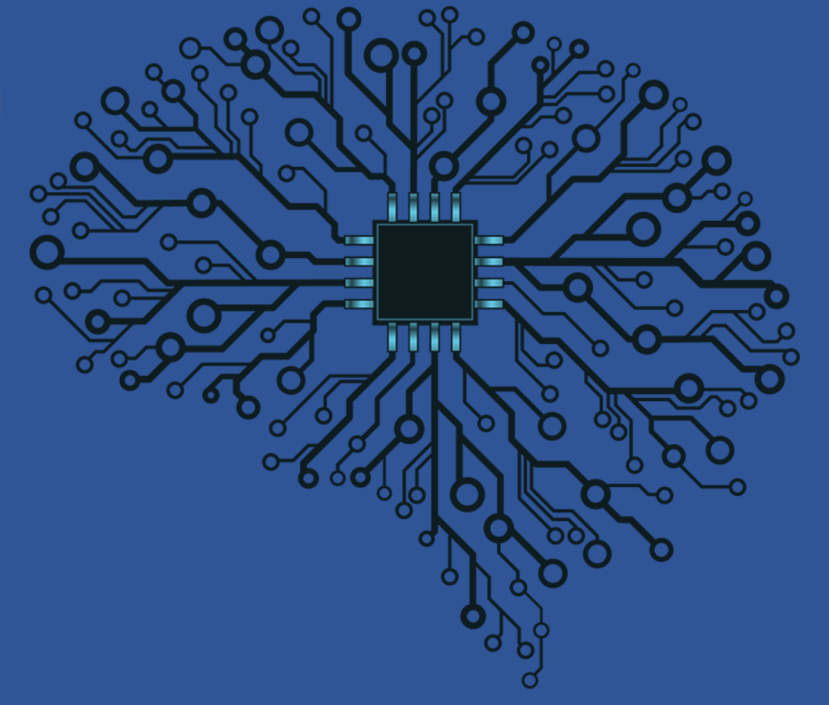# Evolutionary Algorithms for Automated Machine Learning

