

# Abstract

Parallel computing is a rapidly growing field due to its extreme performance boosts when dealing with large amounts of data. General purpose computing on graphics processing units (GPGPU) allows programmers to utilize GPUs to exploit parallelism in CPU code. In this thesis, we present a system that automatically transcompiles source C code into CUDA code, which can be executed on a GPU. Unlike other similar systems, our transcompiler is a complete end-to-end system capable of handling certain `while` loops and imperfectly nested `for` loops. We tested our system on a variety of computationally expensive applications and achieved immense computational speedups and decent overall speedups.