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CSCE 489-501

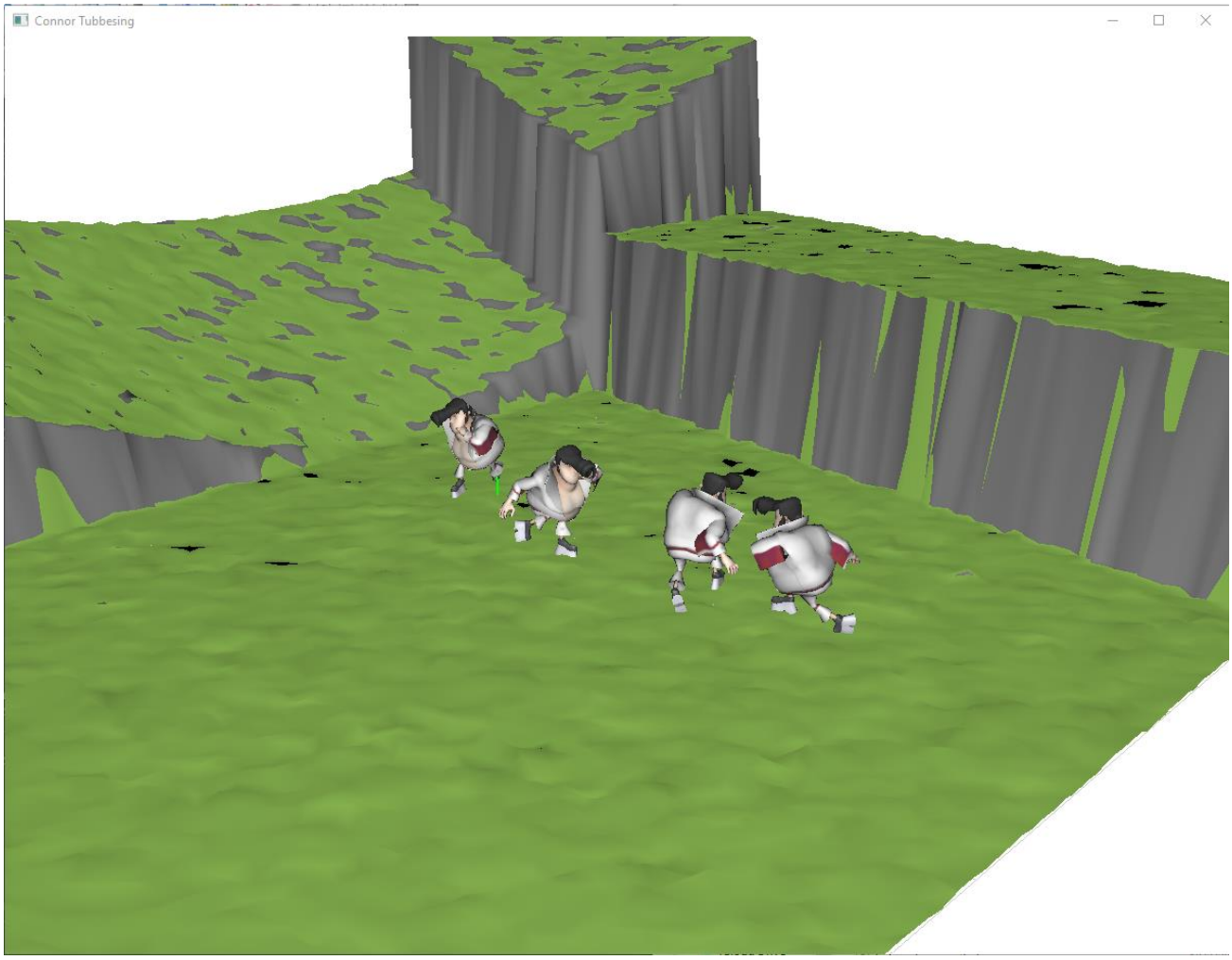
Final Project Progress Report

For my project, I plan to combine pathfinding and skinning to create a scene of a character moving around along a pre-generated terrain. The terrain is made up of a grid of triangles whose vertices' y-values are preset to indicate their altitude. Triangles that are "steep" enough, colored gray in the first image, will be considered the obstacles for the pathfinding algorithm so the character avoids running into walls or off cliffs. The character's altitude will be determined by the altitude of the terrain at their location, giving the appearance of 3D movement while really only pathfinding along the x and z axes.

