CS 174A — Introduction to Computer Graphics: Assignment 2

Weight: 15 %
Maximum points: 37

Note: You can receive **extra credit** on this assignment. We will select the 10 best animations. We will screen these in class and all of you will vote for your favorites. The top 3 animations will be awarded *extra points*, as follows: 1st place: 10 points; 2nd place: 5 points; 3rd place: 3 points.

Collaboration: **None**. If you discuss this assignment with others you should submit their names along with the assignment material.

Start working on this assignment early. You will not have time to do a satisfactory job at the last minute.

Write a program that displays an animated scene. Your scene should include a combination of hierarchical objects that move around. Required elements:

- [4 points] At least one two-level hierarchical object (e.g., a human arm).
- [4 points] At least one texture, either procedural or mapped.
- [4 points] 360 degree camera fly-around using *LookAt*.
- [6 points] At least one polygonal object modeled vertex by vertex (i.e., you must provide the vertices, and normals directly) and must be shaded with flat Phong-shading.
- [2 points] Real-time speed. You should make sure that your animation runs in real time on fast enough machines. "Real time" means that one simulated second corresponds roughly to one real second.
- [2 points] Display the frame rate of your program in the console window.
- [2 points] Make and submit a movie of your animation using the provided *mpeg_encode* utility. The movie frame size should be 500x500 pixels. Include a 100x100 pixel representative image from your animation.
- [4 points] Creativity (story, colors, etc).
- [4 points] Complexity.
- [5 points] Overall quality: Object and camera motion, scene construction, proper texturing, attention to detail.

Special instructions:

- Your program executable must recreate the animation in your video. The video should not be edited.
- Note that creativity and quality amount to 9 points. You will not get a perfect score if your scene is complex, but not creative.
- You must use the provided template code; however, you can modify it as you see fit.
- You must do the assignment from scratch. Using any piece of code from any source (e.g., previous offerings of the course, the web, etc.) will be considered plagiarism.
- You can see examples of animations made for previous offerings of this course at: http://www.cs.ucla.edu/~dt/courses/CS174A/animations/

Submission guidelines:

- Submit your movie and the representative image separately under the names *<uid>.mpg* and *<uid>.jpg*, respectively, where *<uid>* denotes your 9 digit bruin ID.
- Submit all the files required to build and run your project in one archive named *<uid_os>.zip(for eg: 802870392_windows.zip)*. Include the project files, but do not submit the executable or any intermediary files.
- If you use texture mapping in your project, submit all the images within *<uid_os>.zip* in the location required by your program. They should not have to be moved in order for your program to run correctly.
- Include in the top level of your *<uid_os>.zip* archive a *README.TXT* file that summarizes your animation, identifies the hierarchical, polygonal, and texture mapped objects, and explains anything else that might be helpful to know in grading your project.