Introduction

Throughout the recent years artificial intelligence research may require processing vast amount of data and depending on the dataset, require a lot of processing power to be able to handle certain computations to train a neural network.

Companies accelerate the execution of large-scale tasks by utilising the concept of parallel computing as super computers are connected to work in unison to solve these tasks. However, the creation of such a system is costly and some academic institutions or students do not afford such a system. Every year, students that are exploring such computational-heavy research may be at a disadvantage as their home computer does contain the necessary processing power to complete their research or may take a lot of time to produce a result-set.

However, some academic institutions are equipped with low-to-medium end computers that are mostly not used during the evenings. These computers can be clustered together to work in unison and combine their processing power to provide students a platform where they can compile and complete their computational-heavy research and be able to produce a faster result set. This research aims at addressing such challenges for small academic institutions who might not have the budget to implement an HPC computer system by proposing a solution that re-proposes classroom computers to be clusters together and offer a platform to students for academic research purposes.

In the next sections of this research, we will be reviewing the underlying technologies, existing solutions and similar research will be presented. Then we present the prototype and research methodology with the findings presented in the results and discussions section.

**Section describing the various chapters in your study.**