

# EN600.407 – General Purpose Computation on the GPU

## Project

**Proposals Due:** April 2<sup>nd</sup>

**Presentation:** April 30<sup>th</sup> (Last week of class)

**Final Project Submission:** May 15<sup>th</sup> (End of finals period)

## Overview

Students are to undertake an independent project using CUDA to solve an interesting problem. Students are encouraged to find a problem in their own research. If a student is not able to find a suitable project, they should contact the instructor who can help make suggestions.

## Proposals

You should write a one-two page project proposal. The proposal should include the following:

- An explanation (one or two paragraphs) of the problem being solved
- A brief background of any significant prior work found on parallelizing this type of problem
- An identification of ways to exploit parallelism within the problem:
  - Identify the possible ways to decompose the data in the problem.
  - For each decomposition, identify the data dependencies and classify the type of data sharing that occurs.

## Presentation

During the last week of class, each student will present their project to the class. The presentation will be approximately 10-15 minutes in length. During this time, the student should present a brief introduction to the problem, followed by details on how they chose to structure the problem for the CUDA architecture, with an emphasis on any aspects of the problem that did not naturally fit the CUDA architecture. The student should also present preliminary results and performance analysis.

## Final Project Submission

The final project submission will include the following:

- All source code
- A writeup (details to follow later) including results and a performance analysis