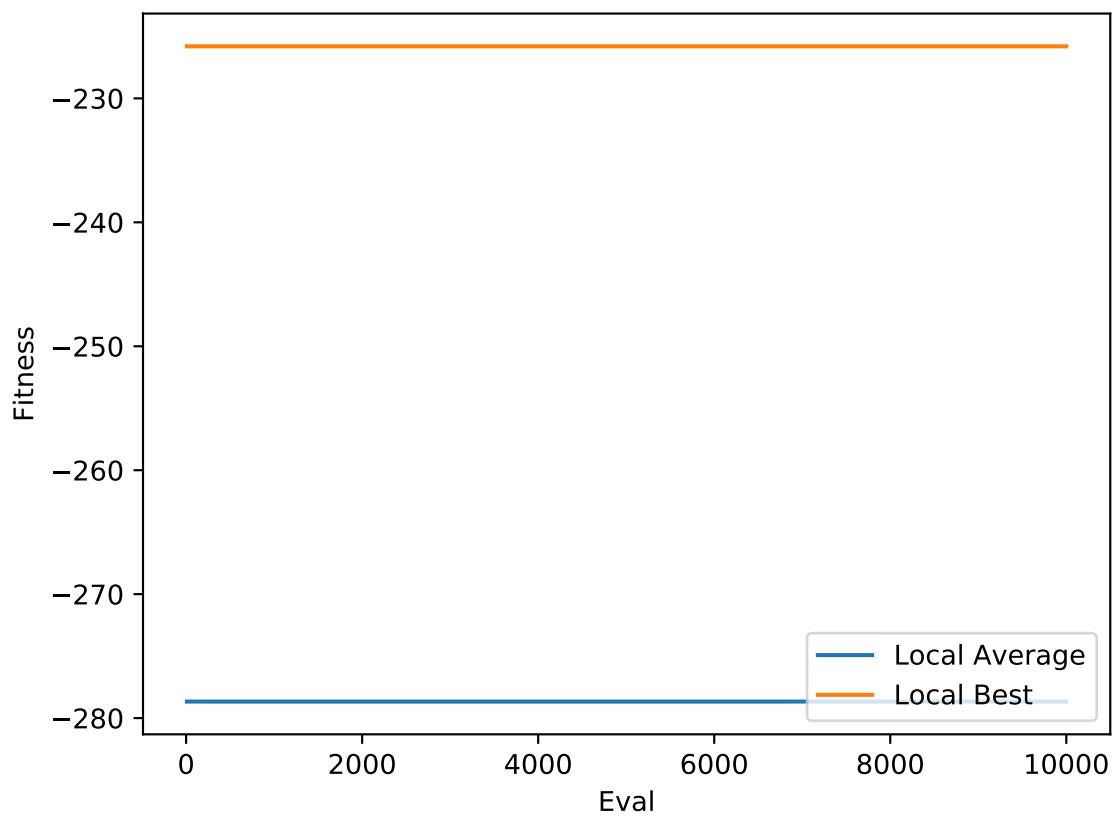


Figure 200: Input 3

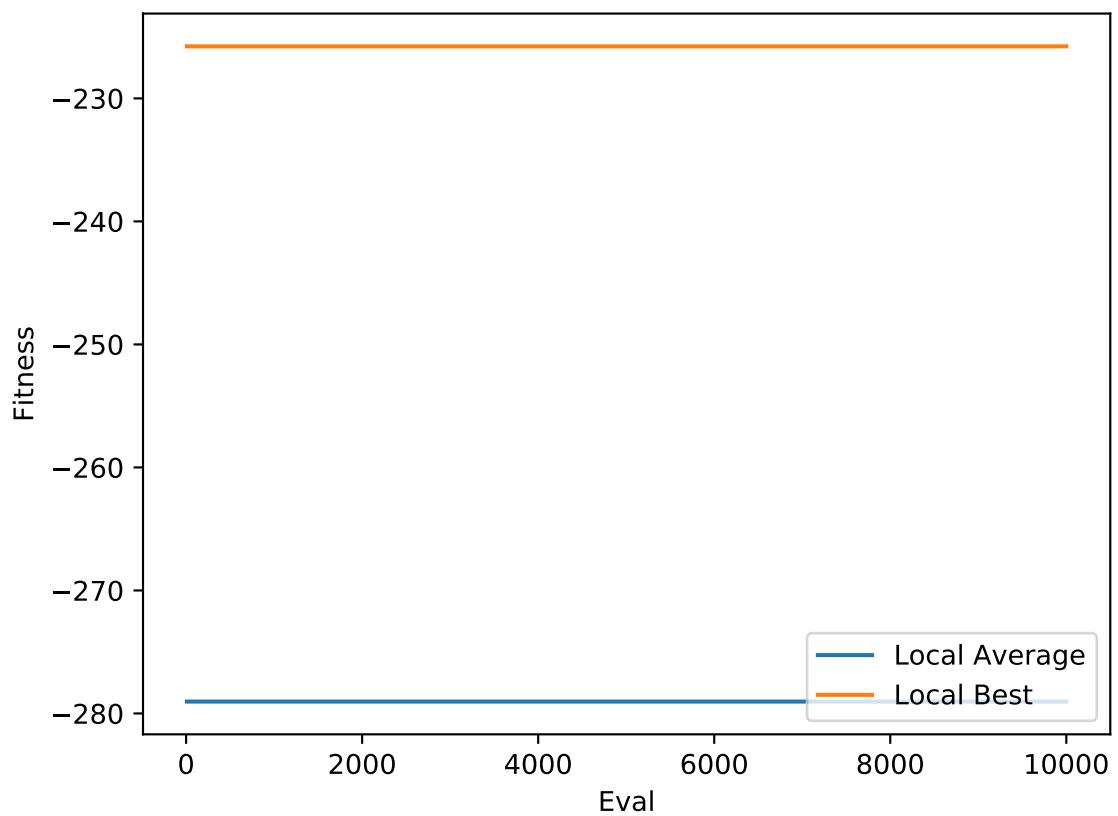


Table 161: Figure 201 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3017
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 162: Figure 202 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3018
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 201: Input 3

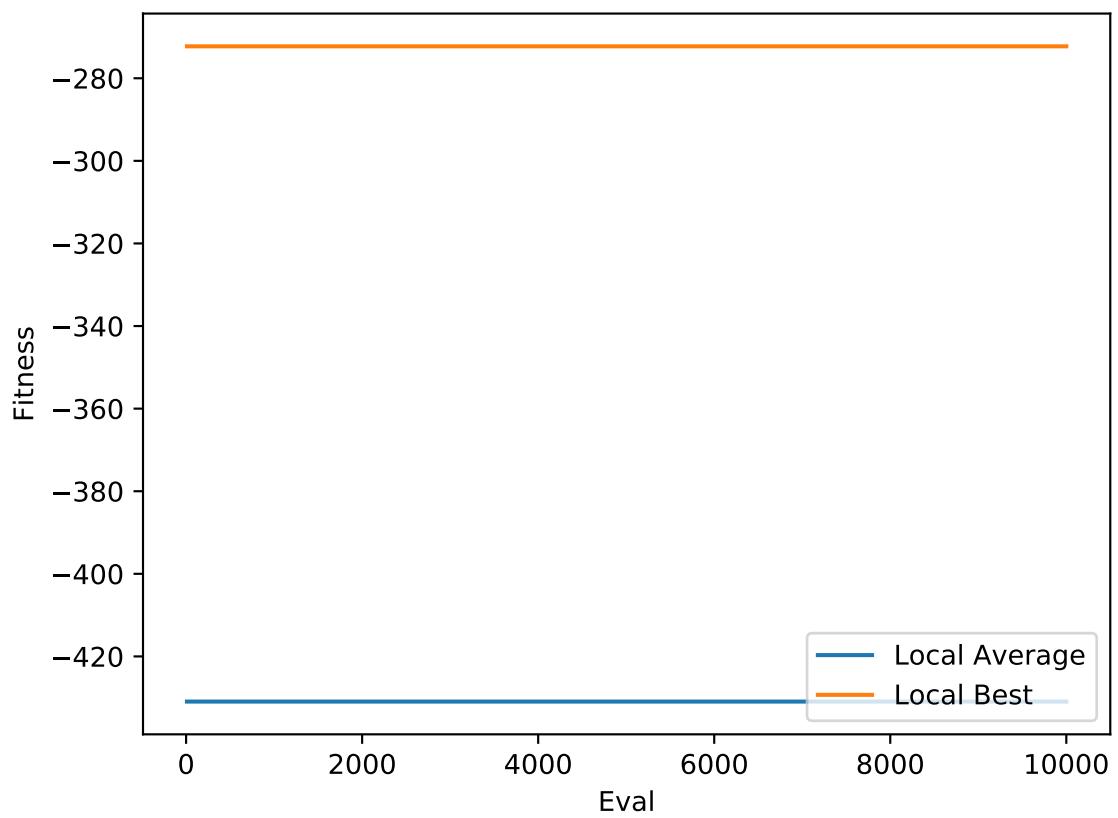


Figure 202: Input 3

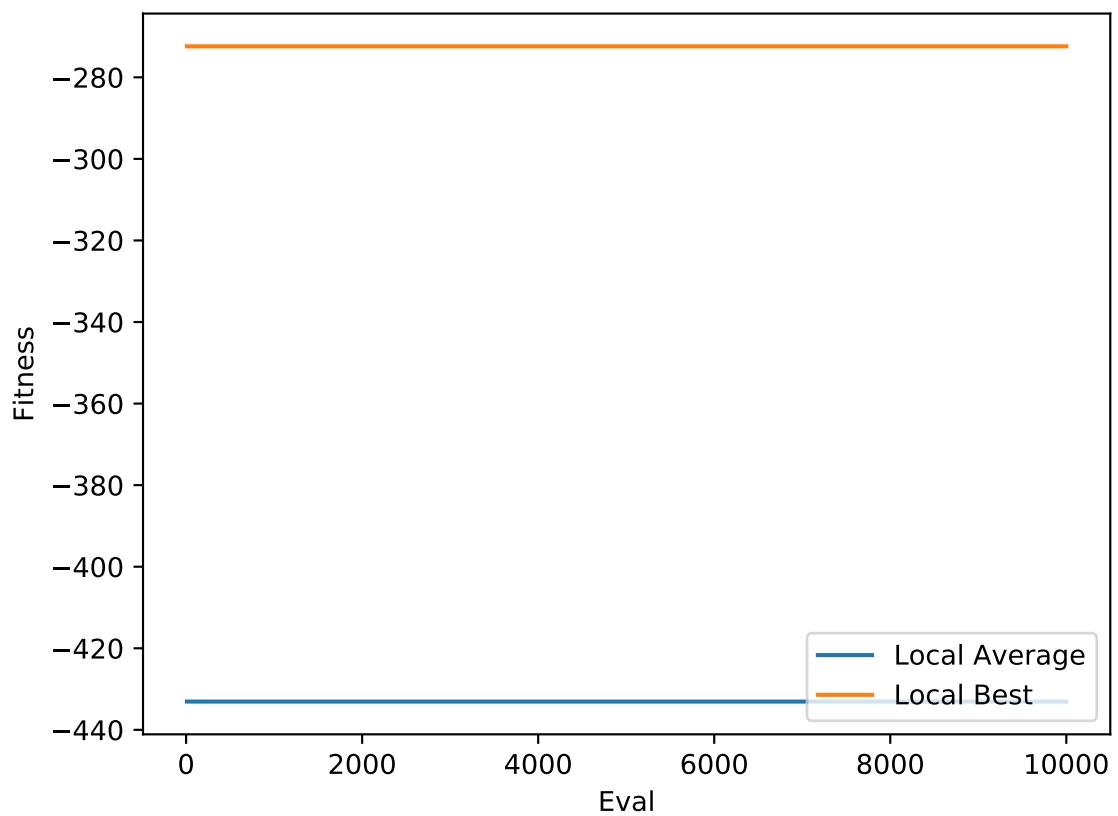


Table 163: Figure 203 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3019
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 164: Figure 204 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3020
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 203: Input 3

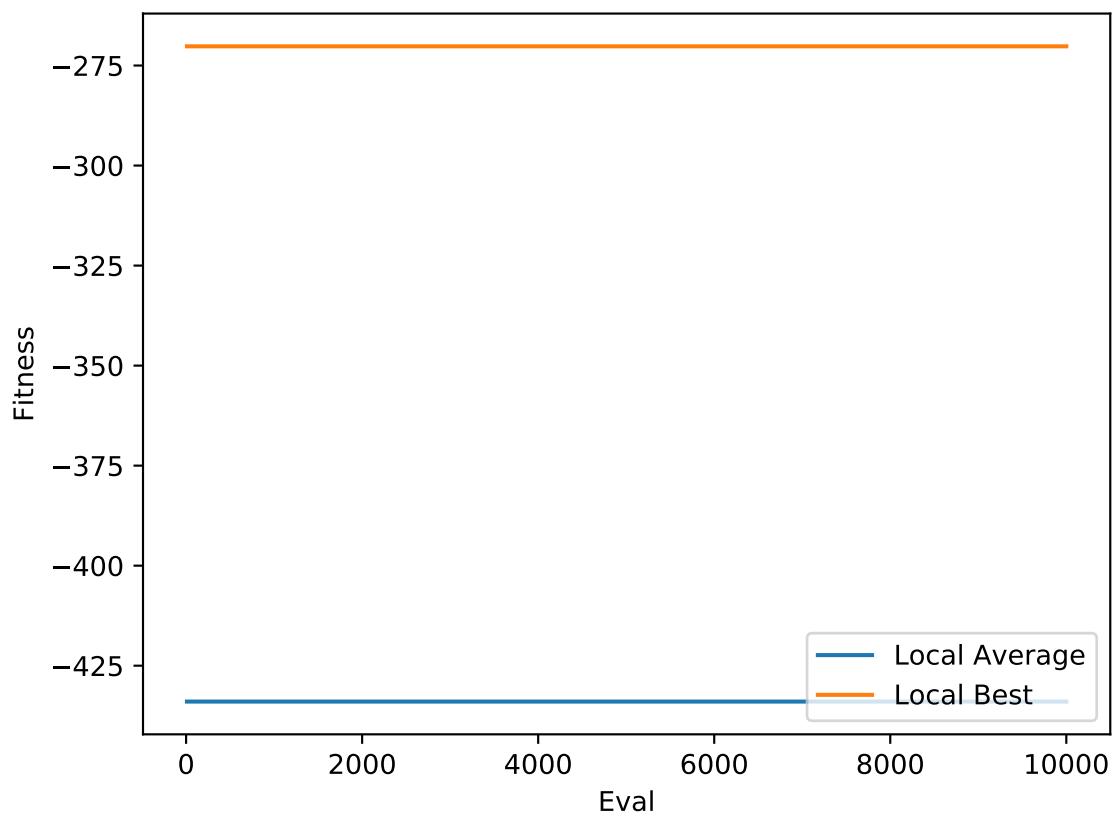


Figure 204: Input 3

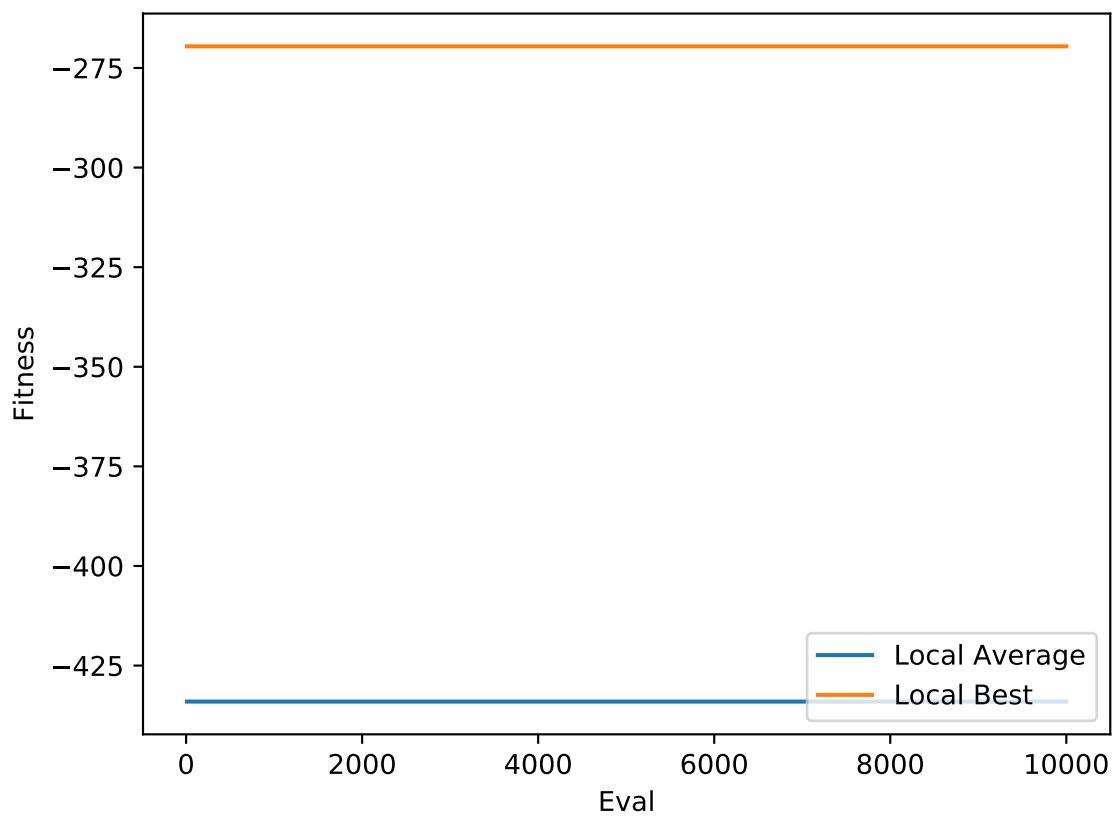


Table 165: Figure 205 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3021
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 166: Figure 206 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3022
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 205: Input 3

