

CS460 Fall 2020

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Assignment 7: Skinned and Animated Robots!

We will add a mesh to our robot bones and then create an animated crowd.

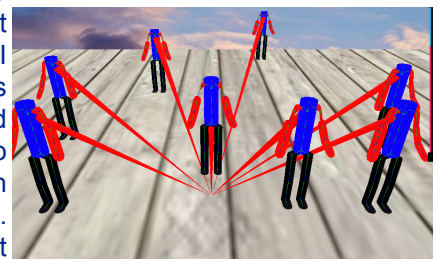


Starter code for assignment 7. After pulling from upstream, there is the folder 07 in your fork. Please copy `index.html` and `robot.js` from assignment 6 over or use Daniel's solution from <https://cs460.org/shortcuts/28>. Also, please don't forget to copy the images.

Part 1 (50 points): Please skin the robot using the `HELPER.cylinderSkeletonMesh` function. You will need to call that function 5 times. Note: We started this process in class and there is a work-in-progress `robot.js` that can be helpful at <https://cs460.org/shortcuts/29/>. Also, the slides around http://slides.com/haehn/cs460_lecture26#/26 explain the HELPER function.

That link for an explanation of the HELPER function seems to be out of date.

I struggled to get this to work for a while. I added each invisible anchor bone to where it should go, but there were several extra bone segments that made the robot lose any semblance of humanoid form. After turning the skeleton helper back on I was able to see that the invisible anchor bones had some length to them, which was causing cascading position problems. Digging into the helper.js source code I played around with the `segmentheight` value. Setting it to 0 caused nothing to render, so I instead set it to 0.00001. That caused a strange artifact where a random mesh (leg/arm/torso – varies on page reload) seemed to be pulled towards (0,0,0) (→). I finally realized setting it to 1 was best, along with commenting out the line that set `currentbone.position.y`. Success!



Part 2 (30 points): Allow the placement of multiple robots. Daniel's code includes the `THREE.Raycaster` to change the position of a robot when shift+clicked on the floor (see <https://cs460.org/shortcuts/28>). Now, rather than changing the position of the robot, we want to create a new one. Please change the code in `index.html` to work with `robot.js` from part 1.

[Done](#)

Part 3 (19 points): Add functionality that allows to animate all placed robots. **For example, if the user clicks dance, all robots on the floor start dancing.** This can be done using an array as shown in the <https://cs460.org/showcase/06> demo from class.

[Done](#)

Part 4 (1 points): Please update the screenshot above with your own and then post the github pages url here:

<https://jamesedmichaud.github.io>

Bonus (33 points):

Part 1 (18 points): Please add a head (box or sphere or whatever) to the robot object and use a texture to skin it. [Planet-heads!](#)

Part 2 (15 points): Please add at least one video texture to the scene. And, of course, add some music for the dancing. [There's a playVideo and pauseVideo button in the Rendering folder of the gui.](#)