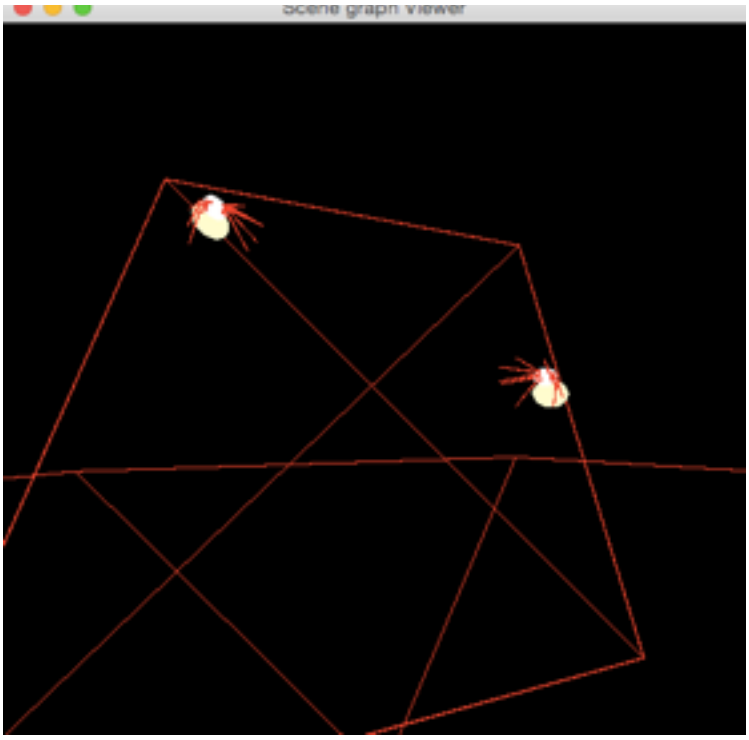
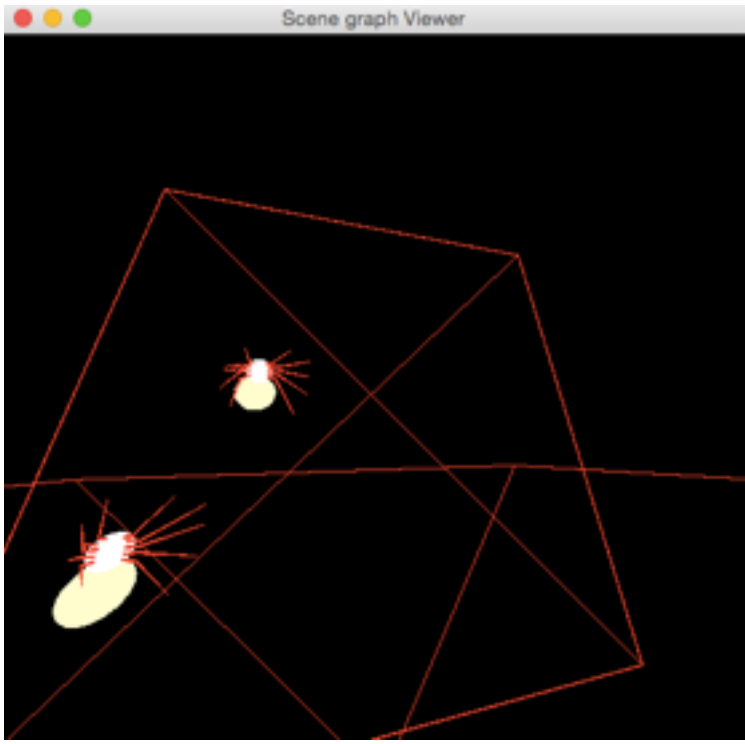
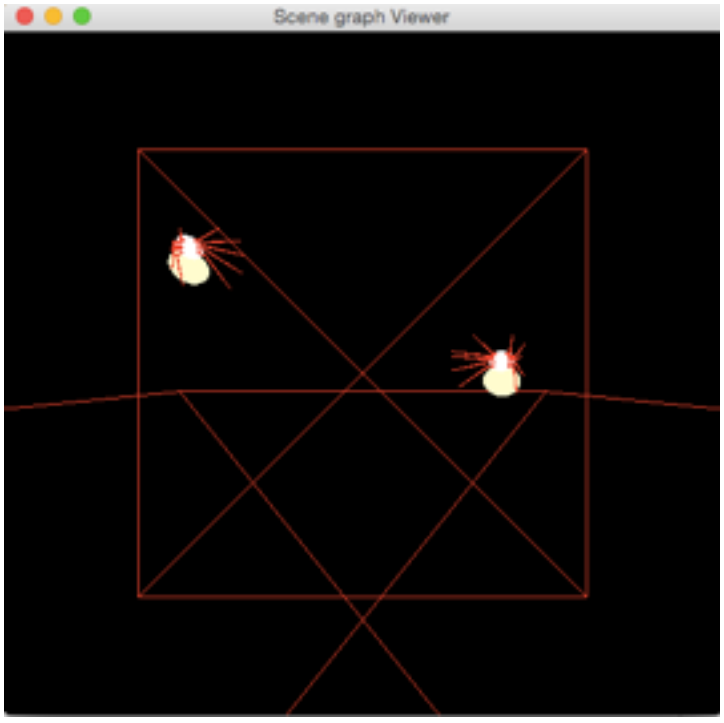
Documentation