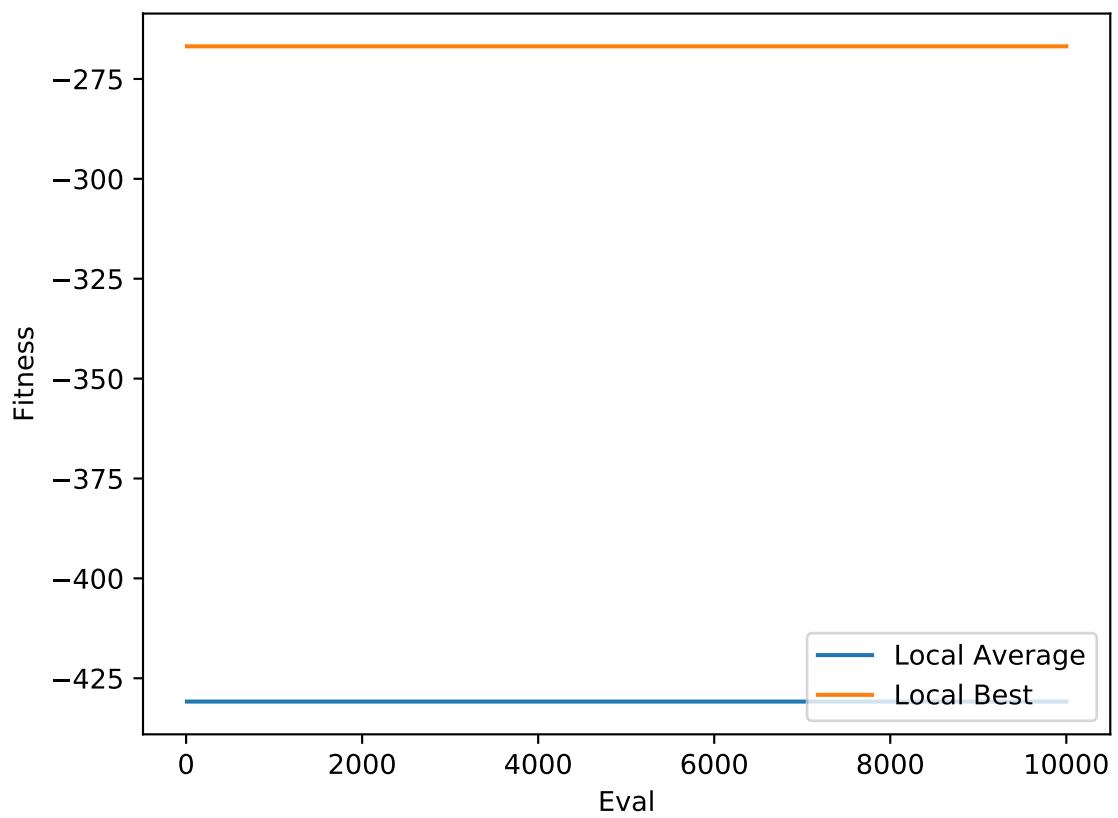


Figure 206: Input 3

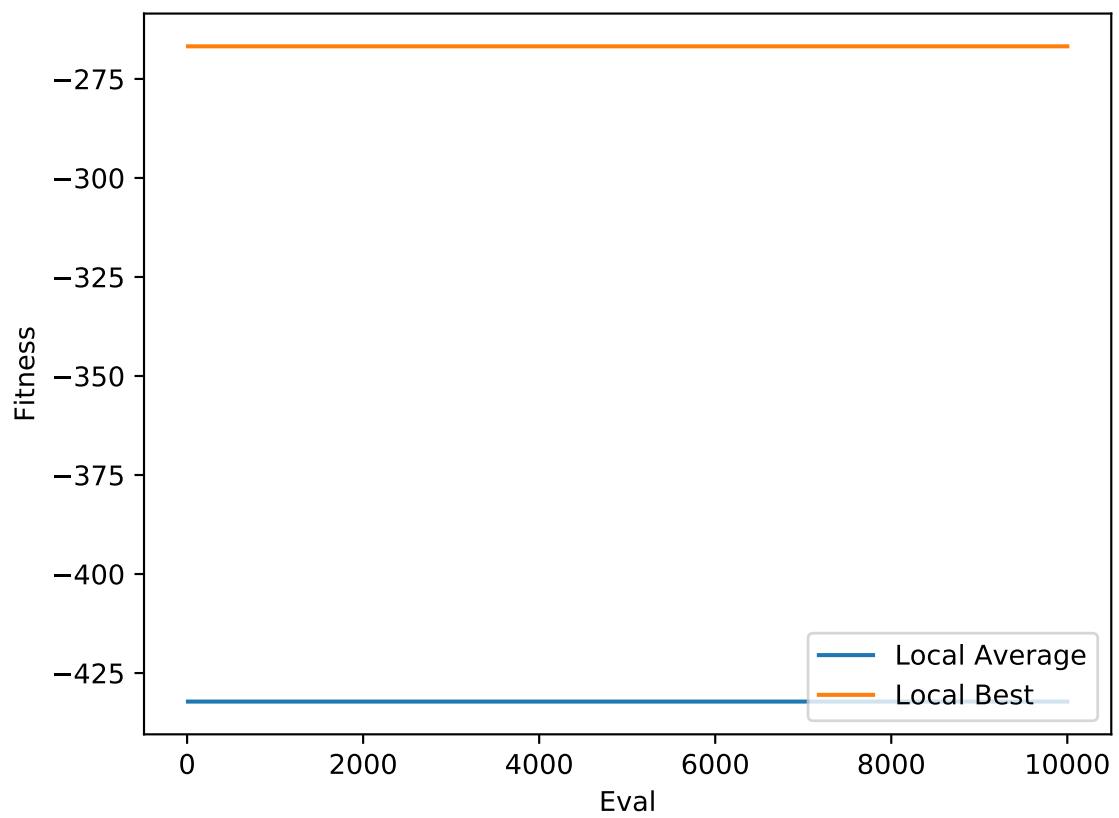


Table 167: Figure 207 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3023
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 168: Figure 208 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3024
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 207: Input 3

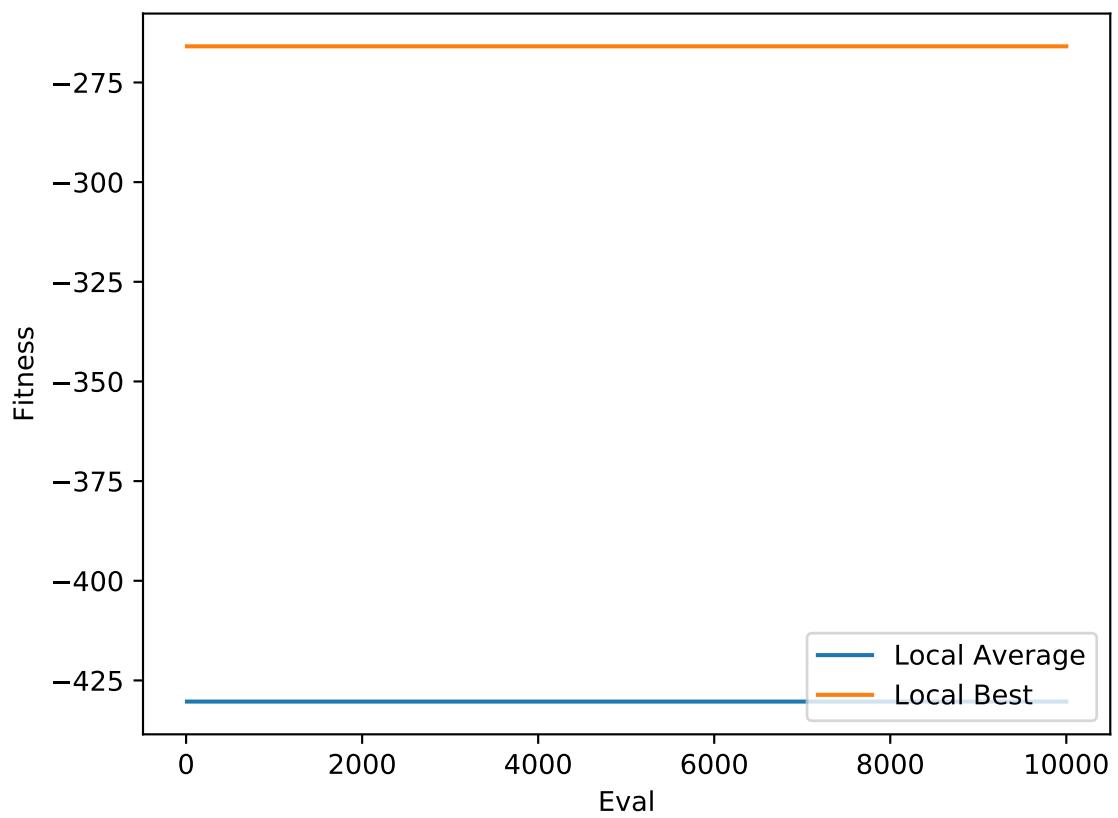


Figure 208: Input 3

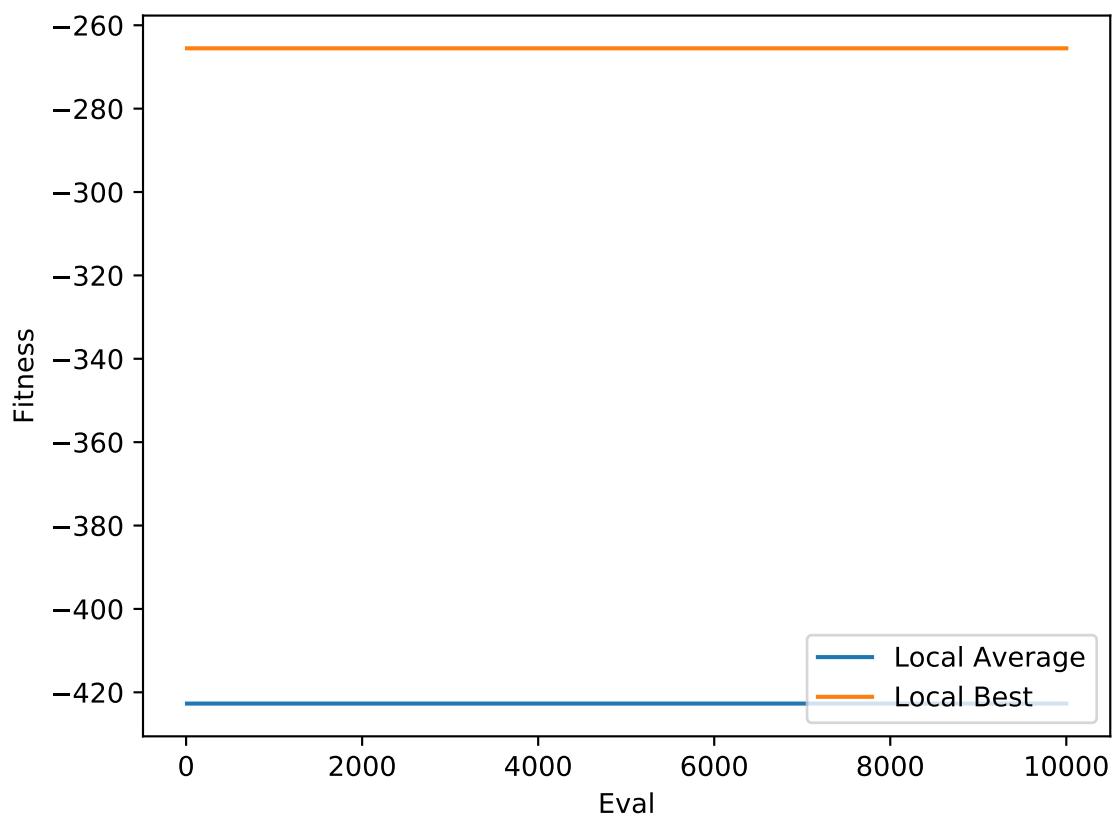


Table 169: Figure 209 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3025
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 170: Figure 210 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3026
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 209: Input 3

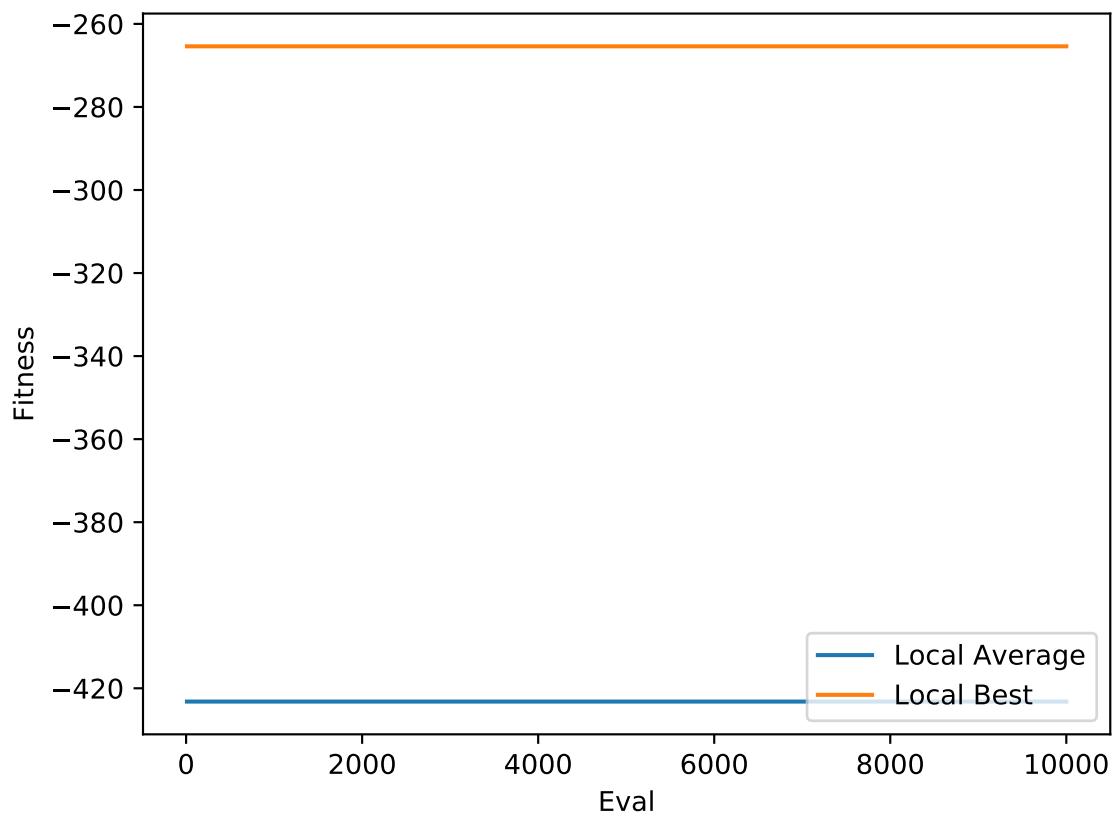


Figure 210: Input 3

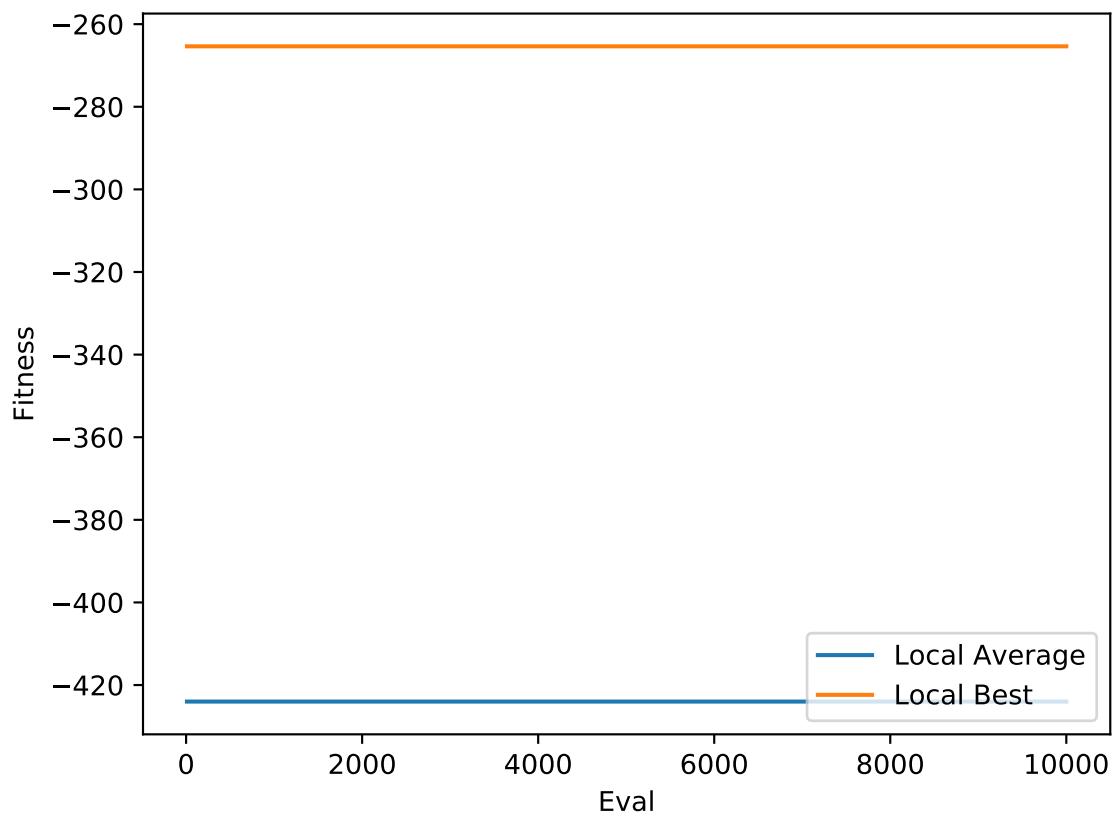


Table 171: Figure 211 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3027
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 172: Figure 212 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3028
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 211: Input 3

