Skeletal Animation and Skinning

**Skeletal Animation**

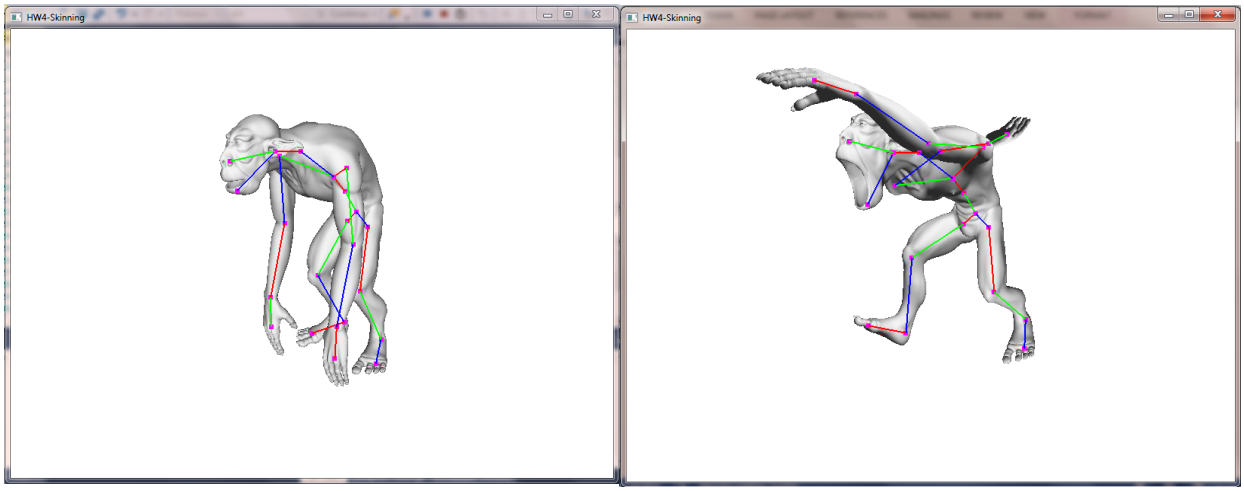
For skeletal animation, I used the given formula from the slides in lecture 10, of calculating the joint transformation.

F(j) = R(0) T(0) ... R(p(j)) T(p(j)) R(j) T(j)

Implementing it in *computeJointTransformations* of the main file and modifying it as needed.

Where, we go through all the joints of the skeleton and use the relative transformation and look at the joint's parent to calculate the correct final positions of the all joints.

Resulting in the following images of the skeleton changing positions.



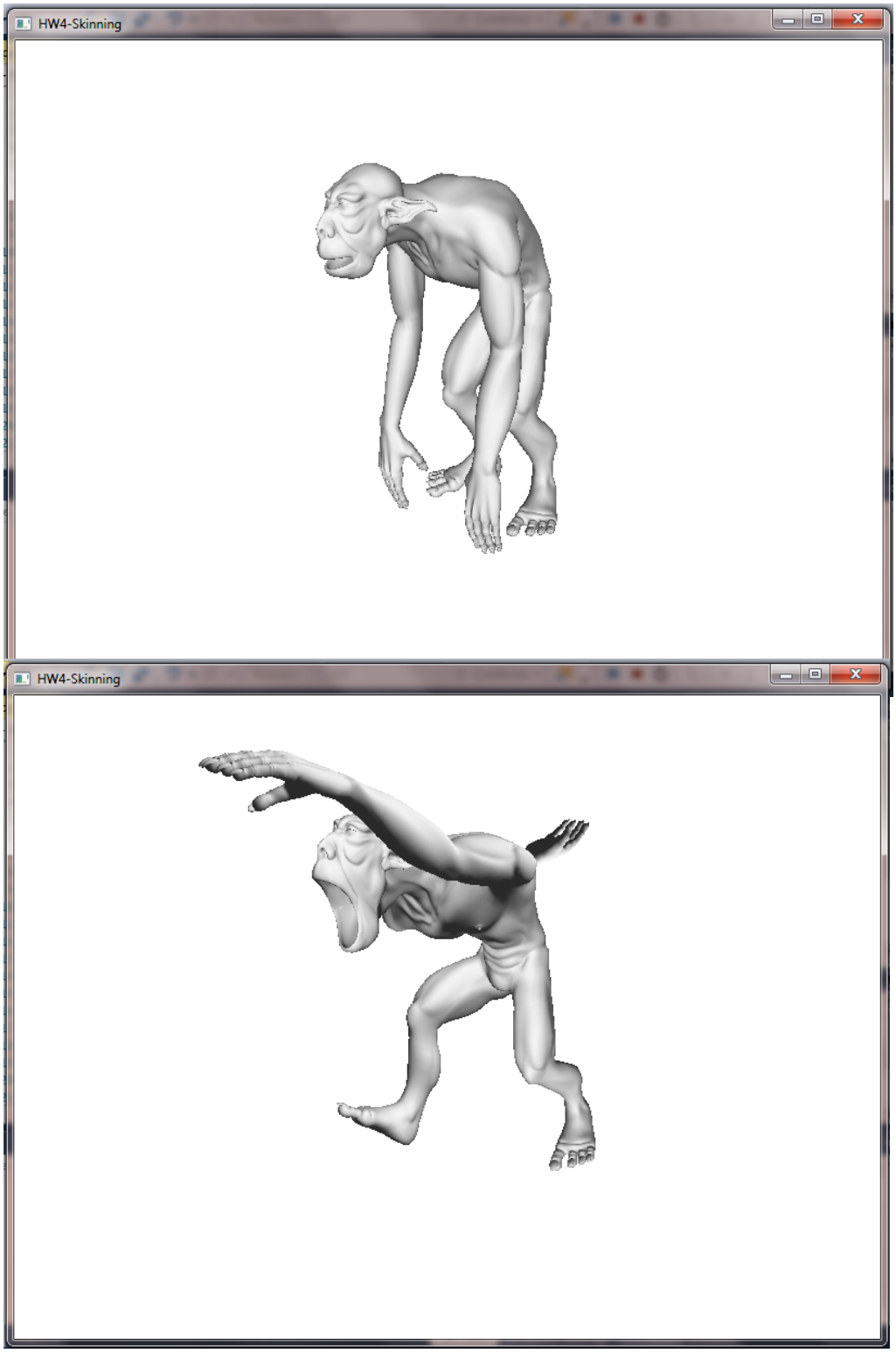

**Linear Blend Skinning**

Similarly to Skeletal Animation, I used the Linear Blend Skinning formula from the slides in lecture 10

$$\mathbf{v}' = \sum_{i=1}^{m} w_i F(j_i) A(j_i)^{-1} \mathbf{v}$$

Implementing it in the *skinning*, where we use the transformation calculated in *computeJointTransformations*, and the other variable are given to us, including the weights and the inverted, concatenated joint transformations computed at the rest pose.

The implementation resulted in the following images where we can clearly see the mesh attaches properly to the changes position of the skeleton.


HW4-Skinning
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