

Computational models are used widely around the world to simulate complex phenomena such as water flow and the spread of disease. These systems are used to decide real-world policies so it is key that they are accurate. In this experiment, we will be trying to maximise the similarity between a test equation and the equation produced by our program. Some existing approaches are linear regression or genetic programming. This paper will show how combining these two principles will produce better results. We created a program which when given certain inputs will run either genetic programming, linear regression, or both on our different formulae. For each equation, we tested all 3 methods with different levels of noise and sizes of data points, which totalled to 162 runs of each equation. The results of this showed that on average using both linear regression and genetic programming performed 65 times better than just linear regression and 33 times better than just genetic programming. The combination of both performed best when there were lower levels of noise and data points but the other two performances didn't change in terms of noise. Interestingly the performance of just using linear regression didn't change with the data size at all whereas the combination of both changed dramatically.