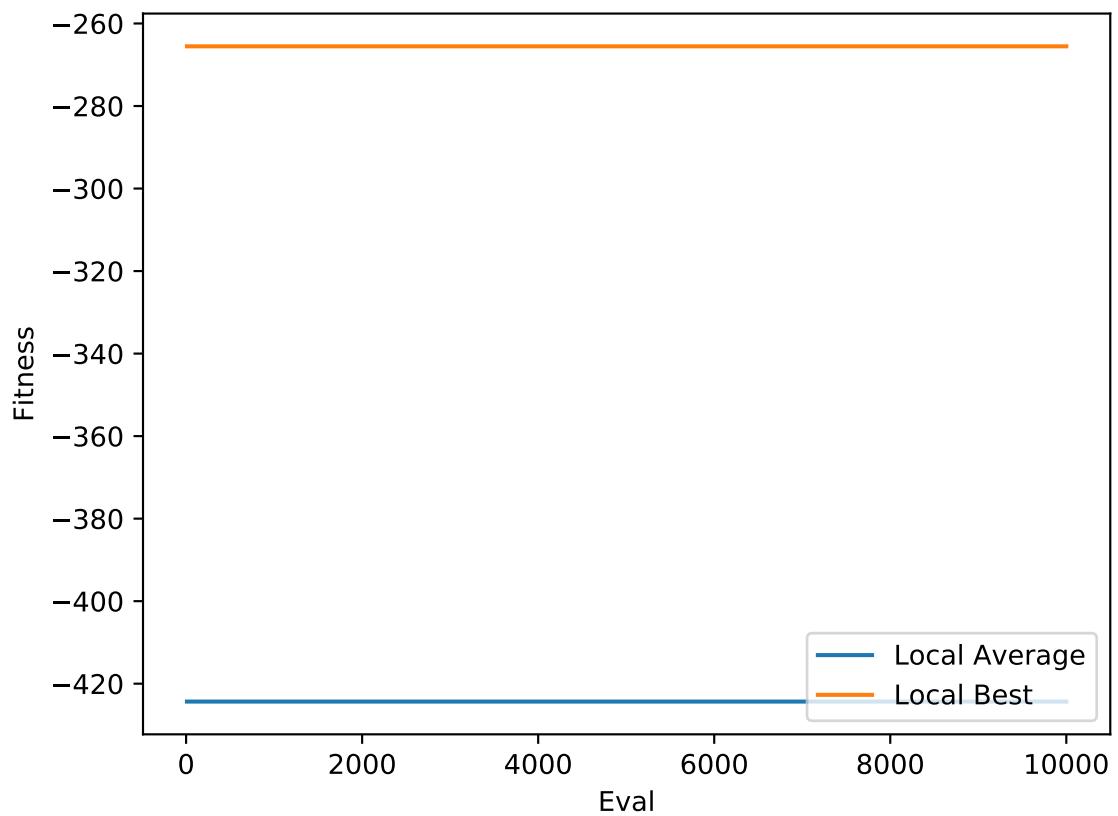


Figure 212: Input 3

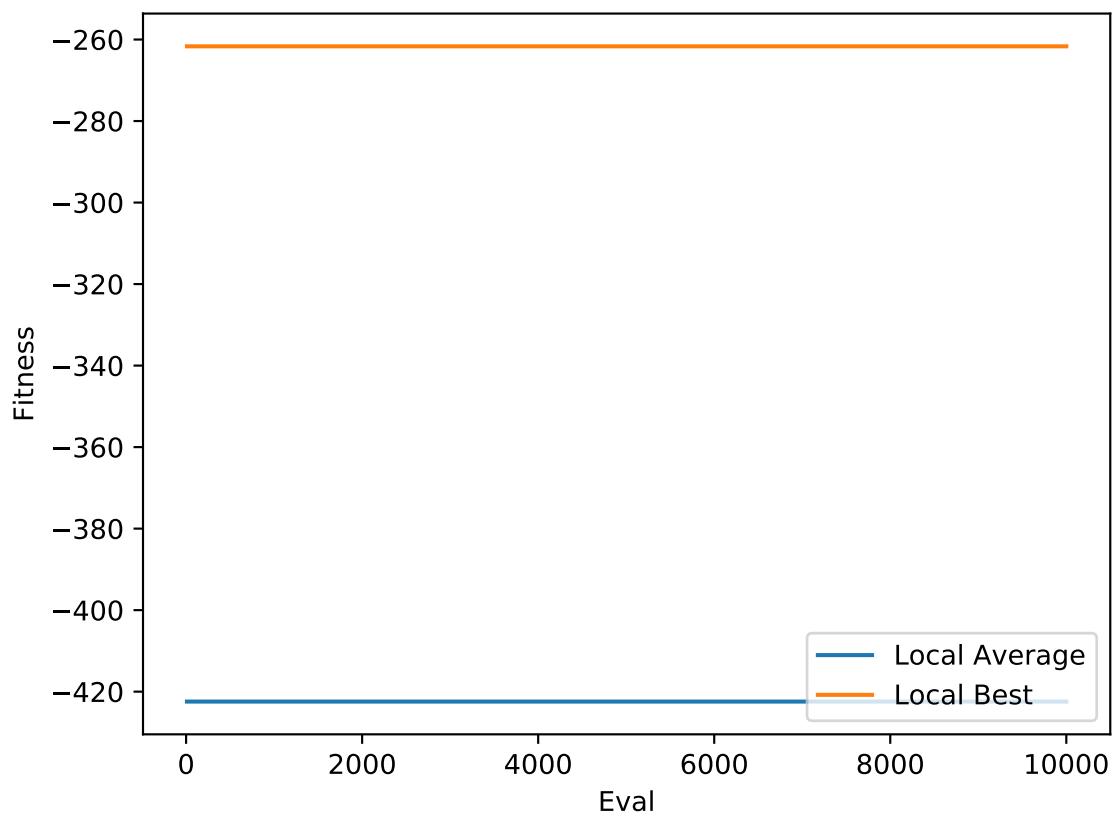


Table 173: Figure 213 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3029
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 174: Figure 214 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3030
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 213: Input 3

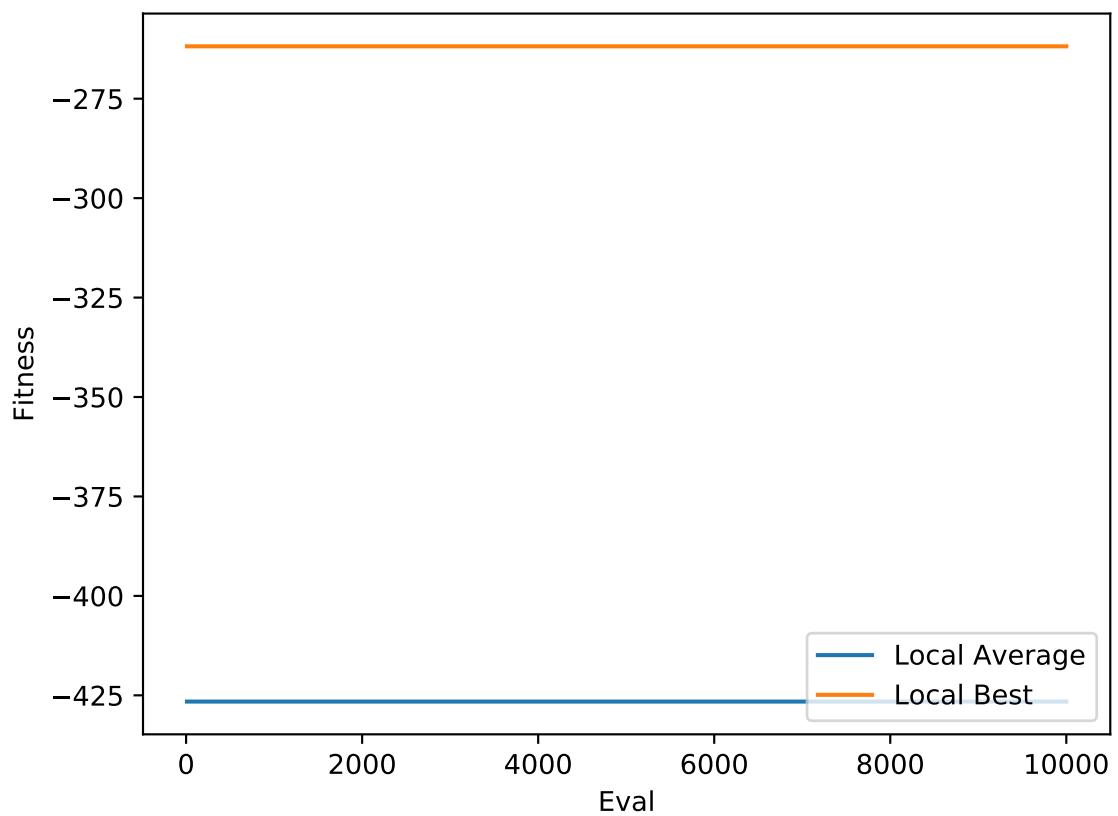


Figure 214: Input 3

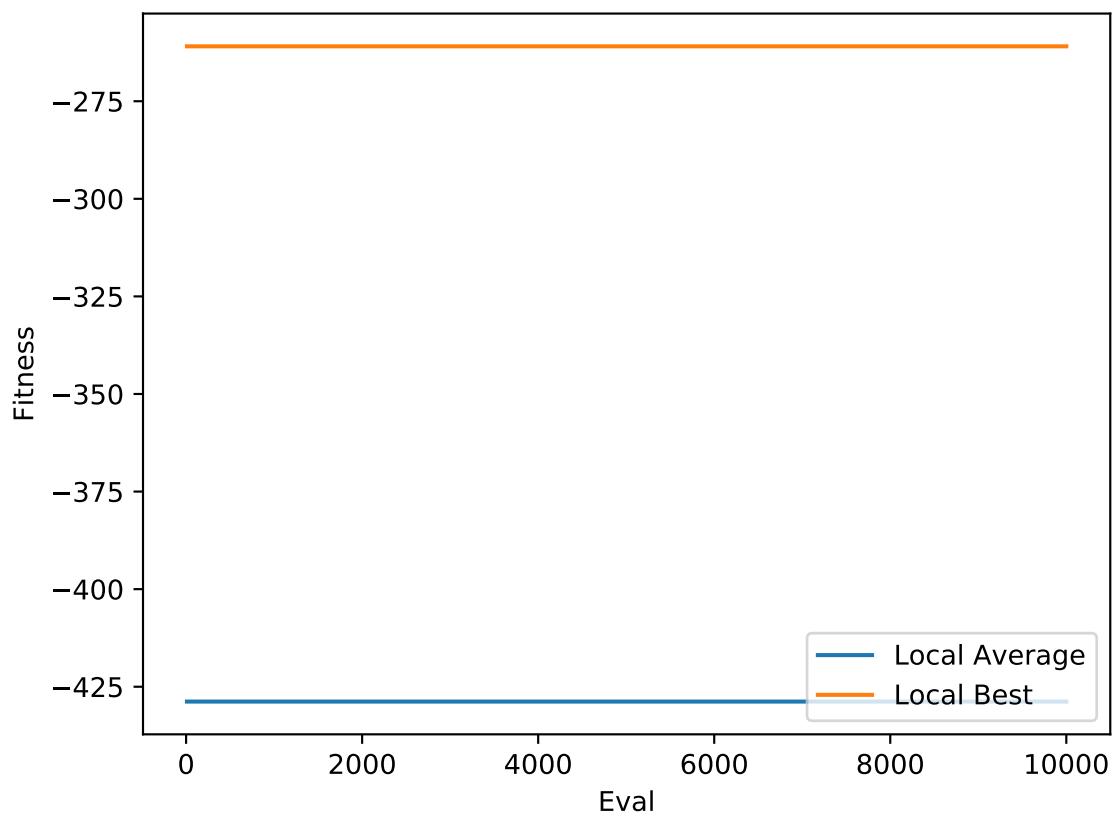


Table 175: Figure 215 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3031
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 176: Figure 216 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Repair
Tournament Size For Parent Selection	2
Random Seed	3032
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 215: Input 3

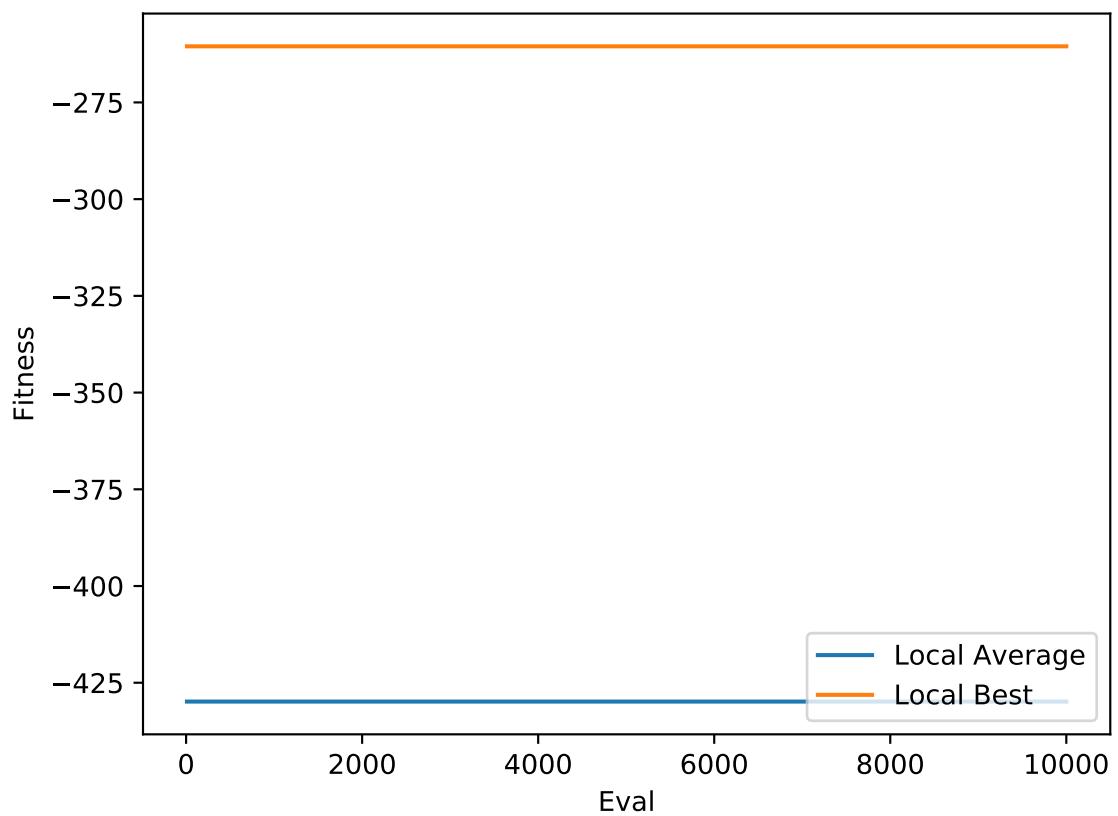


Figure 216: Input 3

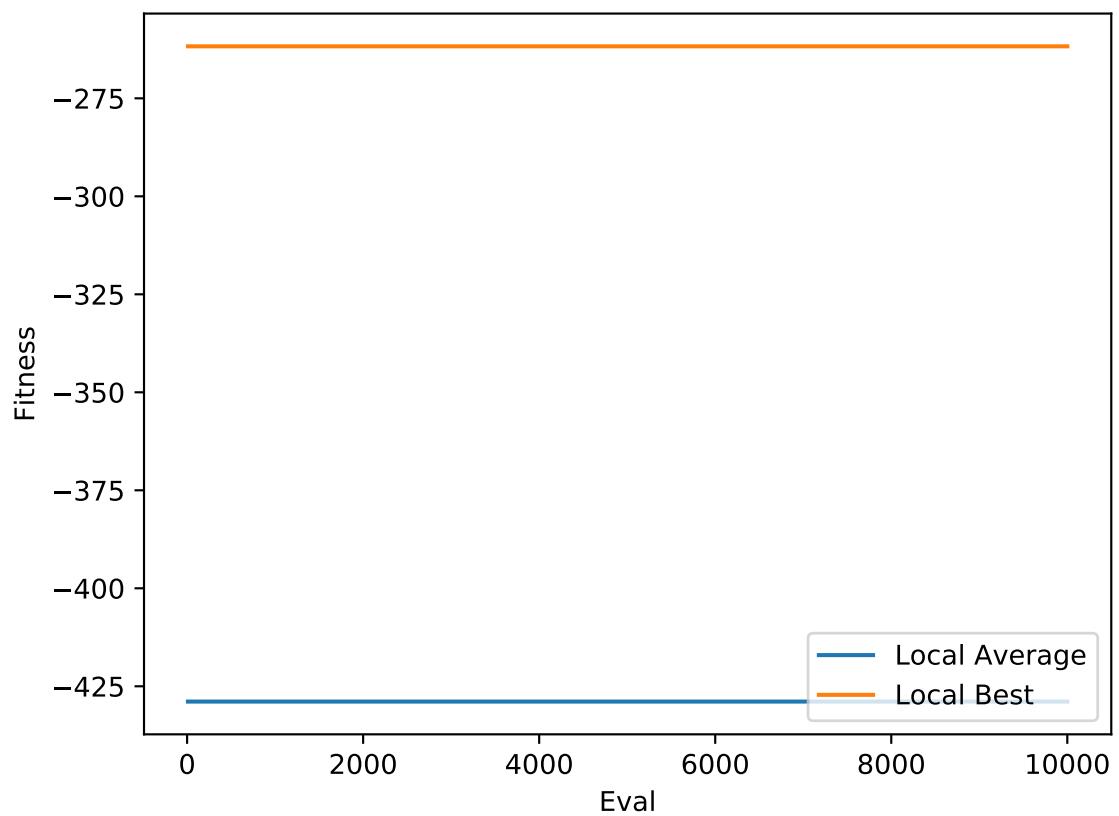


Table 177: Figure 217 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3033
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 178: Figure 218 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3034
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 217: Input 3

