

# Daily Progress Report

Arkavo Hait, Sagnik Bhattacharya, Aman Deep Singh

May 29, 2016

## Summary

Prepared a rough code which would be used in the final program. The Code only applies to one force: gravity However it is still text based but prints the results (position and velocity data) into a text file. It is still a sequential program, but in a form that would be easy to carry over into parallel form.

## Detailed Report

### May 16, 2016

Created repo on GitHub

### May 17, 2016

Created abstract idea for main code

### May 25, 2016

#### Arkavo Hait

Started learning CUDA, from documentation and a tutorial (link in repo).

#### Sagnik Bhattacharya

Started a course on Udacity on Parallel programming using CUDA. Completed Lesson 1: The GPU programming model.

#### Aman Deep Singh

Started watching a Video Tutorial series(by David Gohara) focused on OpenCL. Completed 3 Episodes : 'Introduction to OpenCL', 'OpenCL Fundamentals' and 'Building an OpenCL Project'.

**May 26, 2016**

**Arkavo Hait**

Continued above tasks. Tried out a simple CUDA program.

**Sagnik Bhattacharya**

Continued with above Udacity course. Reached Lesson 2: GPU Hardware and Parallel Communication Patterns.

**Aman Deep Singh**

Continued with the Video Tutorial Series. Moved on to Episode 4: 'Memory Layout and Access'

**May 27, 2016**

**Arkavo Hait**

Created skeleton code for bodies.

**Sagnik Bhattacharya**

Made skeleton code Gravity2.c for taking input of planet data.

**Aman Deep Singh**

Started following an OpenGL tutorial. Tried to make an OpenGL project using CMake but couldn't do it on Ubuntu due to a lot of Errors. Started trying it on Windows. There were many more errors.

**May 28, 2016**

**Arkavo Hait**

1. Made a concept skeleton CUDA code for planetary movement.
2. Added code functionality to enable output of data to file (List.txt)
3. Began converting seq.c to sequence.h

**Sagnik Bhattacharya**

1. Began making a sequential program for N-body simulation, so that that functions created for that program could be used in the CUDA program that will be created.

2. Removed errors in above program. Debugged a segfault, added code to calculate the acceleration of a body given the the positions of the rest of the bodies, and to calculate the position and velocity of each planet after each iteration.

### **Aman Deep Singh**

1. Completed the Video Tutorial Series on OpenCL.
2. Tried to make an OpenGL project using Visual Studio Express 2015 and CMake and faced errors related to missing Header Files.

### **May 29, 2016**

#### **Arkavo Hait**

1. Began to make a library to facilitate creation of CUDA code.
2. Made reports.

#### **Sagnik Bhattacharya**

Made reports. Did some debugging of skeleton code.

1. Removed error in function addVec, that did not return the vector formed by addition of two given vectors.
2. Removed error in seq.c that stopped the time from updating successfully between iterations.
3. Added code for time stamp to appear with each update of the planetArray.

### **Aman Deep Singh**

1. Learned how to make header files and made a sample header file for basic functions like Addition, Subtraction, Multiplication and Division.
2. Made Reports.