COMP SCI 5401 FS2017 Assignment 2b

Dalton Cole
drcgy5@mst.edu

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Genetic Programming Search

For this experiment, implementing a genetic programming search of the Prisoner's Dilemma was required. Evaluations vs Fitness Plot can be seen in Figure 1.

As seen in Figure 2, genetic programming search out performs random search.

Figure 1: Eval vs Fitness Plot

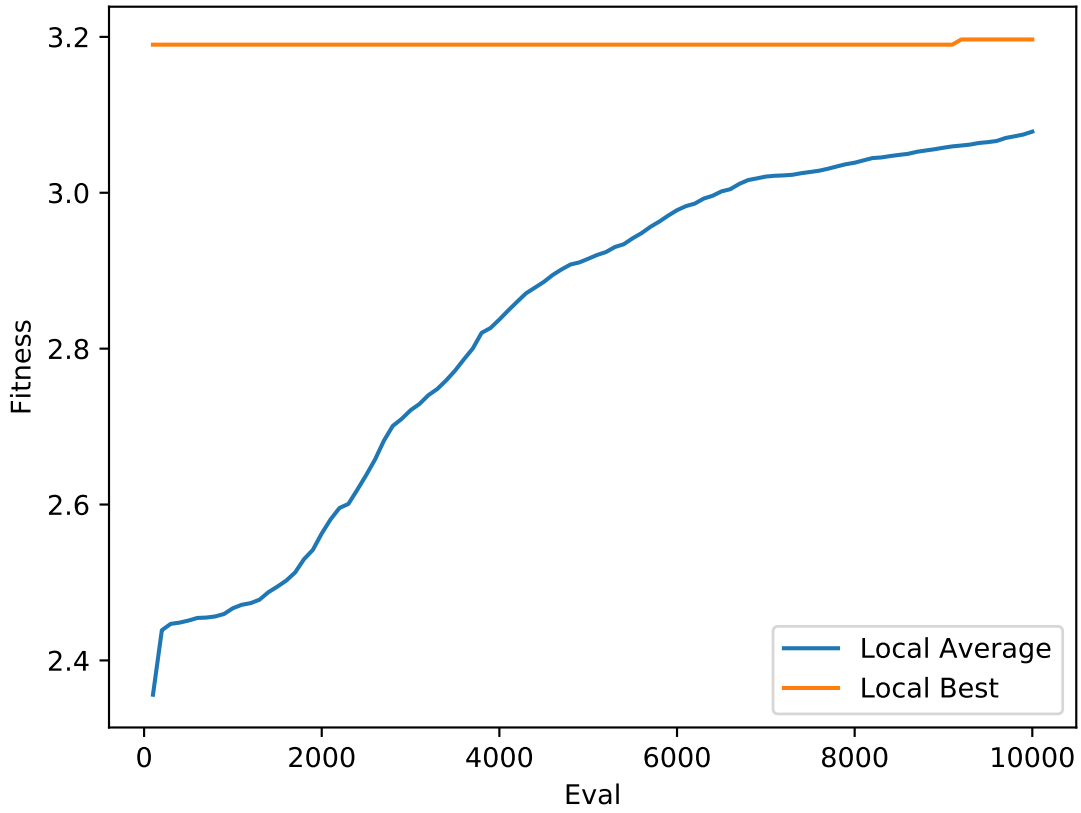

Figure 2: Statistical Analysis

	Variable 1	*Variable 2*
Mean	2.836402	0.748333
Variance	0.049125	0.01118
Observations	100	30
df	99	29
F	4.394024	
P(F<=f) one-tail	1.3E-05	
F Critical one-tail	1.710263	

M(V1) > M(V2) and F > F Critical => Unequal

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	*Variable 2*
Mean	2.836402	0.748333
Variance	0.049125	0.01118
Observations	100	30
Hypothesized Mean Difference	0	
df	103	
t Stat	71.04126	
P(T<=t) one-tail	1.26E-89	
t Critical one-tail	1.659782	
P(T<=t) two-tail	2.53E-89	
t Critical two-tail	1.983264	

t > t critical => Genetic Programming Search is better