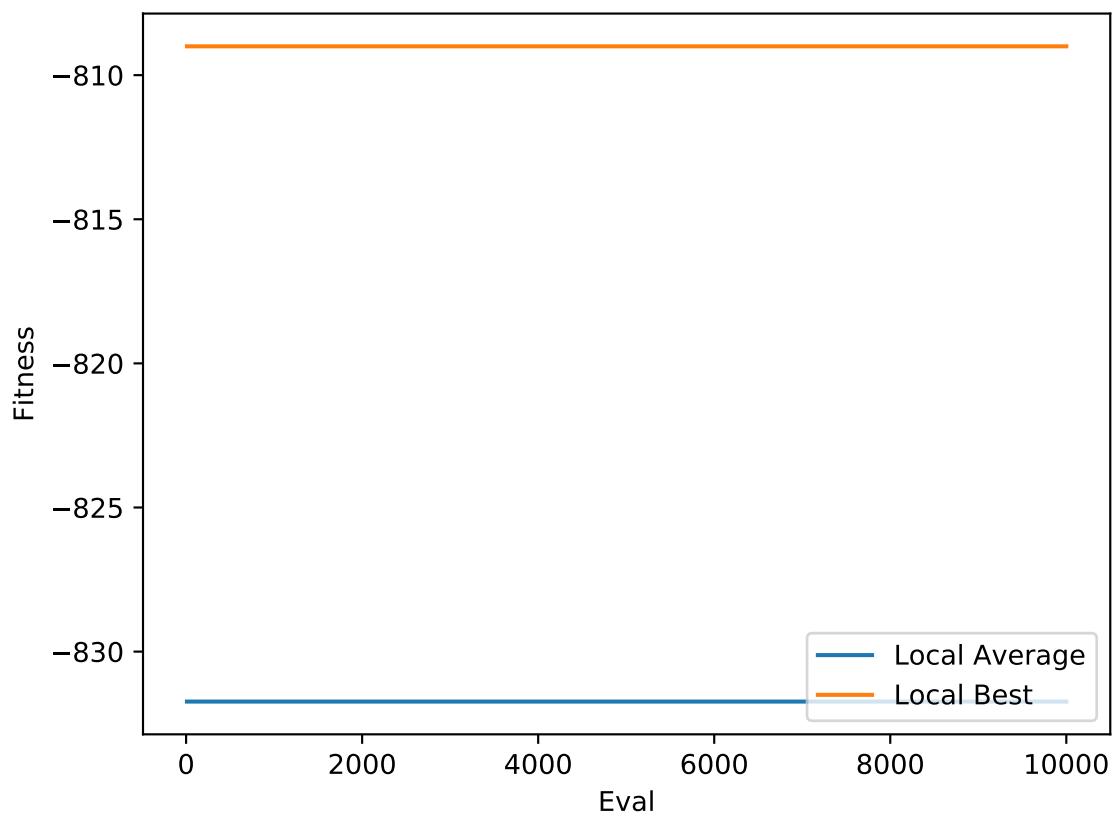


Figure 218: Input 3

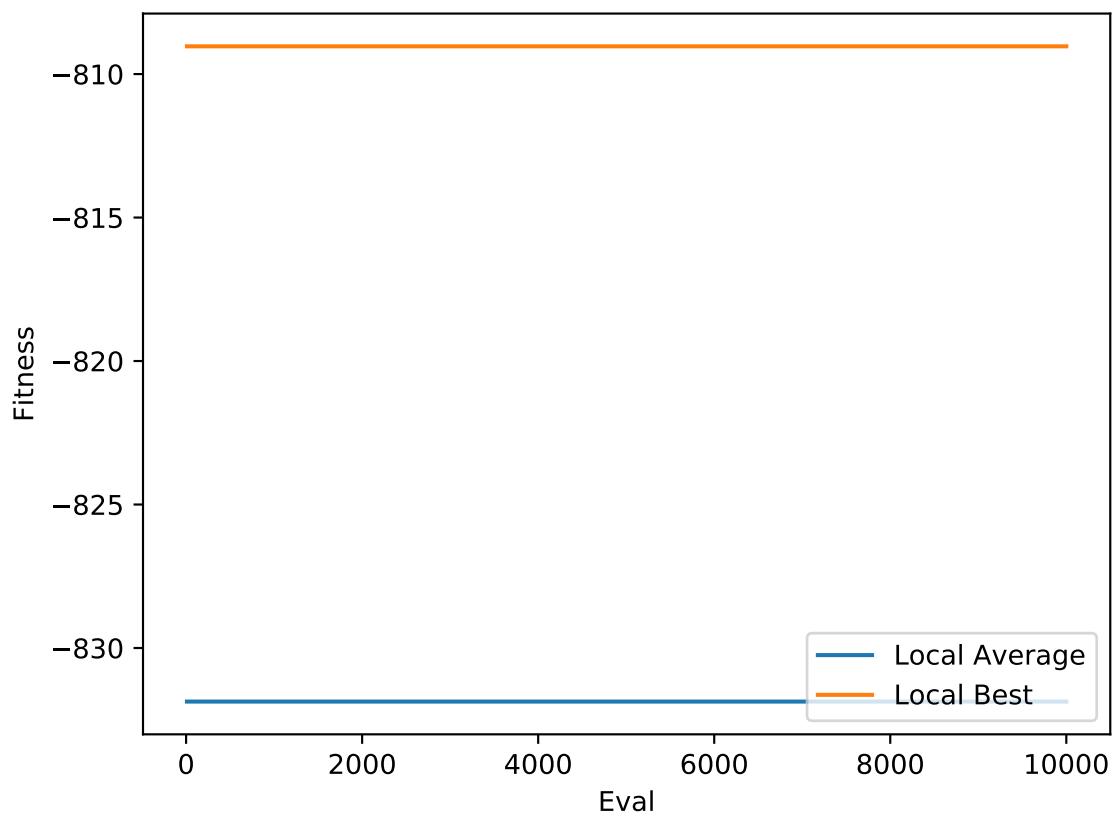


Table 179: Figure 219 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3035
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 180: Figure 220 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3036
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 219: Input 3

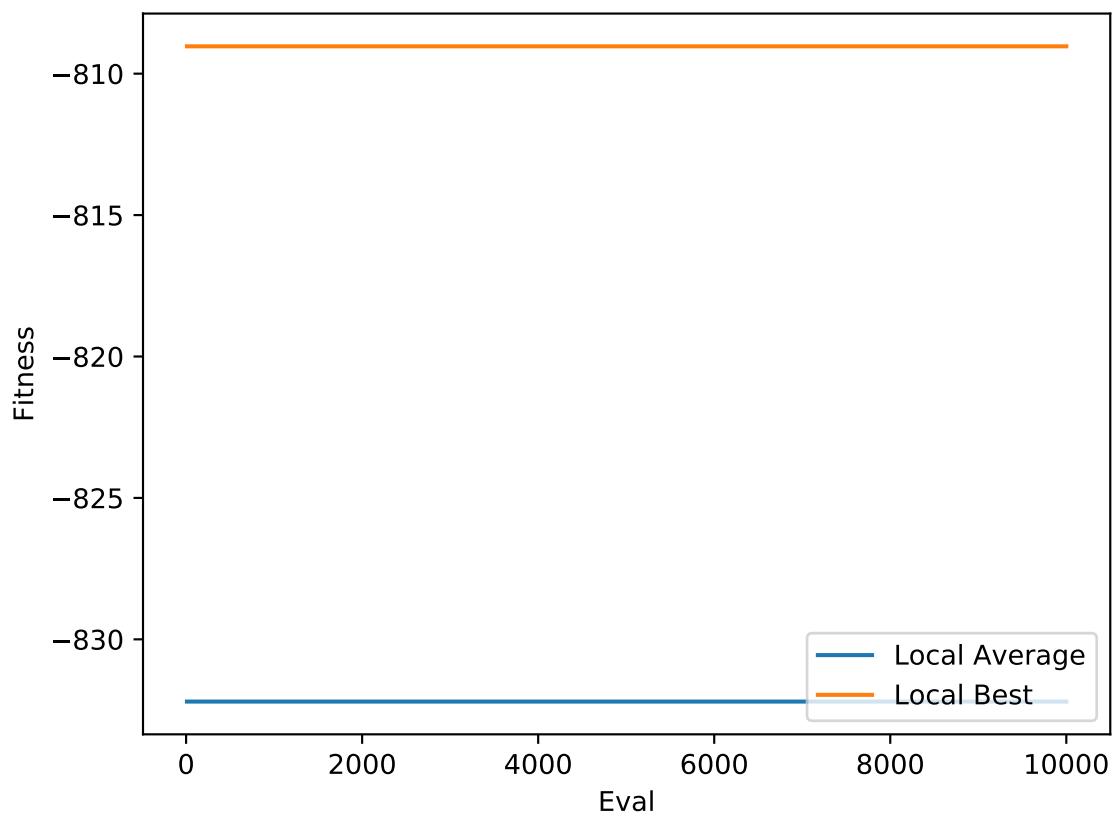


Figure 220: Input 3

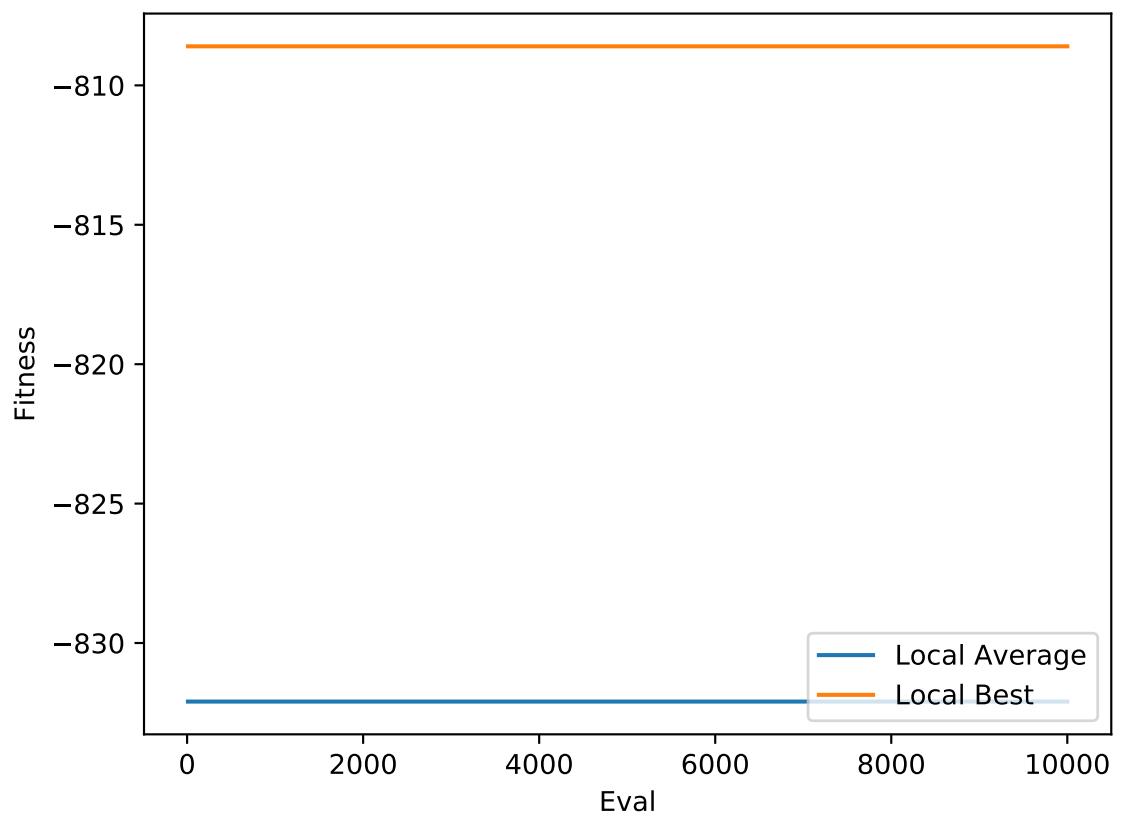


Table 181: Figure 221 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3037
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 182: Figure 222 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3038
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 221: Input 3

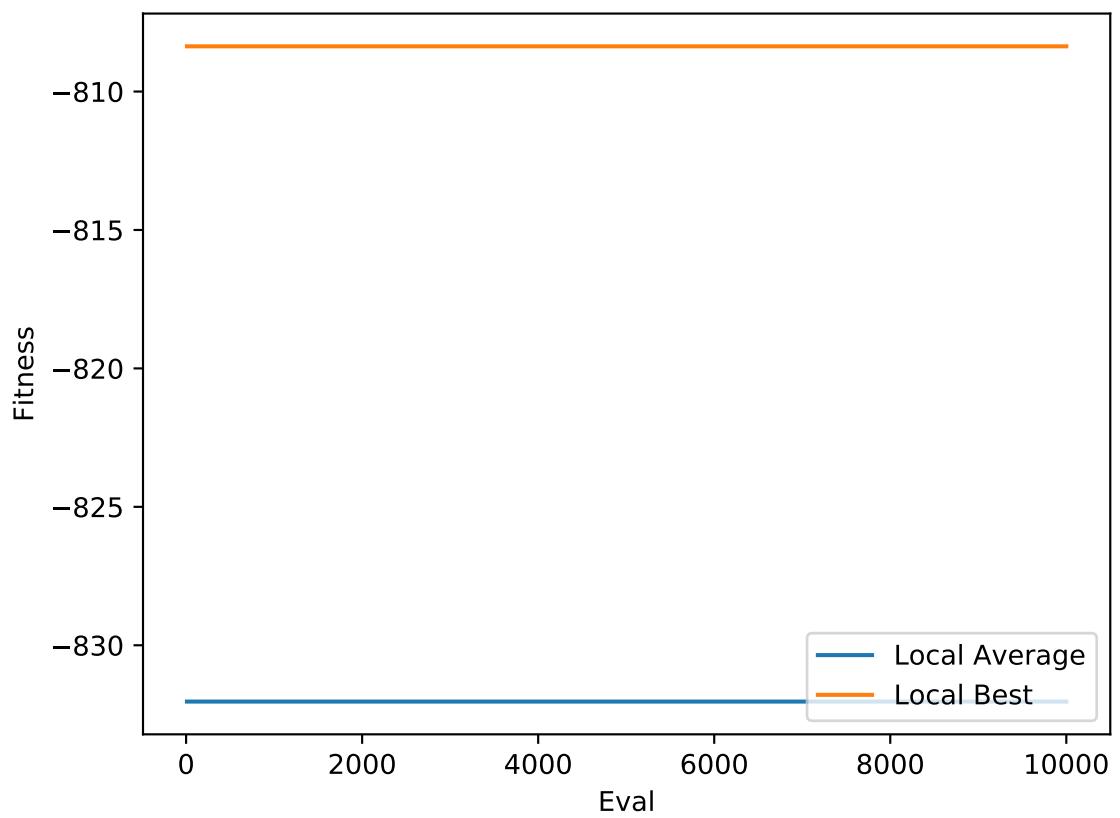


Figure 222: Input 3

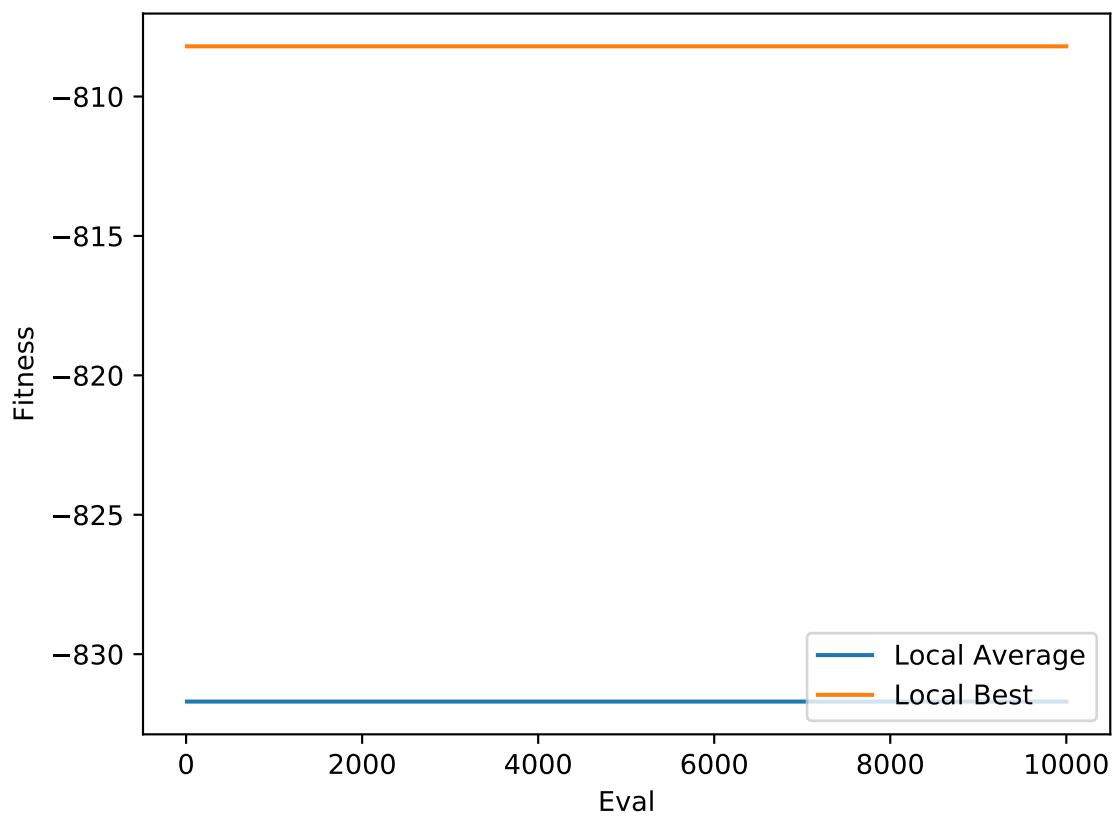


Table 183: Figure 223 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3039
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 184: Figure 224 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3040
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 223: Input 3