AutoML

AutoML aims to automate the entire machine learning pipeline. In our research, we focused on hyper-parameter optimisation, a sub-domain of **AutoML**. Our research focuses on evaluating the performance of evolutionary algorithms for the task of **AutoML** in the context of trend prediction in time series data. Our research analysed the performance of **differential evolution** and a **genetic algorithm** against **random search** for the task of **AutoML**.
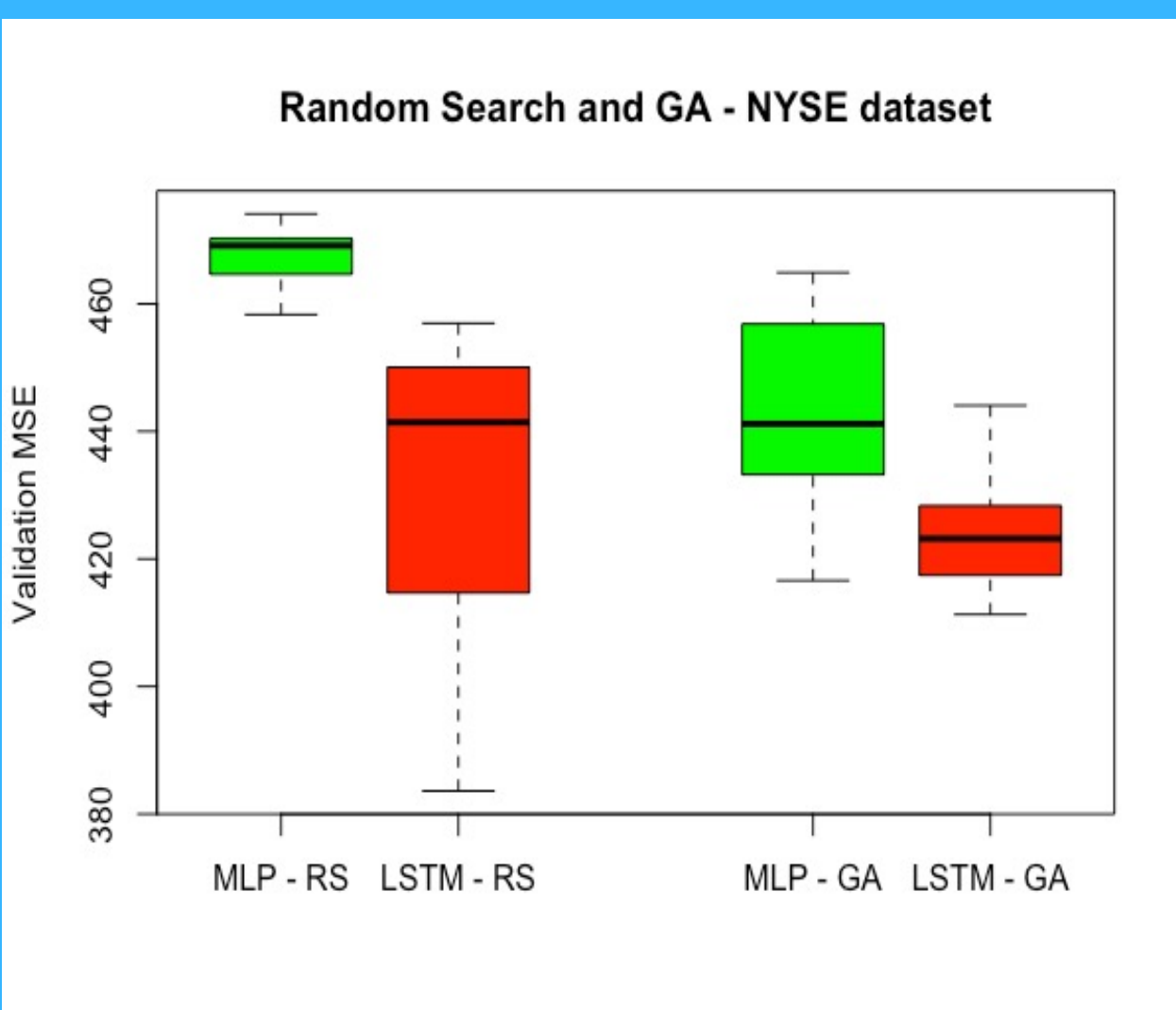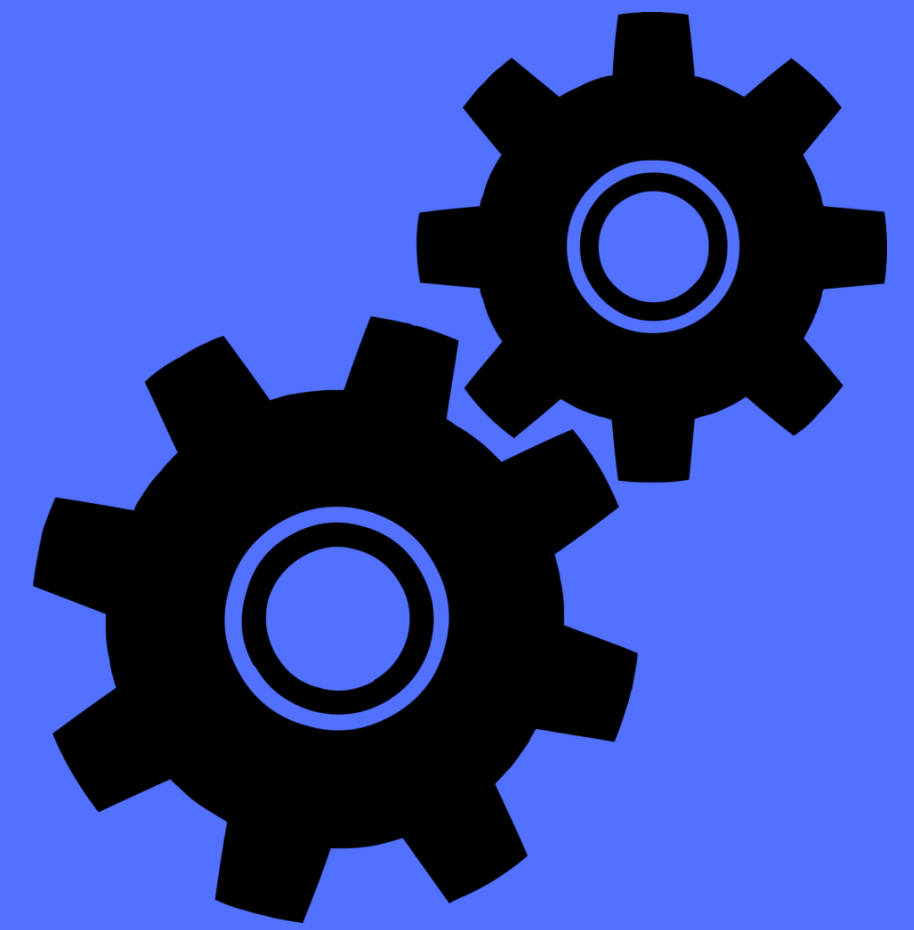

Genetic Algorithm

A **genetic algorithm** was implemented to perform hyper-parameter optimisation for both an LSTM and an MLP neural network. The **genetic algorithm** and **random search** algorithms were evaluated under both high and low computational budgets. The results show that **genetic algorithms** perform better than **random search** given both high and low budgets on two different datasets.