So far, I have implemented a class that creates a web of pathfinding nodes and uses A* search to find the shortest distance between a given start and goal along the web. In the second image, the sphere indicates the character entity, the green node is its goal, and the blue nodes and lines are the pathfinding nodes. The character's position and goal can be freely updated and the new path will be calculated. I am also able to draw an animated skinned character in the scene, though it can not yet be drawn in the place of the sphere.

From this point, I still have to implement:

- Support for obstacle detection, removing path nodes that overlap obstacles and removing node connections that cross over obstacles
- Movement along the path, likely using arc-length parametrization techniques from A1
- The ability to draw the character on the path and change between animations
- A function to get the altitude of the terrain at a certain (x, z) point so it knows what y value to draw everything at
    - This step is less necessary than the others; having a flat 2D terrain would still support pathfinding and skinning and the obstacle areas could be colored just to indicate areas to avoid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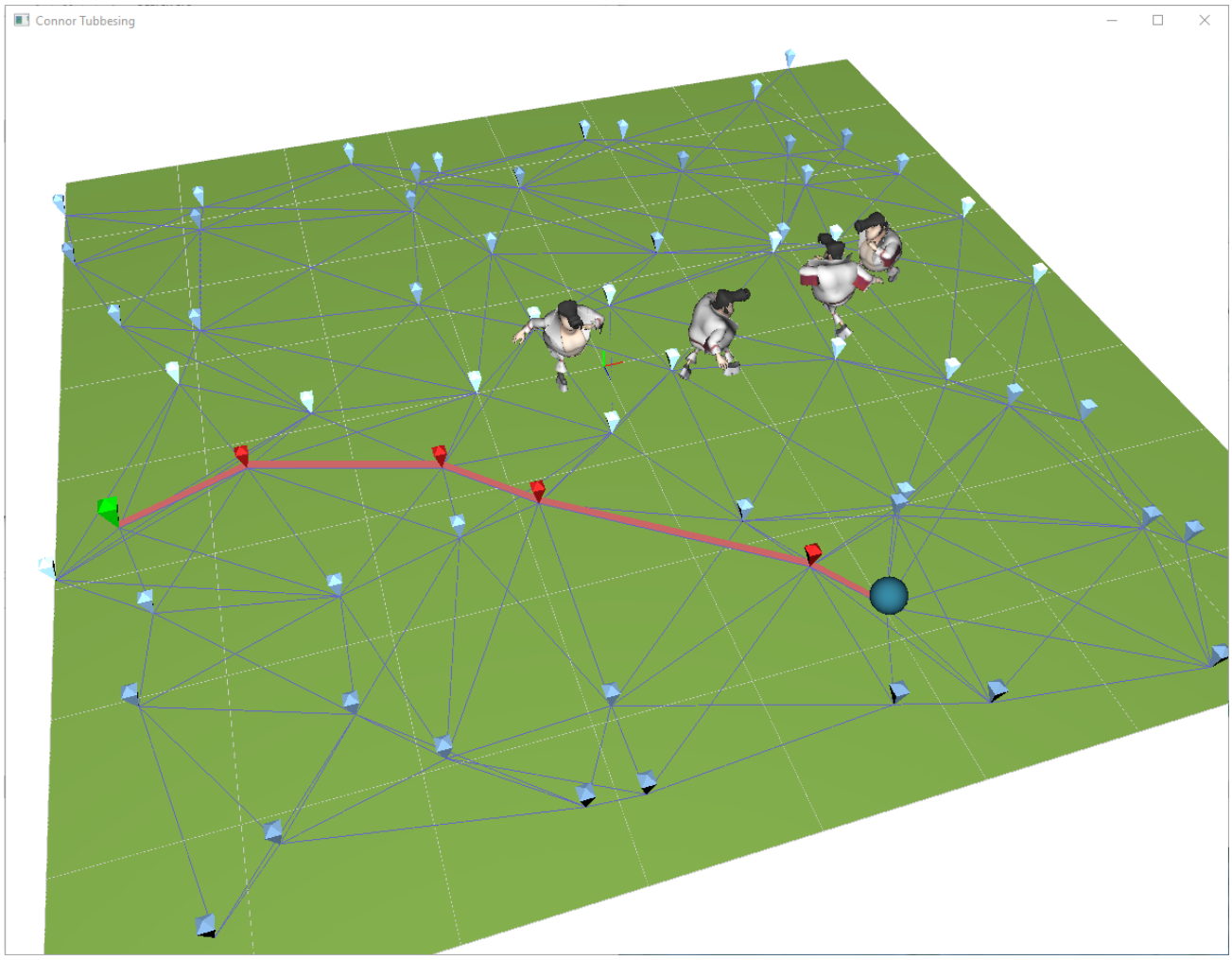
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