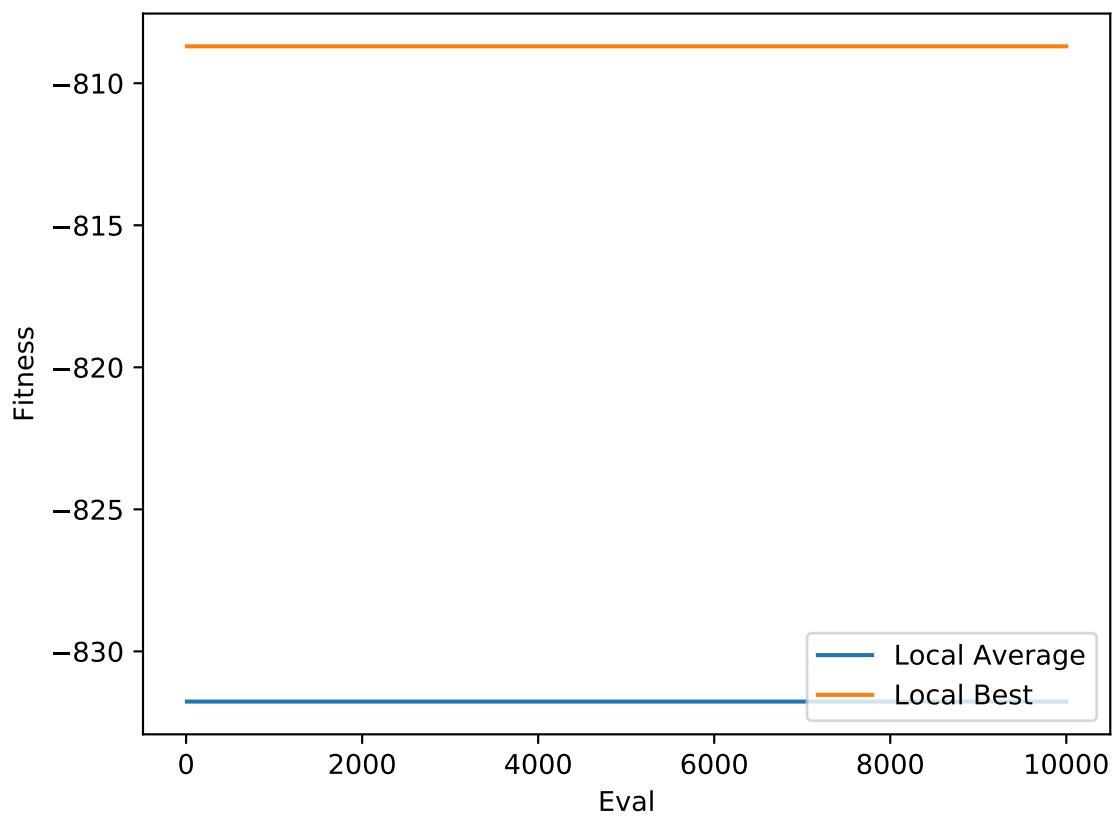


Figure 224: Input 3

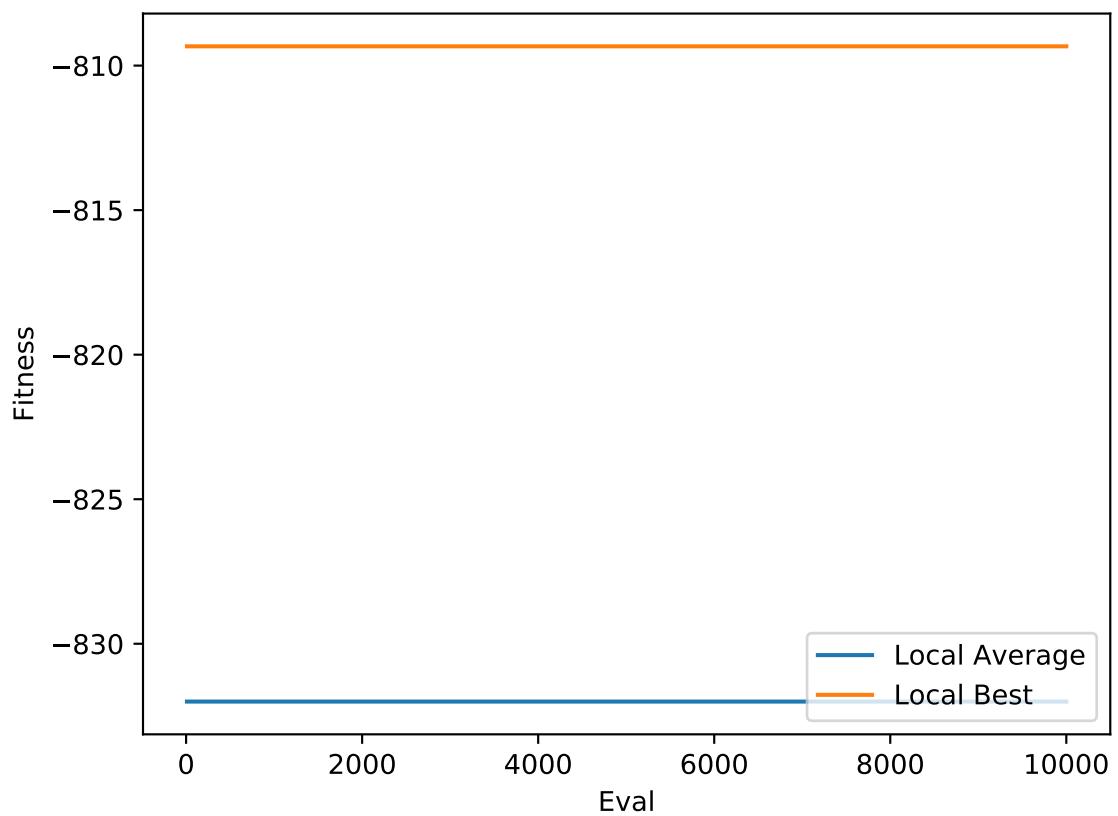


Table 185: Figure 225 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3041
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 186: Figure 226 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3042
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 225: Input 3

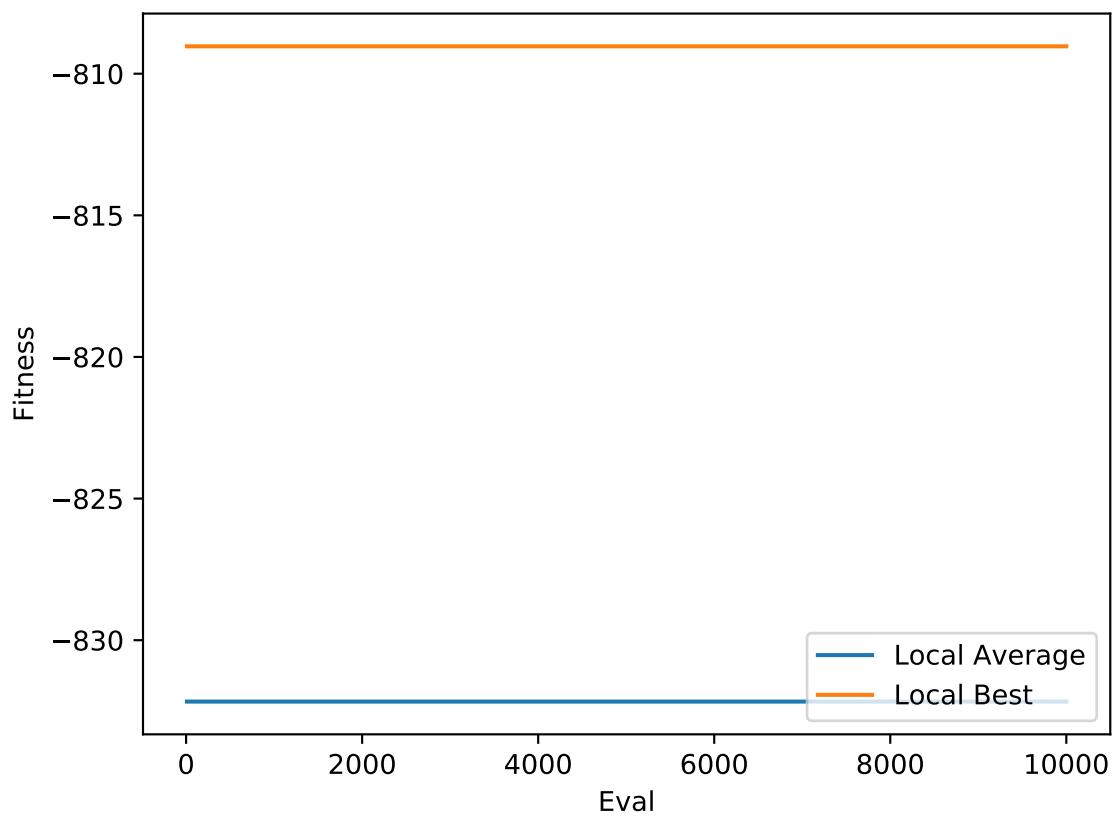


Figure 226: Input 3

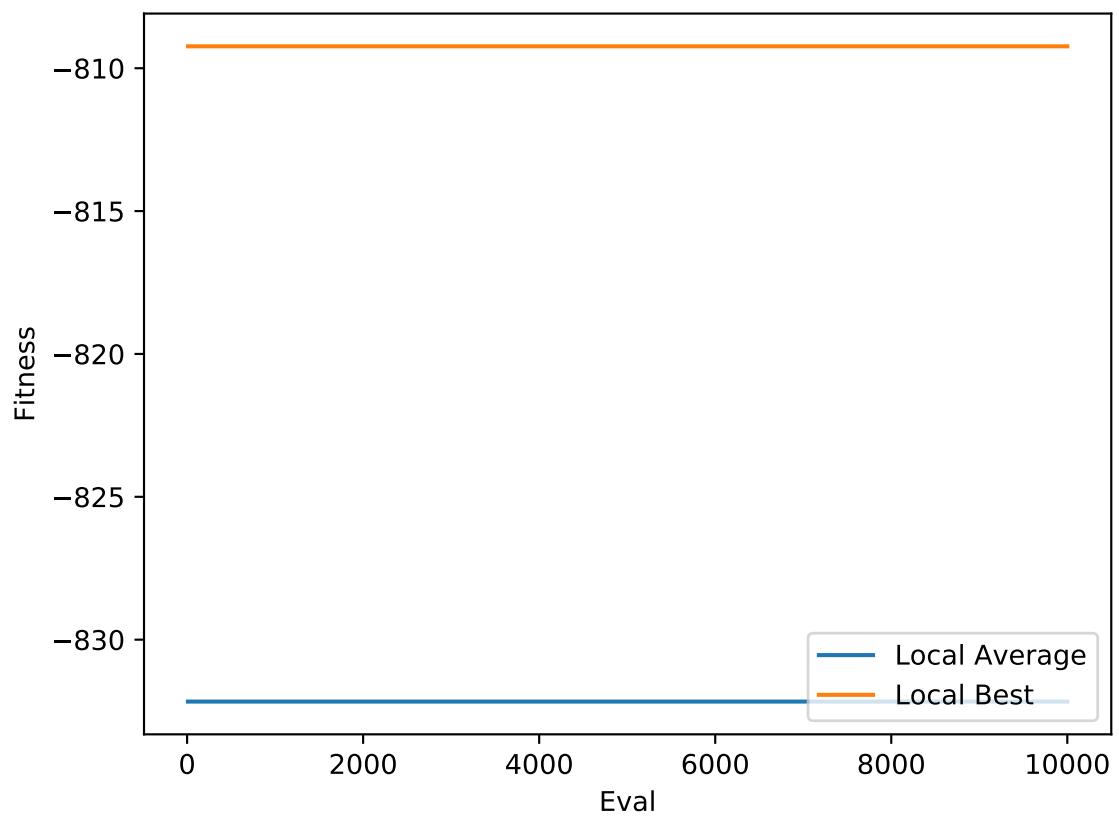


Table 187: Figure 227 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3043
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 188: Figure 228 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3044
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 227: Input 3

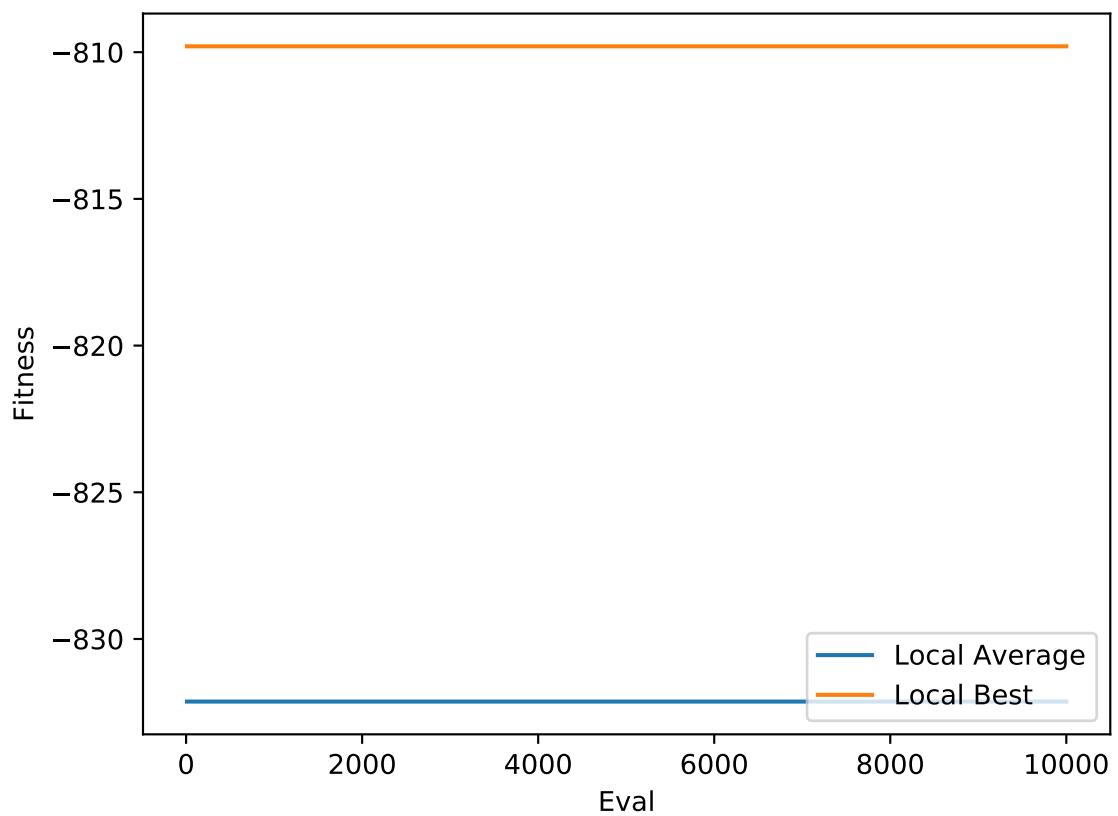


Figure 228: Input 3

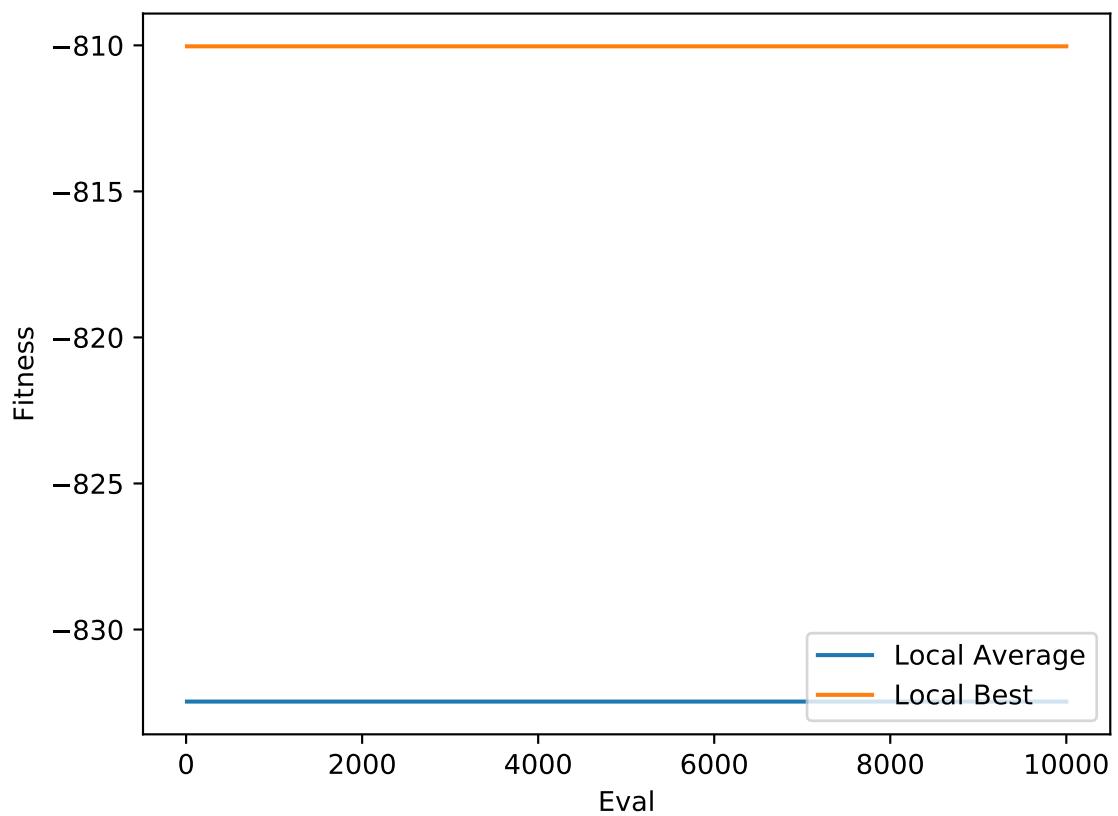


Table 189: Figure 229 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3045
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 190: Figure 230 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3046
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 229: Input 3

