Loom v2 Data Analysis:

The first thing that I want to do is try and make a combined measure that incorporates gaze, hand movement, and head movement. It is very easy to plot out the gaze and hand movement because both of those measures project a ray-cast forward onto the environment. The figure below depicts how both of these are

A screenshot of a computer screen

Description automatically generatedA screenshot of a graph

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As we can see here, there is a lot of focus from the hand and the eyes going from the play wall (pink )onto the build wall (orange). A couple of things of note as I look here is that there is obviously this shell like shape in front of the main walls. I need to know if this is the hand–gaze or both. That is the plot here:

A screenshot of a graph

Description automatically generated

Based on this, we learn two things: 1) the hand pos makes up most of the shell with just a few gaze points mixed in there, and 2) the gaze makes up 100% of the pos on the environment walls. I am not sure how the gaze points that are mixed into the shell are going to affect analysis, but I will watch out for that as we move along.

So, now that we have learned a little bit about how the gaze and the hand data are being recorded, we can now think about how to incorporate the head movement data into this. The tricky part about that is that there is no ray-cast projection that is recorded in the data. What we do have is the position and rotation of the head. Theoretically, I think we could project the angle of the front of the head forward to the current distance position of the eyes, but it seems a little jank, tbh. I think the best think to do now is to find a sequence of movement capturing the grabbing and placing of a cube. Then I can see more easily if a projecting or something else might be better.

There are a couple ways that I have tried to go about this. The first one used something like this:



This used the a single axis of hand movement to depict the changes in pick and drop events. This is a good structure but there is a problem of people grabbing a cube and looking at the view wall. Therefore we should maybe use the head rotation as a better indicator of when this is happening. This plot shows that the y-axis is the important one to focus on because that is representing the majority of the rotation that is occurring.

