Evolving a Sorting Algorithm with SNGP

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April 2019

Abstract

This project is being done for my project supervisor Dr David Jackson. The aim of this project is to attempt to evolve a sorting algorithm using SNGP and, if successful, compare the efficiency of evolving sorting algorithms using GP with evolving sorts with SNGP.

Genetic programming (GP) is a technique for creating programmes not by writing them by hand, but instead by creating a population of random programmes and modifying them using an evolutionary algorithm. The desired result is that after several generations a programme that performs well at a given task is generated. GP has previously been used to successfully evolve sorting algorithms.

Single node genetic programming (SNGP) is a variation on GP invented by Dr Jackson [3] which structures the population of programmes in a manner that allows the use of dynamic programming when computing the result of the programmes in an effort to more efficiently generate a working solution.