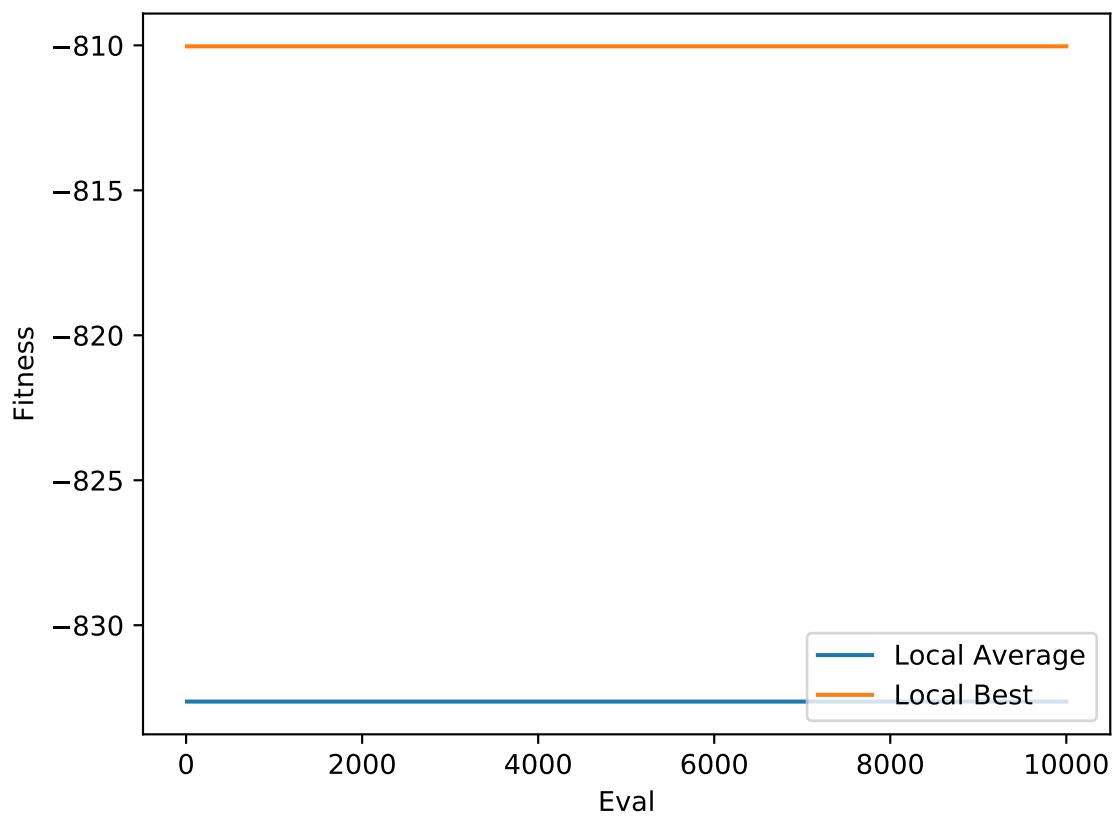


Figure 230: Input 3

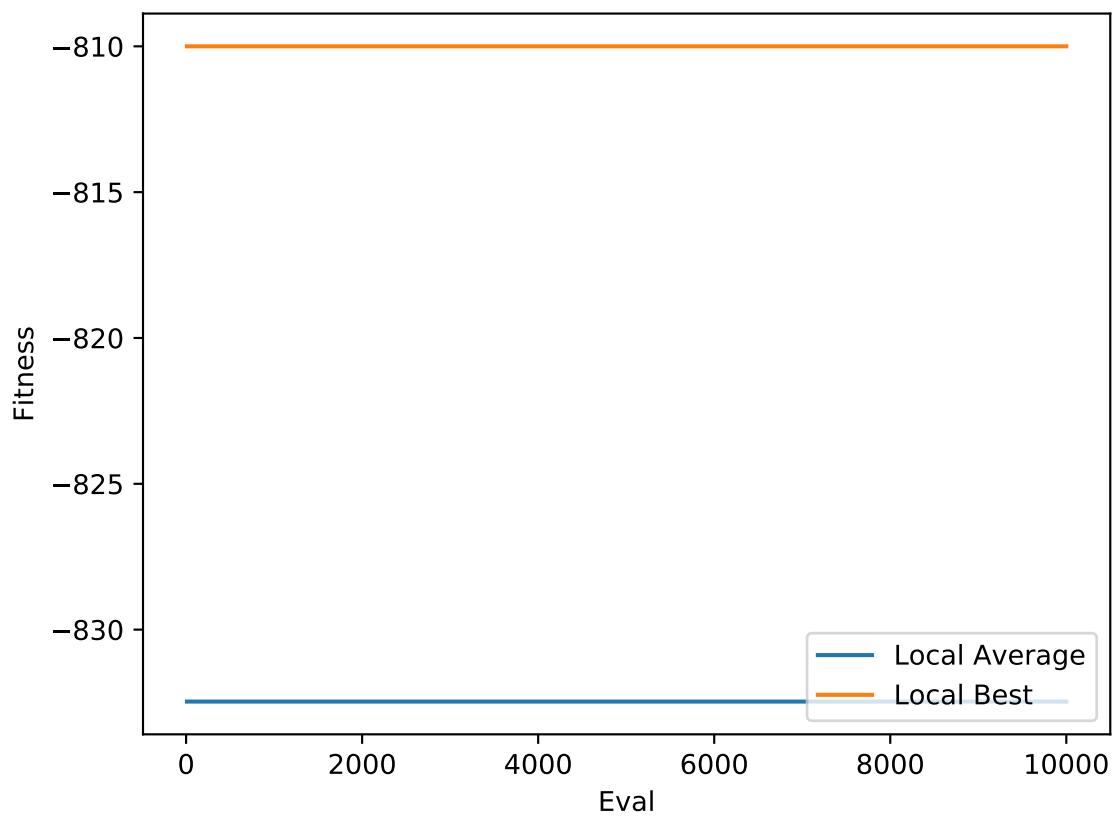


Table 191: Figure 231 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3047
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 192: Figure 232 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3048
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Partially Mapped Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 231: Input 3

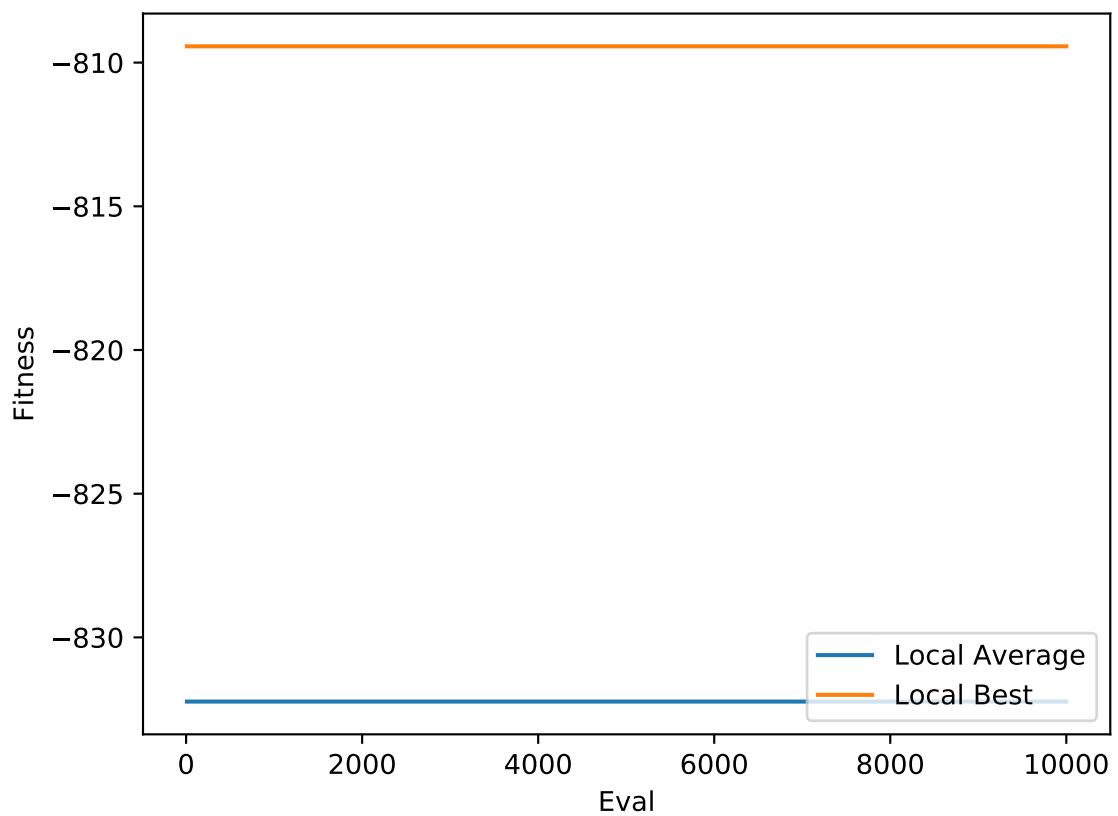


Figure 232: Input 3

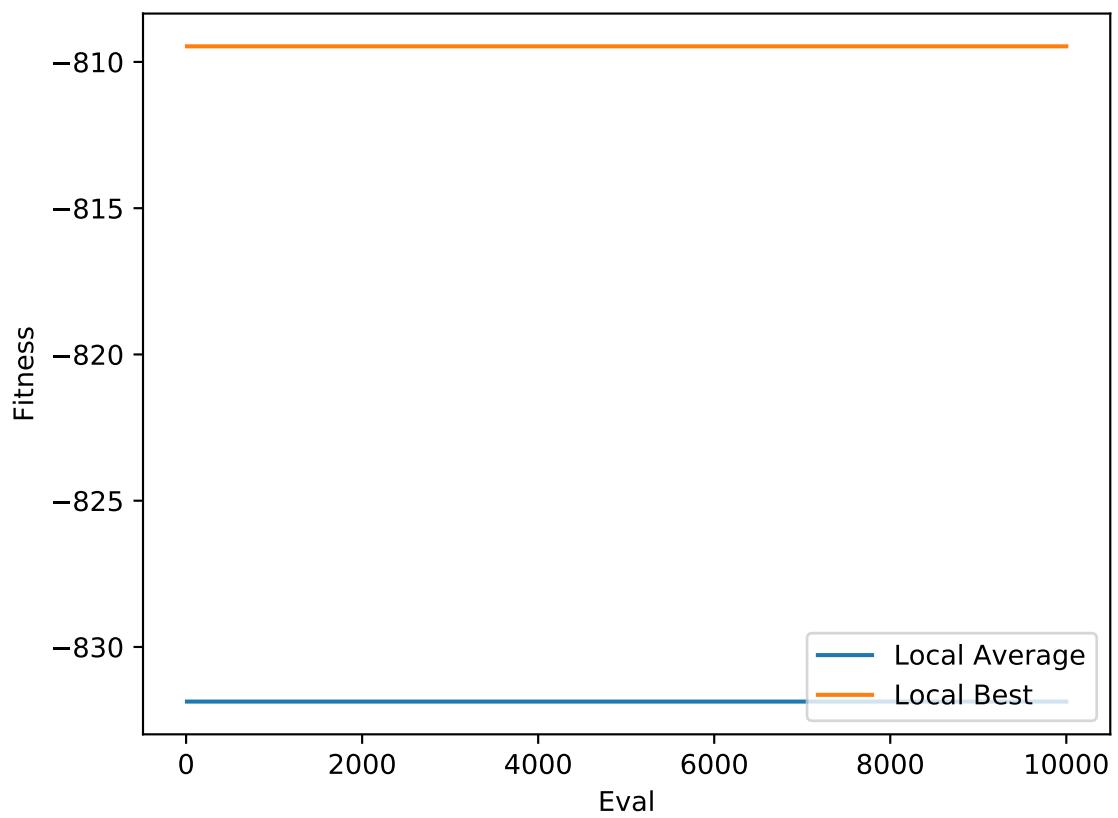


Table 193: Figure 233 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3049
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 194: Figure 234 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3050
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 233: Input 3

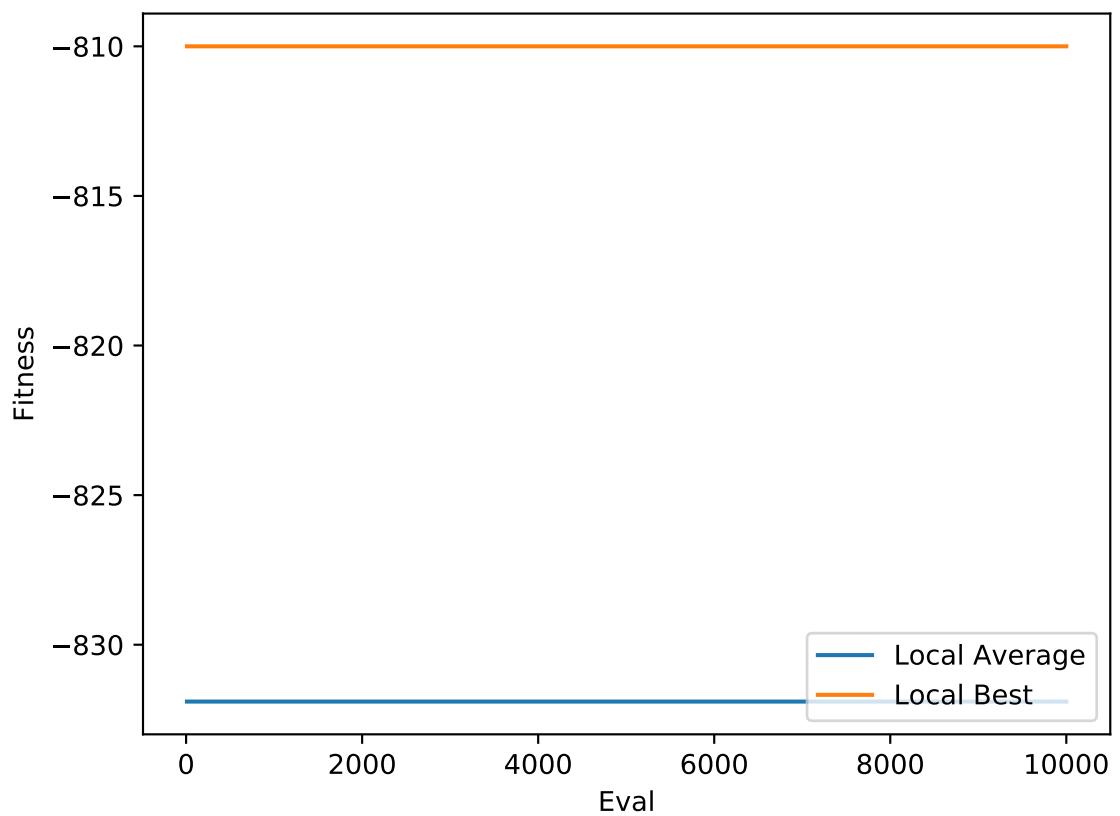


Figure 234: Input 3

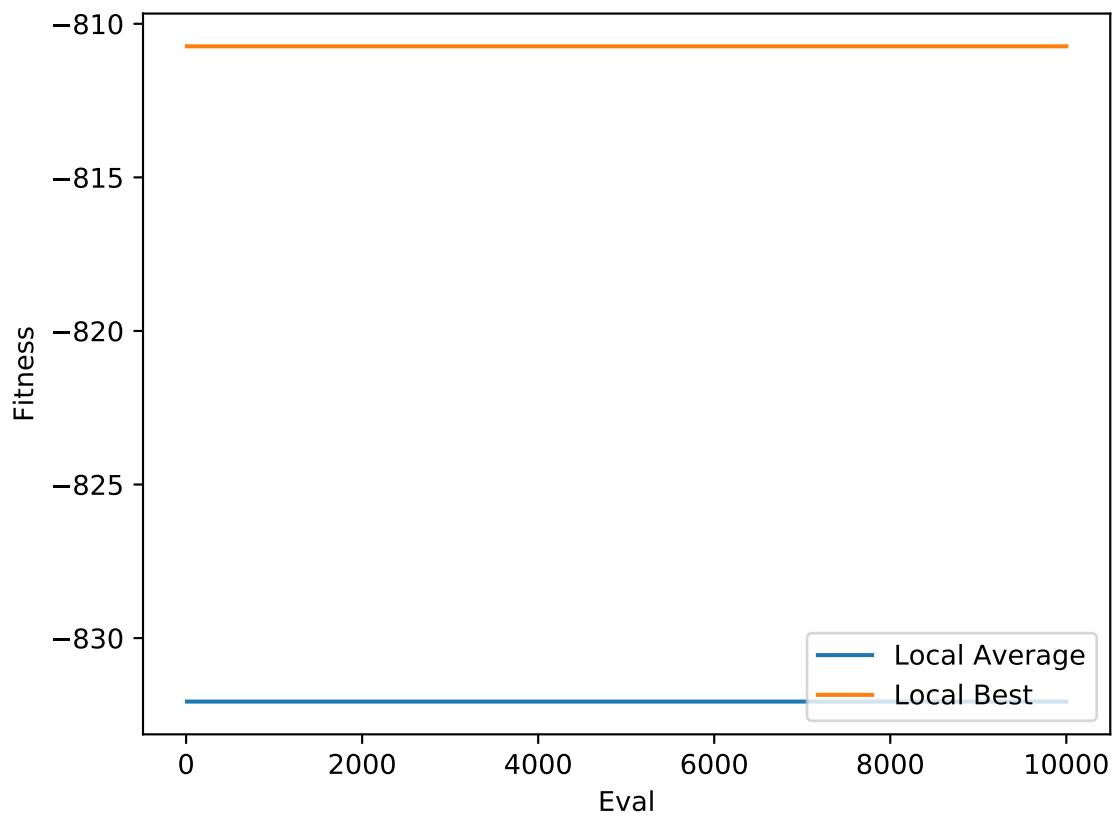


Table 195: Figure 235 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3051
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Table 196: Figure 236 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3052
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	False

