CSCD 471 Assignment 2: Skinny Chubby Bunny

In this assignment, you will perform a sine wave update of a bunny model with time. Basic sine wave as a function of time can be described as follows:

F(t) = *A* * sin(2Π*ft* + *ϕ*);

where

> '**A**' is the amplitude of the wave, which represents the highest and lowest points of the wave (consider A = 0.08 in this assignment);
>
> '**f**' is the frequency, which controls the number of times the wave repeats in unit time (consider f = 1.0);
>
> '**t**' represents time (that is updated by function 'updateTime()') and
>
> '**ϕ**' represents phase *i*.e. the initial angle of a sinusoidal function at its origin (consider ϕ = 0.0);

From the sine wave function definition, it is clear that the vertices of the bunny model will be periodically updated. The update will be performed along the vertex normal with a magnitude of F(t) (i.e, $\mathbf{v_i(t) = v_i + F(t)*n_i}$). When 'F(t)' is positive, the bunny will gradually grow fatter whereas with negative F(t), the bunny will grow skinnier (Figure 1).

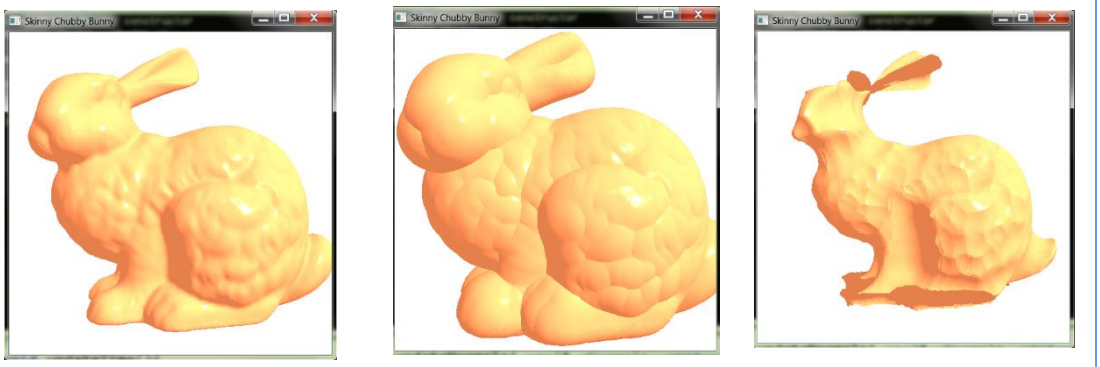

Figure 1: Bunny model as a function of sine wave.

You need to use either **glMapBuffer** or **glBufferSubData** in '**Display()'** function so that vertex update is reflected at each time interval.

Implementation:

Download the zipped file (Assignment2.zip). In this assignment, you need to write code only in ‘main.cpp’ file. Use ‘objloader.h’, ‘objloader.cpp’ (**computeNormals** function completed), ‘shader.h’ and ‘shader.cpp’ from Assignment 1.

Submission:

Submit the assignment in a zipped file via canvas. Name the file as Firstname_Lastname_2_CSCD471.zip. Deadline is **Friday, January 22, 11:59 pm**.

This assignment carries a weightage of **10%** of this course.