# Parallel and MultiThreaded Programming

# CSYE 7215

# Homework 12

# Due: April 19, 2020

Put all your java, compiled class files and documentation into zip file named Homework12.zip and submit it via the dropbox on the blackboard before the END of due date. Put your name on all .java files. There will be a short quiz on this assignment.

1. Explain these:

CPU versus GPU? Explain

OpenGL? How would you use it? Give two examples.

What is JOGL? How would you use it?

3D Modeling, 3D Rederring

Throughput versus Memory Latency, how both being managed?

2. Consider JNI examples I discussed in class. Compile and Run, Show outputs

a) HelloWorld from C

b) Pass Integers From C to Java

c) Pass Integers from C to Java

d) Pass Integer Arrays From C to Java

f) Pass String Arrays From C to Java

3. Consider this StudentRecord class. Compile this JNI code and Run.

<https://cppcodetips.wordpress.com/2014/02/25/returning-array-of-user-defined-objects-in-jni/>

A) Compile JNI code and Run code

B) Change this code to Student data structure in Homework2. Write all

your JNI and native methods. Compile an Run.

C) Using this document to create 5 Student threads and one GreaterThread in

native. Compile and run your program as described in homework2

<https://devarea.com/java-and-cc-jni-guide/#.XpOSFVNKh0s>

4. Read JOGL reference:

<https://www3.ntu.edu.sg/home/ehchua/programming/opengl/CG_Introduction.html>

Compile and Run Example1 and Example2 programs