Figure 235: Input 3

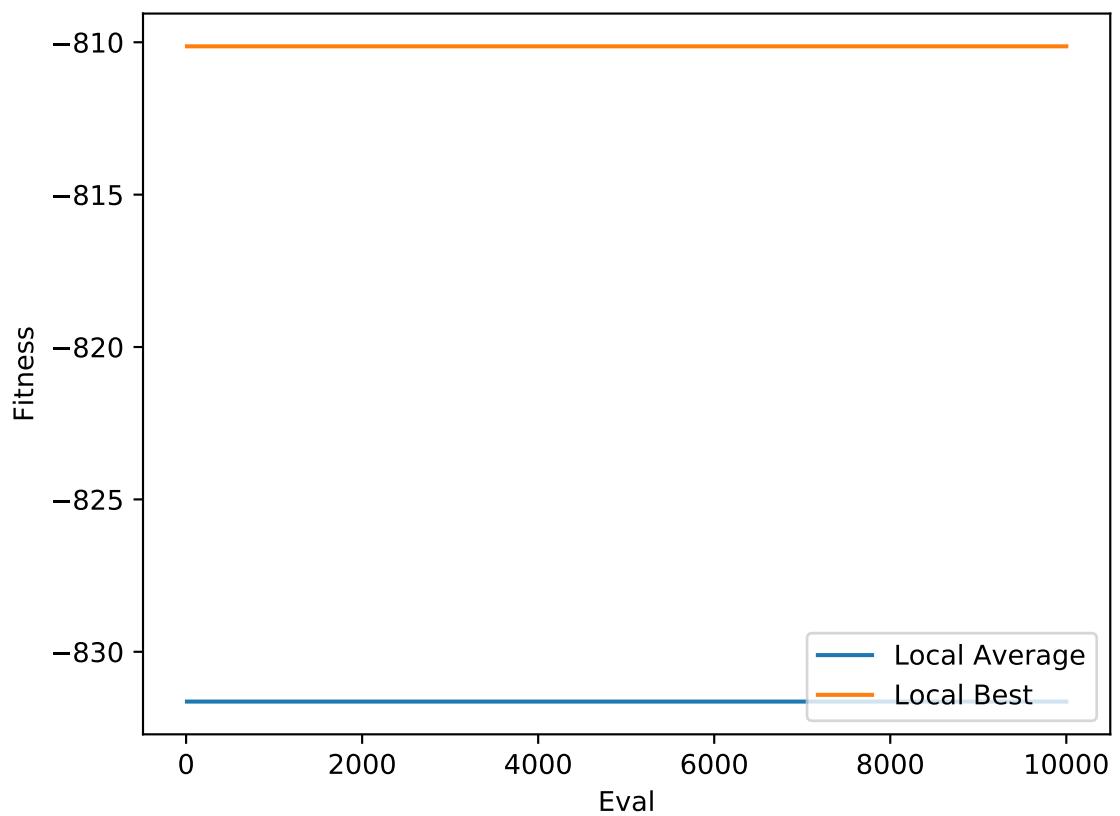


Figure 236: Input 3

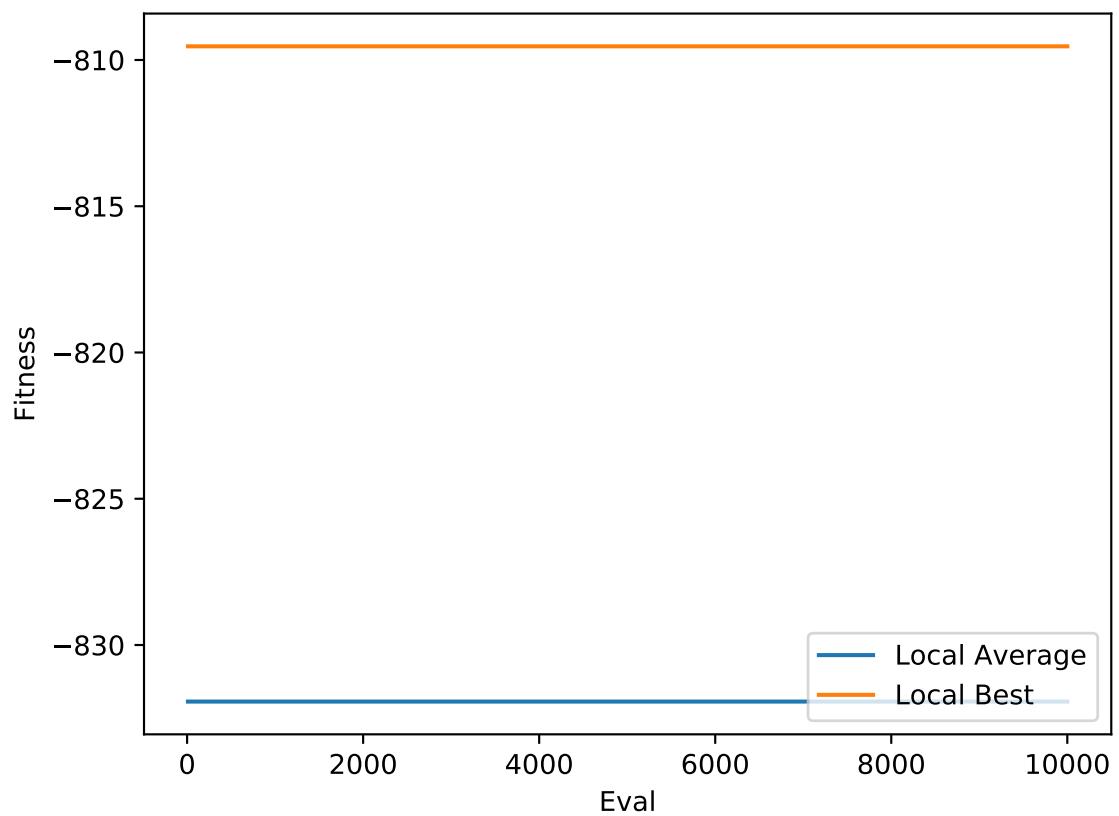


Table 197: Figure 237 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3053
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 198: Figure 238 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3054
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 237: Input 3

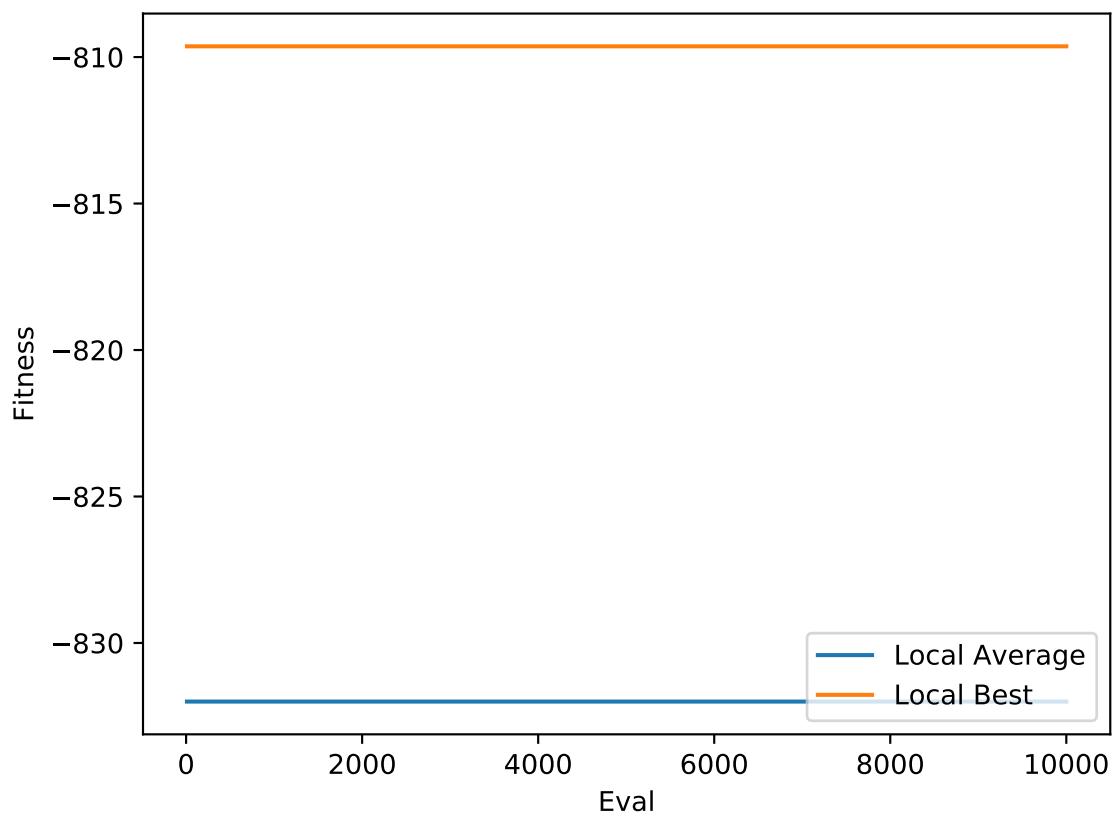


Figure 238: Input 3

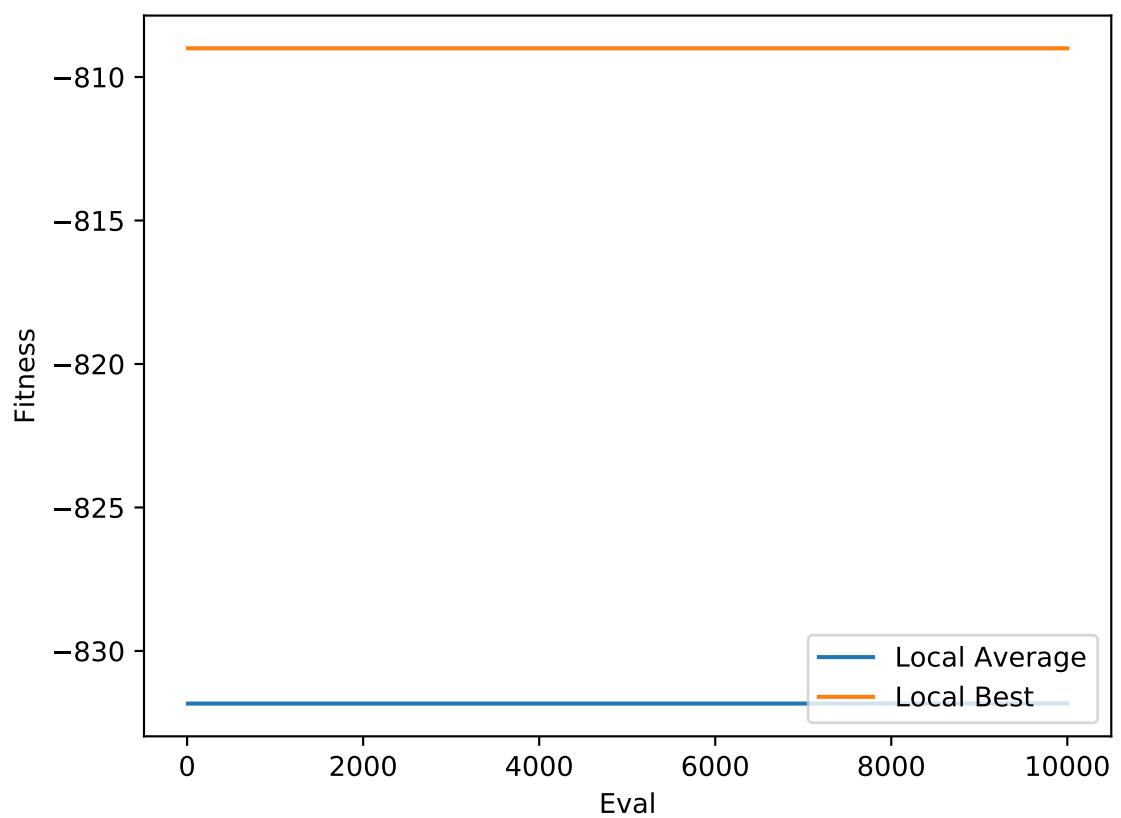


Table 199: Figure 239 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3055
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Table 200: Figure 240 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3056
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	False
Self Adaptive Penalty Coefficient	True

Figure 239: Input 3

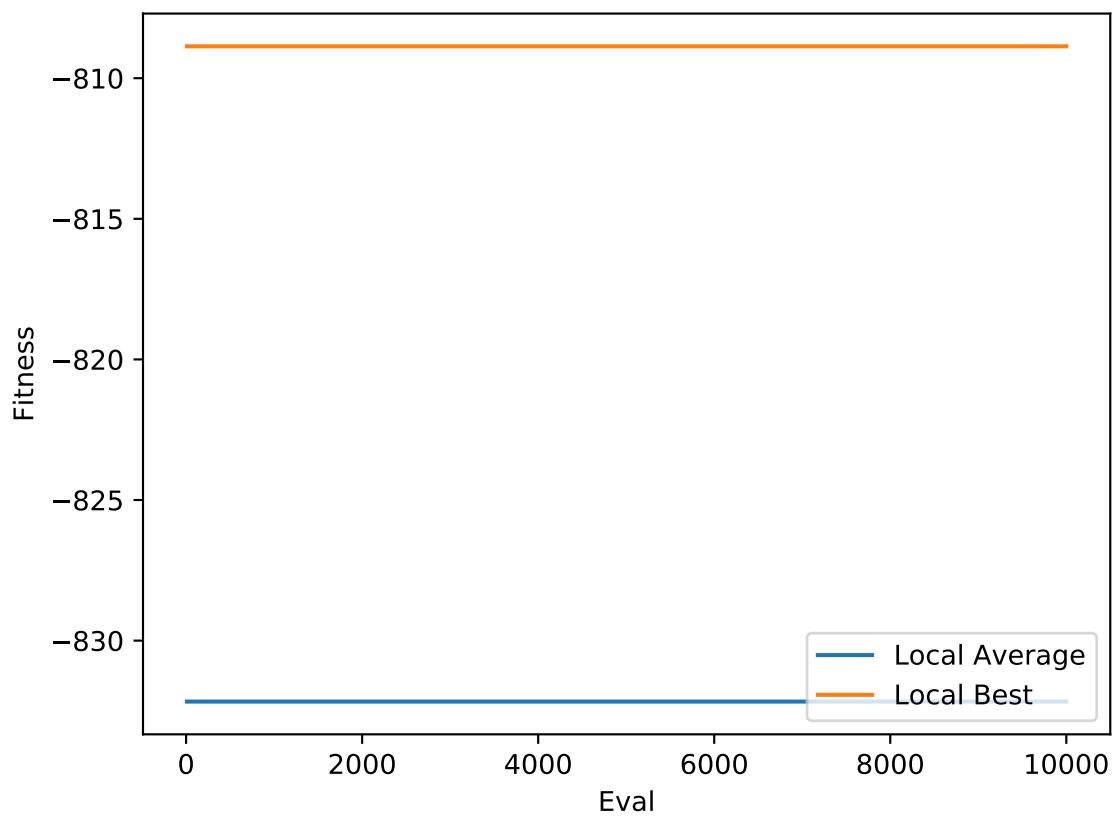


Figure 240: Input 3

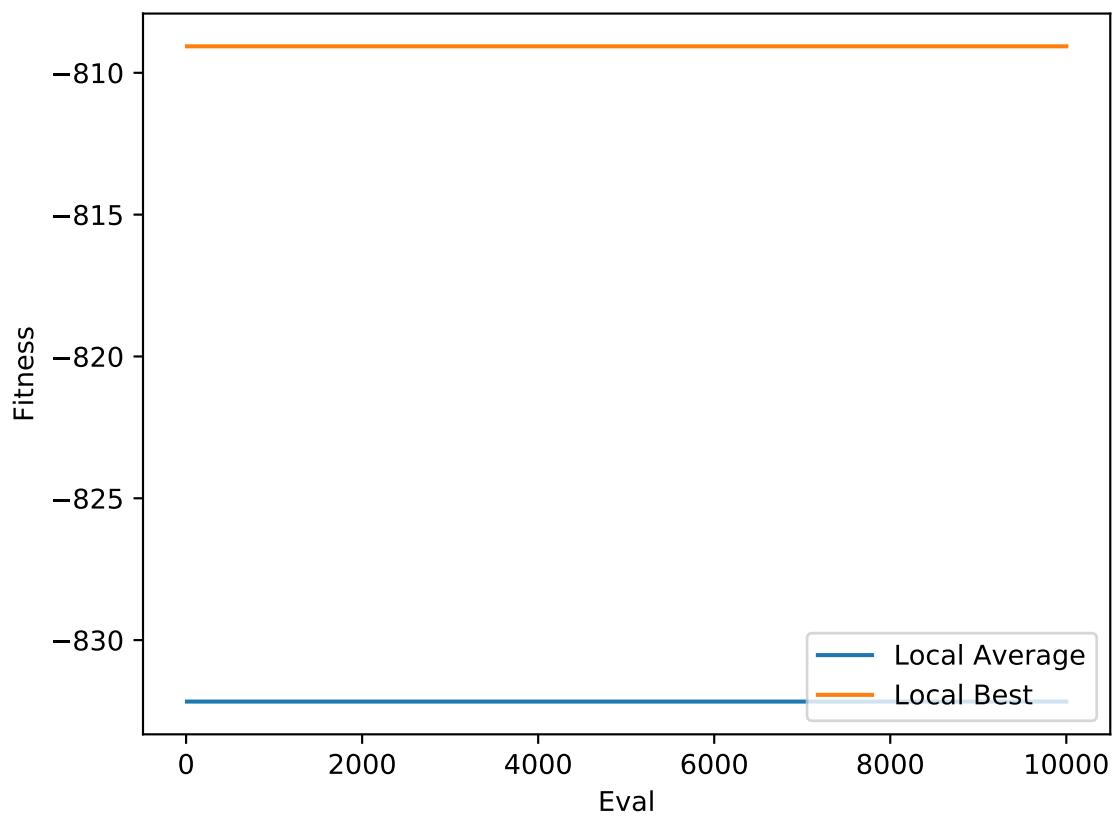


Table 201: Figure 241 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3057
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 202: Figure 242 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3058
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 241: Input 3

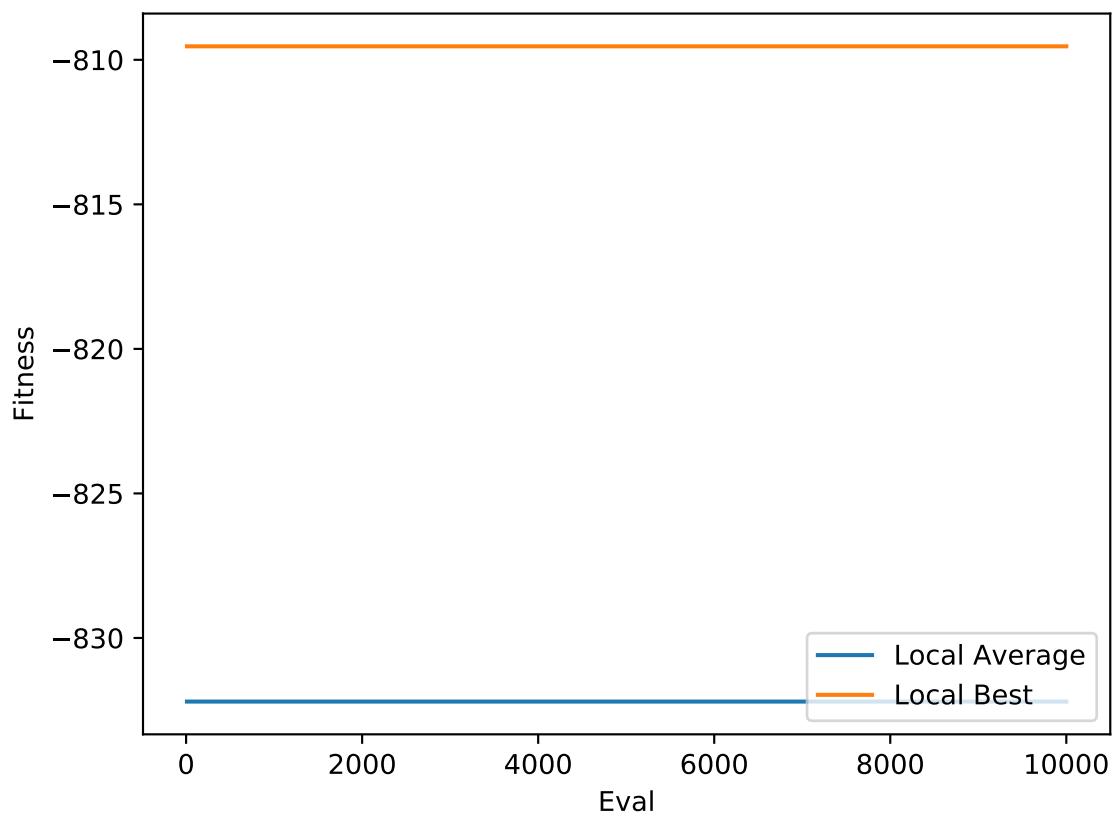


Figure 242: Input 3

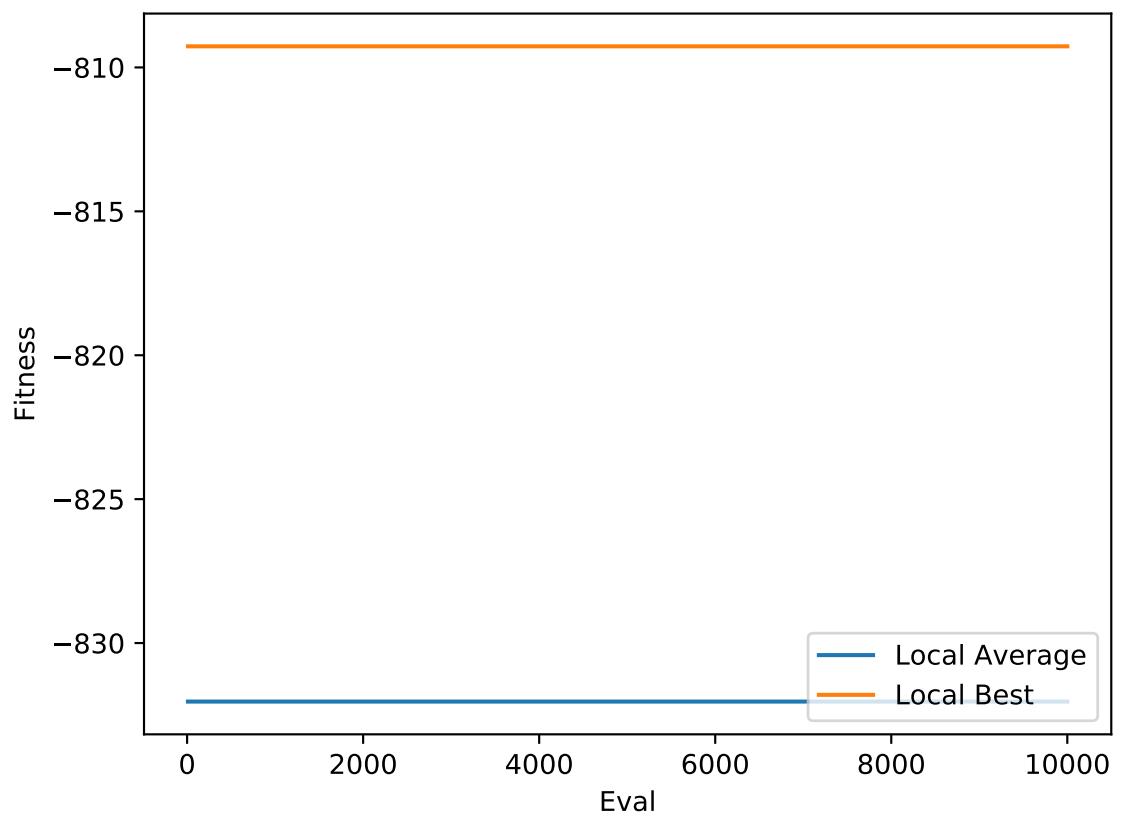


Table 203: Figure 243 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3059
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Table 204: Figure 244 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3060
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	False