Detailed Description:

Two spiders move on a wall with their legs moving. The camera is looking at the wall and spiders. Then an airplane flies from camera's back to the wall then make two spiders fly away. Another moving camera comes from airplane's view. With keyboard control the direction of airplane' movement, camera also moves along with airplane.







Animated Model:

The two animated models are two spiders, L and R. L is moving vertically and R is moving horizontally on the wall. Their legs also move in the same direction and speed. Each Model is made up with body-top and body-down. Body-top is made up with ten legs and a small sphere.

Animation:

1. How to animate a whole spider moving? In XML file “two-spiders.xml” I make the left spider as transformNode named “LSpider.” Once I call nodes.get(“LSpider”) in animate method, it will give me the transformNode which represents the left spider. Use setAnimationTransform method with given Matrix4f representing movement onto this transformNode will make it move. For example I use setAnimationTransform(new Matrix4f().translate(0, time, 0)) on the left spider. Time is a number change from -400 to 400. In this way, the left spider will move along the y-axis by time.

Snippets:

```
// in animate method; Line: 179-183;
INode groupL = nodes.get("LSpider");
groupL.setAnimationTransform(
new Matrix4f().translate(-300, 0, 0).translate(0, time, 0));
// in draw method; Line: 105-116;
if (moveUp) {
   time++;
}
else {
   time--;
}
if (time>=400) {
   moveUp = false;
}
if (time<=-400) {
   moveUp = true;
}
// in two-spiders.xml; Line: 7-12
<transform name="LSpider">
   <set>
   </set>
   <group name="L" from="scenegraphs/spider.xml">
   </group>
</transform>
```

2. How to animate a spider leg? In XML file “two-spiders.xml” the transformNode “LSpider” is made up with a group named “L” from “spider.xml”. Thus in order to get a transformNode representing a leg, we need to call pre-pend “L” to a leg transformNode name, like “left-leg1”. Thus nodes.get(“L-left-leg1”) will return the transformNode representing the left last leg of the left spider. Then we can use setAnimationTransform to the transformNode, the leg would move based on what movement we give.

Snippets:

```
// in animate method; Line: 259-263;
INode LL1 = nodes.get("L-left-leg1");
LL1.setAnimationTransform(
new Matrix4f()
  .rotate(-1*(float)Math.toRadians(-20), 1, 0, 0)
  .rotate(-1*(float)Math.toRadians(legTime), 1, 0, 0));
// in draw method; Line: 119-130;
if (legTime == 19) {
    addTime = false;
}
else if (legTime == 0) {
    addTime = true;
}
if (addTime) {
    legTime = (legTime+1)%20;
}
else {
    legTime = (legTime-1)%20;
}
// in two-spiders.xml; Line: 7-12
<transform name="LSpider">
    <set>
    </set>
    <group name="L" from="scenegraphs/spider.xml">
    </group>
</transform>
// in spider.xml; Line: 55-93
<transform name=“left-leg1”>

        //***********See file for details**************//
</transform>
```