

**CS 791v: Topics: Parallel Computing**

**Spring 2015**

**Programming Assignment 3**

**Mandelbrot Set**

**Assigned Date**

2/5/2015

**Due Date**

2/12/2013

**Overview**

* You will write a program to calculate and output Mandelbrot Sets.
* There is a great tutorial and intro (with most of the sequential code) at the following website: <http://warp.povusers.org/Mandelbrot/>
* To write the image you may use whatever tool you like. Some example library such as png++ would be good, or you may write out a simple ppm file. A description of the text required for a ppm file and sample ppm files can be found here: <http://netpbm.sourceforge.net/doc/ppm.html>

**Project Requirements**

* 2 versions of the code:
  + A compiled and running sequential C program
  + A compiled and running CUDA program
* Multiple timings of runs.
* Appropriate graphs
* Larger Images and a larger MaxIterations will make the run time increase.
  + Use 2,000 x 2,000 pixels for your image with 1024 iterations for your graphs.

**Deliverables**

* Bring output to class for discussion on the due date.
* Best verifiable performance in class gets bonus points.
  + Optimize, and find best block size, thread count, and strides…
* Have a pdf of your writeup and a zip of your source code emailed to Fred Harris and Lee Barford (DO NOT send binaries).
  + Firstname dot Lastname at … (Fred is cse, Lee is gmail)