Figure 243: Input 3

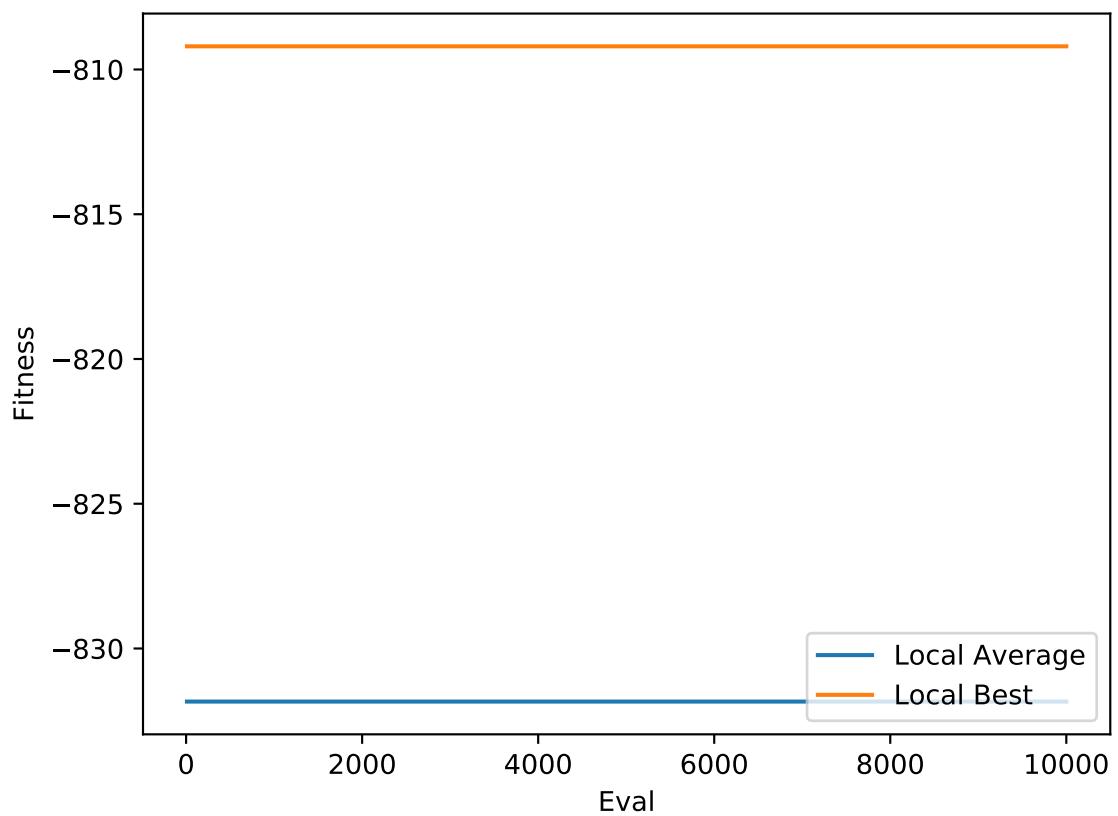


Figure 244: Input 3

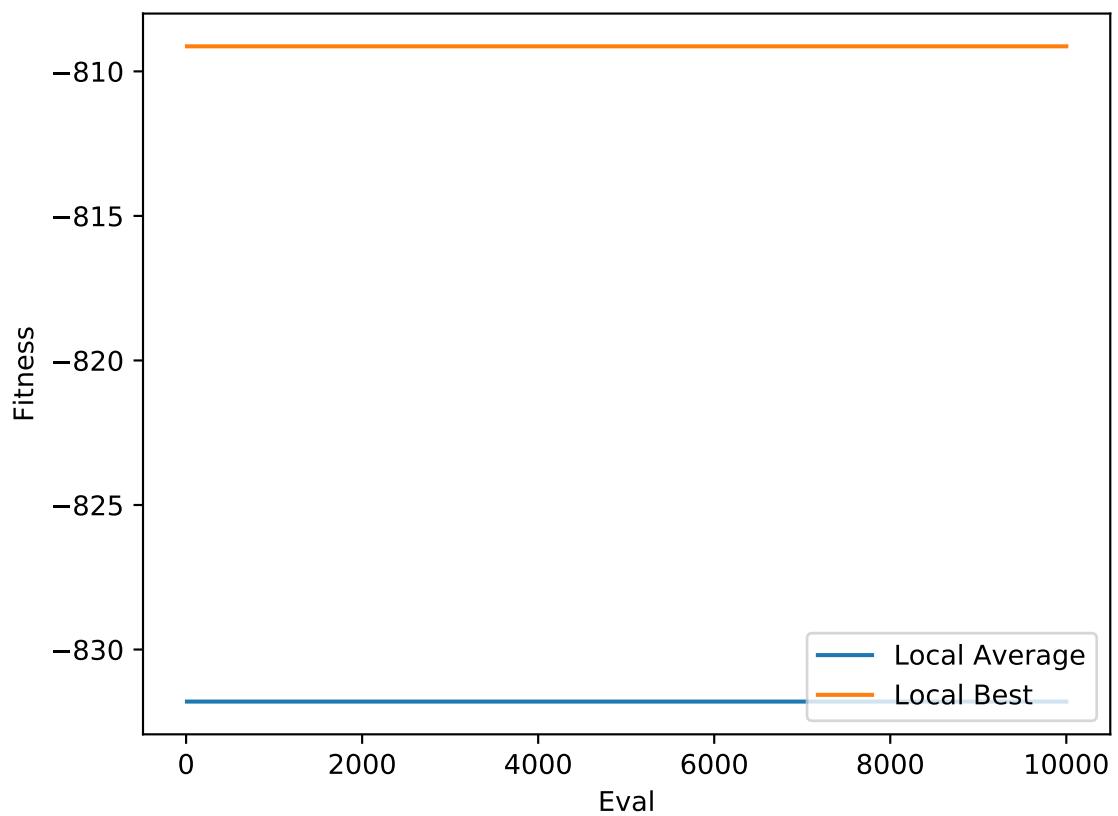


Table 205: Figure 245 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3061
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 206: Figure 246 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3062
Self Adaptive Offspring Count	False
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 245: Input 3

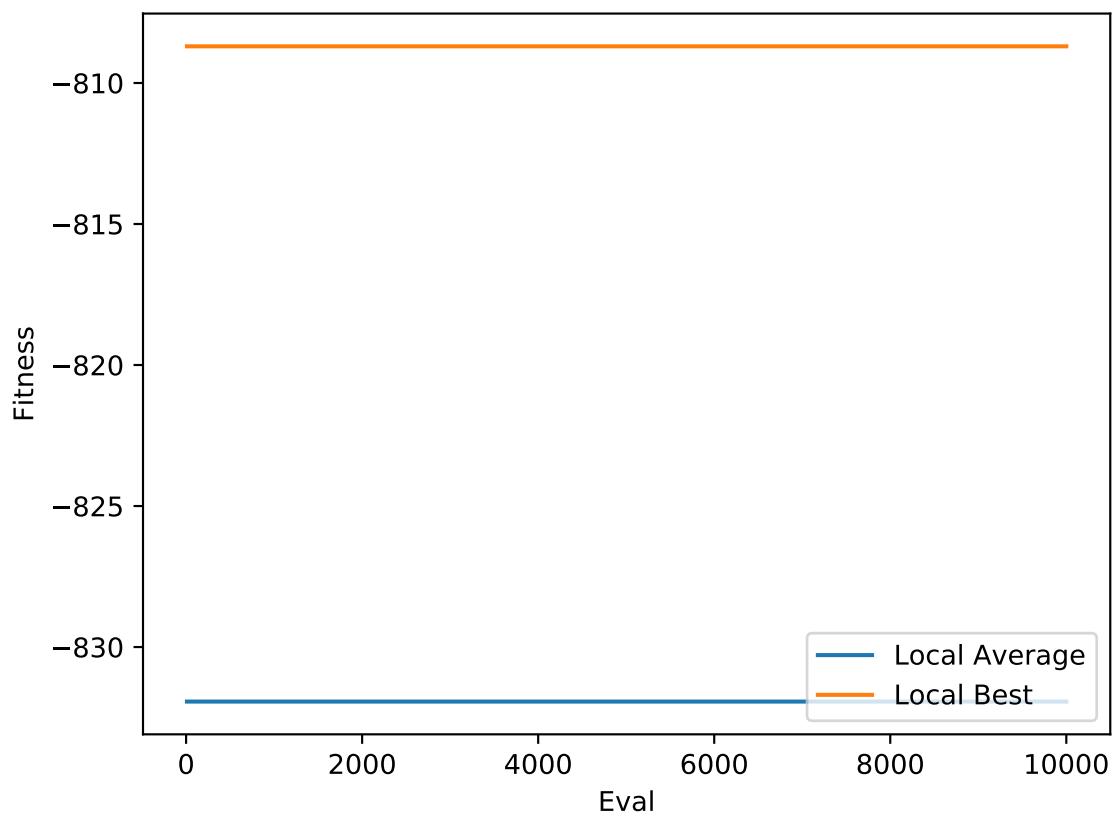


Figure 246: Input 3

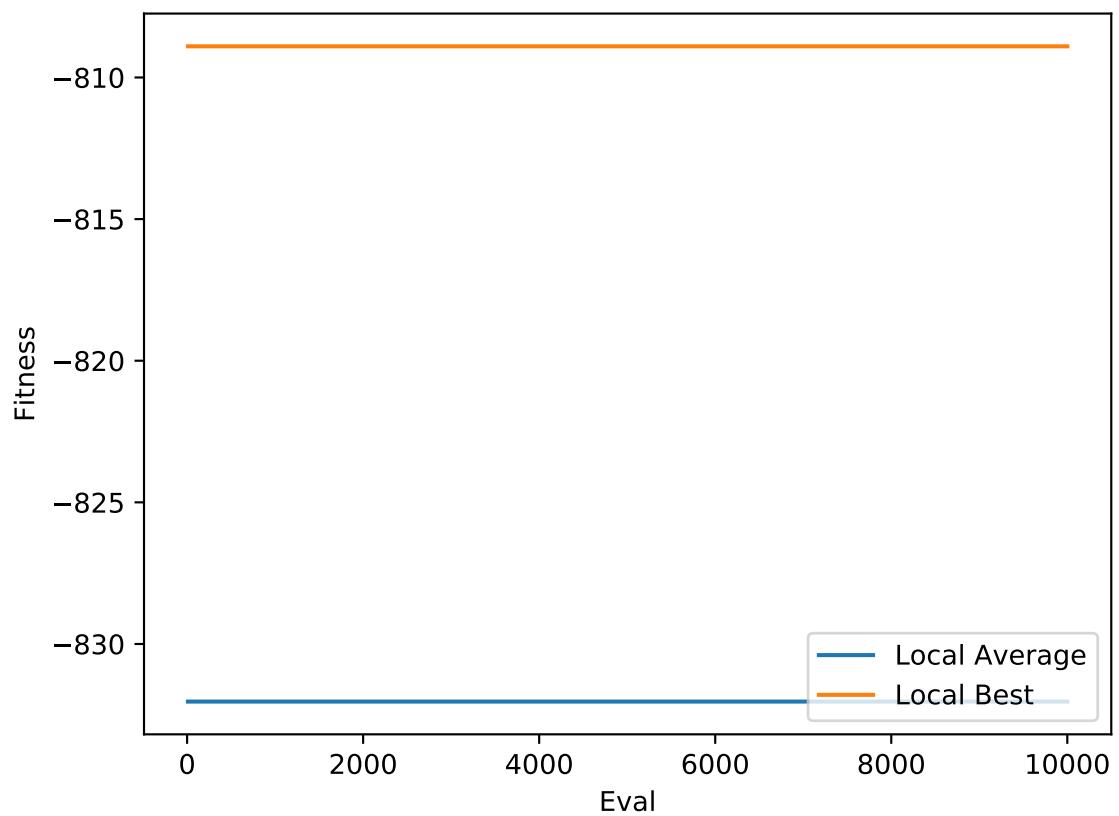


Table 207: Figure 247 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Flip
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3063
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Table 208: Figure 248 Configuration File

Search Algorithm	EA
Termination Convergence Criterion	10000
Fitness Evaluations	10000
Survival Strategy	Plus
Mutation Algorithm	Move
Placement Algorithm	Random with Penalty
Tournament Size For Parent Selection	2
Random Seed	3064
Self Adaptive Offspring Count	True
Tournament Size For Survival Selection	2
Population Size	10
Survivor Algorithm	Truncation
Offspring Count	5
Log File Path	None
Penalty Coefficient	1
Parent Selection Algorithm	k-Tournament Selection with replacement
Runs	30
Mutation Rate	0.1
Solution File Path	None
Recombination Algorithm	Order Crossover
Self Adaptive Mutation Rate	True
Self Adaptive Penalty Coefficient	True

Figure 247: Input 3

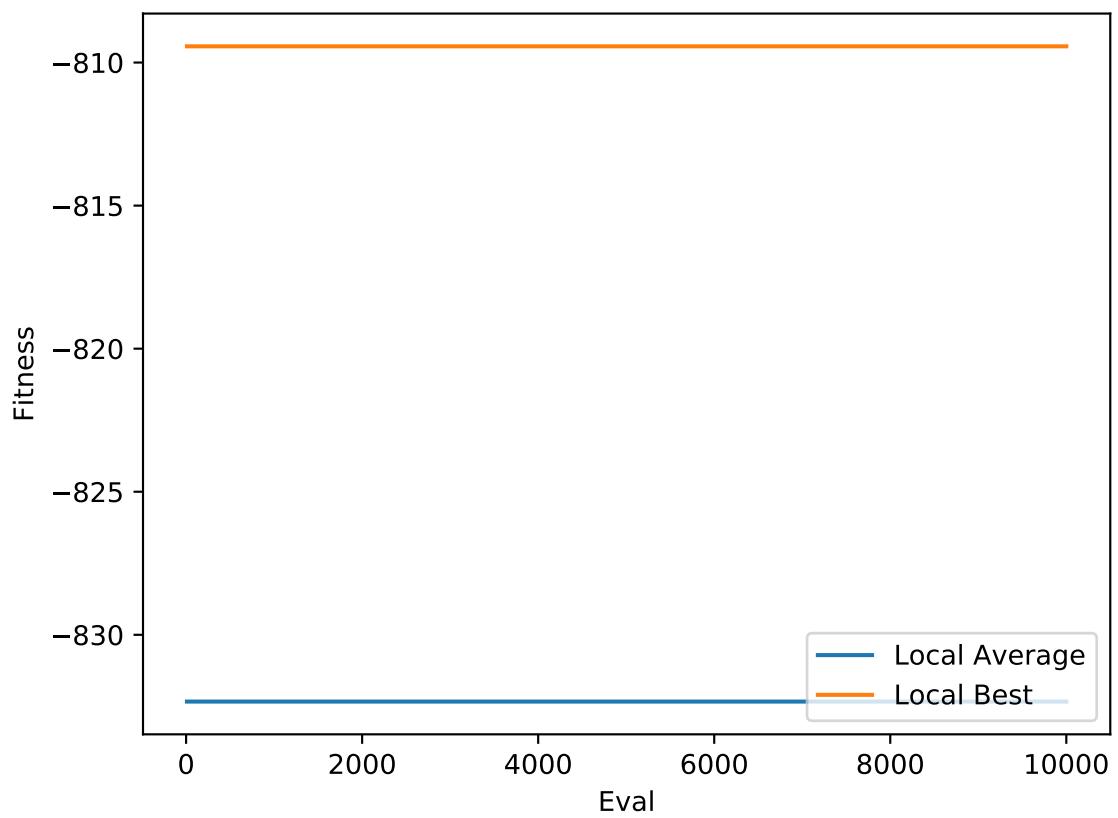


Figure 248: Input 3