Differential Evolution

Differential evolution is said to be one the best evolutionary algorithms and we put that to the test! It showed to minimize the Combined Algorithm and Hyper-Parameter Selection problem faster than a random search!
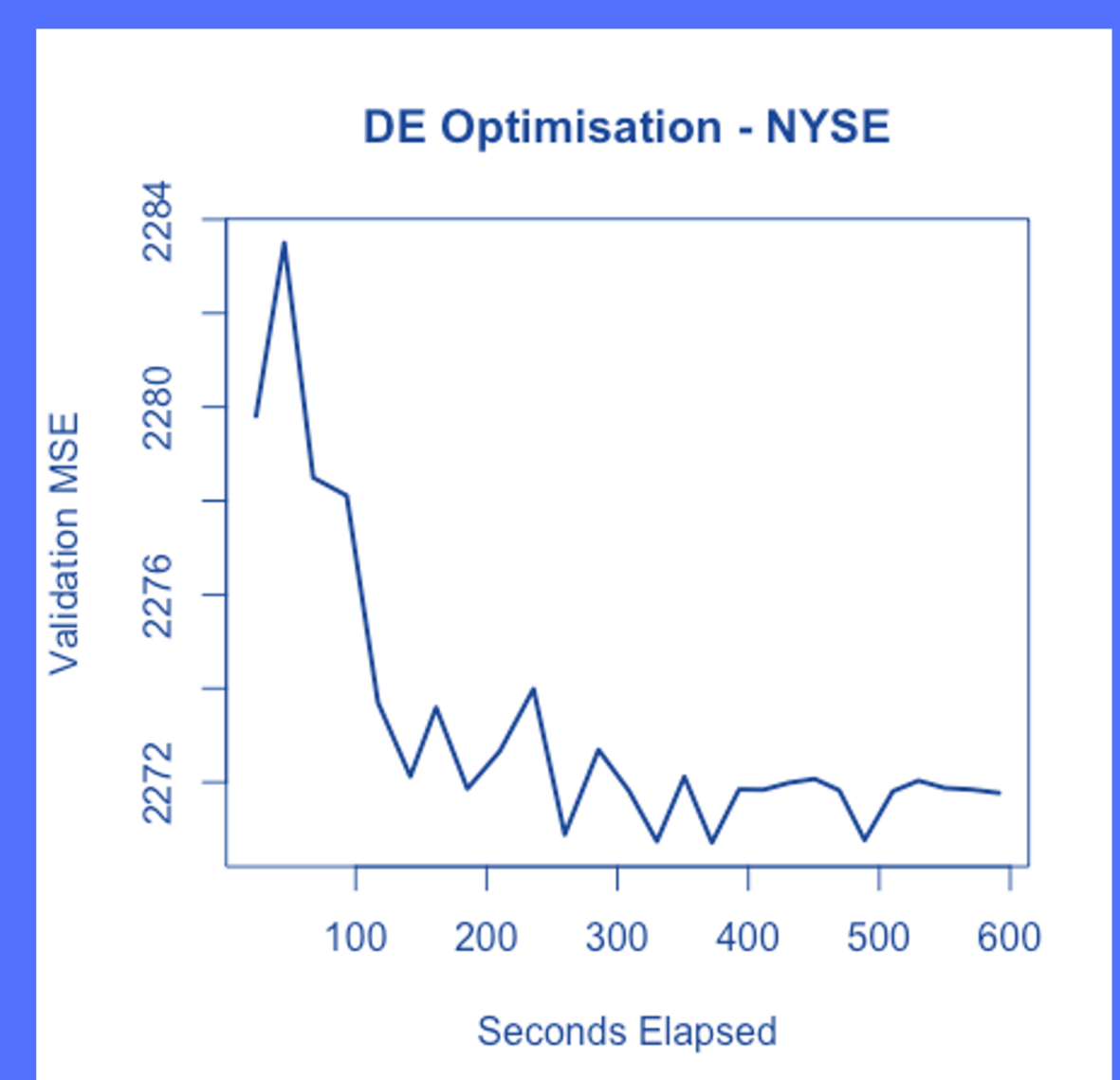
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