

# Ecs251 project proposal

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## 1 Introduction & Motivation

The advancements in multicore architecture and multiprocessor computers are increasing and ongoing[14, 15, 16]. To keep up with this trend, we need techniques like multithreading to maximize the performance of ever-advancing cpu's[13]. Multithreading is of vital importance for this because it can harness the power of multiprocessor computer, improve system reliability by preventing one operation from negatively affecting another in a program(user interface event affecting time-critical operation), and maximize cpu use (in programs that read/write from a file, perform I/O, or poll the user interface)[13].

While a very efficient tool for harnessing the power of multiprocessor computer, multithreading does come with some challenges. The top most important challenge in multithreading is the management of thread pools[11], namely the size of the thread pool. The number of threads in a thread pool determine the changes in response times and resource utilization [11]. In our research, we have come up with a “dynamic thread pool” with varying number of threads such that we can optimize minimum response time for maximum resource utilization.

example citation (?).