

Web3D Assignment 3

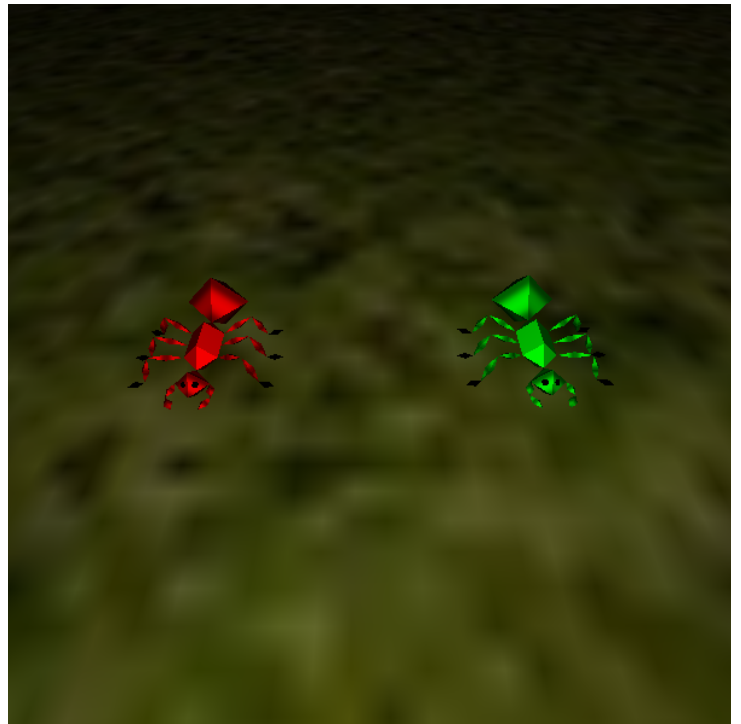
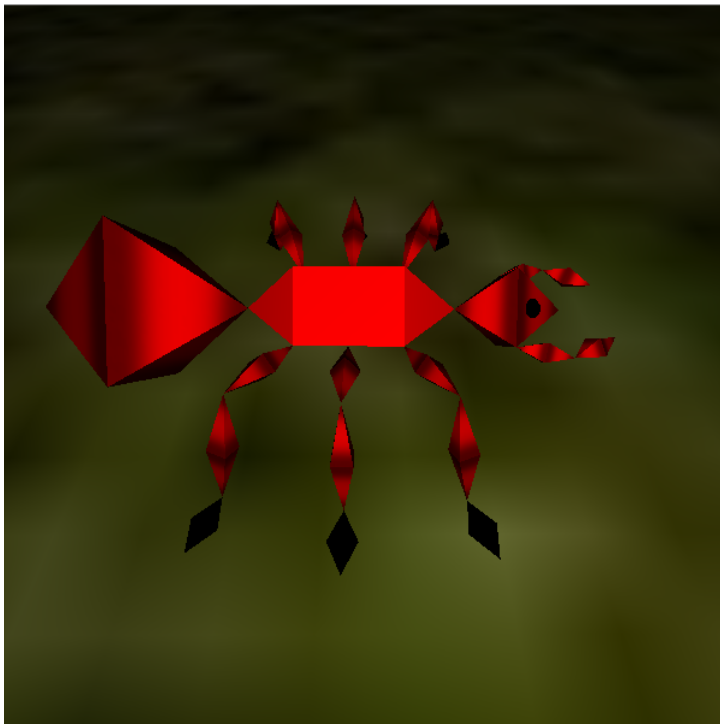
Due Date: Friday 30th May 9pm

Mech Ants using JavaScript and three.js

Assessment: 25%

Changes

27/5/14: Changed marking guide (see below). Summary: swapped a PA and CR feature and added choice of CR feature.



Video

[Walking Animation](#)



[Fighting Animation](#)



Notes

It is advised you add the following code to your css (in your html file), to make the renderer fit the whole page properly.

```
body{  
    margin: 0px;  
}
```

You are not required to use these textures, they are here if you want them

Link to ant texture, [red](#) - [green](#) - [grey](#)

Link to grass texture, [grass](#)

Overview

This assignment will be a simple game where two ants can be controlled to fight each other. Using keyboard controls to move each ant around the scene, sphere/sphere collision detection will be used to detect when the head of one ant collides with the body of another to play the chomp animation.

This assignment is an extension on the programming from the previous assignment. Any errors or feedback on the previous assignment should be considered and fixed before moving on to this assignment. A properly constructed hierarchy will still be important for this assignment.

Keyframe based animation will be used to animate the ant, as in assignment 1. The interpolator values that you used from assignment 1 are recommended to be used here too.

The tutorials will again teach the fundamentals required in for the assignment and it is recommended that you follow the tutorial exercises.

This assignment counts for 25% of your final grade for this course.

Details

- Your ant figure from assignment 2 should be kept for this assignment, consisting of the same components.
- The figure must be properly constructed according to the same hierarchy, to allow for easier animation and controlling. The figure must have a root node such as the thorax or other blank node to allow the ant to be moved around the scene.
- Like the previous assignment, this one will require that components are children of the arena, so that any transformations on the arena will transform the entire scene.
- The ant should be able to be easily duplicated using a createAnt() function or something similar, such as the clone() method on the root node of the ant.
- The ants will be controlled by the player, using 'wasd' for ant1 and arrow keys for ant2. You can remove your leg controls from the previous assignment so they don't interfere.
- The ant will animate as it moves around, using the walk cycle created in assignment 1. A chomp animation can be included for the fight, when the ants collide.
- Code should be simply annotated so that its easy to identify the different areas of your program. The assignment should be split into several logical files based on the content of the file.
- Sphere-sphere collision detection should be included for when the two ants walk into each other. When they collide the ants should start chomping and doing damage. A better version is for damage to occur only when one ant's head collides with the other ant's body. And for ants not to be able to run through each other.
- A health indicator for the ants when fighting. A simple version could just change colour. A better version uses a HUD.

These requirements hold for all assignments:

- The code must be valid JavaScript (errors/warnings will result in less marks).
- Your assignment is assessed using recent versions of chrome or firefox, make sure your assignment will run correctly on them, and in the Sutherland lab.

Due Date

The assignment is due at 9:00pm on Friday 30th of May - last day of teaching semester. Late submissions receive a 10% per day penalty (calculated hourly on a pro rata basis, starting 9:00am next working day, i.e. Mon). Any assignment not submitted by 9:00pm the next Friday will receive 0 marks.

Submission

Name your submission using your student number and the assignment number. Compress the relevant files into a single zip/rar to submit a single file. Blackboard renames files, so if you submit multiple files, they will be renamed and the links between them get broken.

ie.

s9999999-ass3.zip

Under Assignment 3 menu to the left of the Blackboard/MyRMIT page, click the Assignment 3 announcement.

On this screen, scroll down to the "Attach File" option, and select "Browse My Computer"

You can add comments in the "Comments" section below this.

Marking guide

How well features are implemented will determine whether an assignment is in the upper or lower range of its mark.

- PA: Using keyboard to interactively move the walk the ant around. Walk animation for the ant.
- CR: Texture mapping the ground and ant.
or
Two ants which can be moved independently of each other using the keyboard with collision detection between the ants.
- DI: Both CR features.
- HD: An ant fight, including a chomp animation and some form of health indicator.