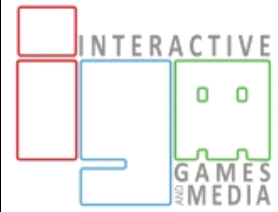


Rochester Institute of Technology  
Golisano College of Computing and  
Information Sciences  
School of Interactive Games and  
Media  
2145 Golisano Hall – (585) 475-7680



## Data Structures & Algorithms for Games & Simulation II

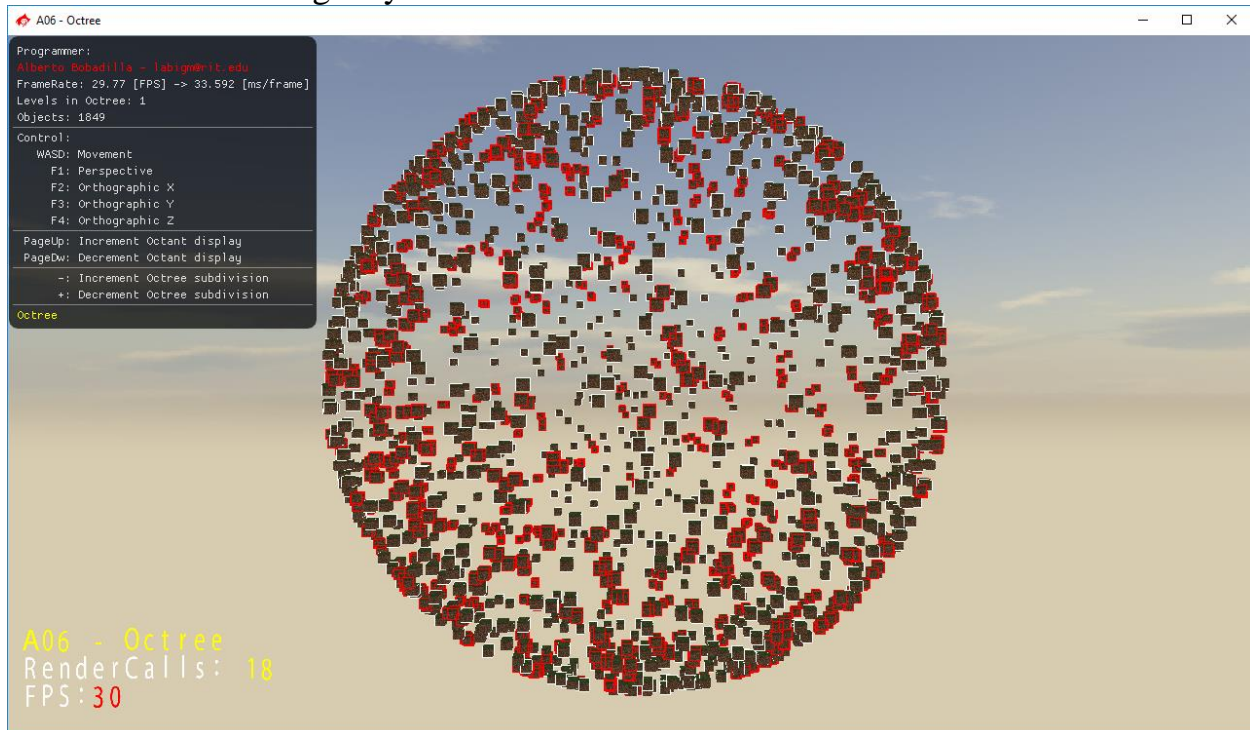
### IGME 309

#### A06 – Spatial Optimization

The purpose of this homework assignment is to show how your spatial optimization code works. There is a short video in MyCourses, please refer to that video first.

Using the provided startup code (from the repository under A06) you should be able to subdivide the space into octants that will improve the FPS count. With no initial subdivision, your FPS should be low. If you have a really good computer and without any spatial optimization you have a really good framerate, please increment the object count until it starts lagging.

The starter code will give you this out of the box:



All objects need to be checked for collision and your spatial optimization data structure needs to be displayed. With the press of a button your spatial optimization should be switched to a brute force check and vice versa (you should also include the framerate in display and whether your spatial optimization data structure is enabled or not).

As usual, feel free to use your own solution or base your deliverable on the Simplex toolkit. There is an example binary under `_Binary` in the repository.

All colliding objects should display their ARBB as red, while all other objects should display it in white, so you have an easy visual aid as to what's colliding.

Your grade will be as follows:

10% Enable / Disable Octree check (Or increment and decrement the octree subdivision level).

15% Recreate data structure on the fly. (this is tied to the first point)

10% Enable / Disable Spatial Optimization visual representation.

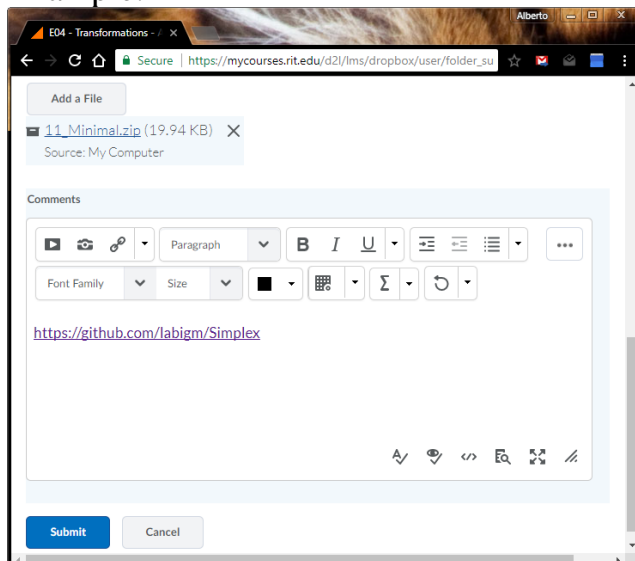
10% Colliding objects highlight.

55% Increment FPS *visibly* by having SO check enabled.

### ***Submit to the dropbox labeled: A6 – Octree***

As usual the required submission asks only for the project folder, not the whole solution, it should be no larger than 200kb if you are using the starter code (and you remove this document from that folder). If you are using your own framework/engine please submit the whole solution. Push your solution to your repository with the comment “**A06 Deliverable**” then zip the project (or solution) and upload it to the dropbox, in the comments section you need to specify the address of your repository.

Example:



Please make your submission in the following format:

*lastF\_Code.zip*

What I mean by this is take the first four letters of your last name, append the first character of your first name, and then append the assignment code (in this case, A06.) For example, John Smith would submit “smitJ\_A06.zip”. This helps our graders not have to download twenty submissions all called “Solution.zip”, which makes them happy.