Why use EpochX for GP research?

This article will provide a rundown of the reasons why EpochX is perfect for research into the use of evolutionary algorithms for programming tasks.

# Design principle

Most evolutionary algorithm systems are focused on delivering results. EpochX is not focused purely on the results; we place the emphasis on **how** those results were obtained, about the algorithm itself. Sure, you can get the result of the best program produced, but as researchers we’re typically more interested in the structure of the programs throughout runs, or the effect of a particular operator.

# Multiple runs

It sounds obvious, and it is, but it is built in to EpochX that you may very likely wish to do more than one run with the same settings. This is less useful in commercial systems, but when you need statistical significance, number of runs is king. Say, about 100?

# Real-time statistics

As execution proceeds, raw data about the runs is generated and is immediately available to be used, abused and output as you see fit. But, more helpfully, a wide range of statistical metrics are also at your ‘beck and call’, generated upon request. (give couple of stats examples – ci95 perhaps?)

# Dynamic parameters

Execution of EpochX is controlled by parameters obtained from a Model provided by the user. Because Models are themselves Java classes the parameters can be modified during execution in response to the statistics generated by the system.