Progress – June 12, 2015.

We have designed a flexible Genetic Algorithm (GA) architecture that is capable of accepting functions in phase space and optimizing set of values for that function.

This GA is generalized so that it can accept any type of function. The GA should adapt to the requirements of the function.

Function Requirements

Function

Generator

Run simulator with

particular function.

Measure performance.

Genetic Algorithm -

evolving population of

functions.

Particular

Function values

Create function

Return performance to EA

Output best function if desired performance met or time elapsed.

Use metrics to measure the quality of optimized function

Optimized Function

The *Function Generator* receives the requirements of the function to be optimized from the *phase space generator (just a place holder)*. The *Function Generator* examines the requirements and determines the function values and performance criteria (fitness function). Based on the function values, the GA sets up a population of functions to be optimized. Each individual of the population may vary in length because the function may have varying amount of variables. We will explore both mutation and recombination operators as the selection criteria of the GA. Depending on initial outcomes, we may explore other