Investigation Into The Representation Of 4D Shapes

22/10/2021

The Weeks Progress Report

Created a basic arc/grab ball to rotate objects

R&D into geometric algebra rotors

Research into confirming users understanding

- Generally - tests with objectives
- Posing a question and repeating what I understood from there answer back to them to ensure we both equally understand what the other is trying to say

Questions

- I could use a little help with rotors. Who do I ask?

Plan Ahead

Take 2 weeks (Weeks 3 and 4) to research papers focused in the fields of geometrical representation and interaction.

Week 4: take first steps into intuitive rotation

Week 5: implement an intuitive rotation mechanic using click and drag. - FAIRLY SUCCESSFUL

Week 6: implement an intuitive rotation mechanic using an arc ball. - NOT SUPER INTUITIVE. NEEDS A LOT OF WORK

Week 7: Implement and test onion skin interpretation of the 4th dimension. Implement a 3D perspective that in real time mimics the 4D object.

Week 8: Create intuitive UI for users to manipulate shapes with.

Week 9: Create a demo to "Identify the shape". Add more shapes - 4D cylinder, cone, capsule.

Week 10: Plan and script a walk through for users to play with shapes and attempt to identify them. Set up a new demo for shape matching.

Week 11: Tutorial videos that explain why shapes behave they do, and traits to identify what the shape is. Polish the program to be a "final product".

Am I on schedule

On schedule but I am having trouble with good 4D rotation

Rotation matrices are there as a back up, however I feel I am close to getting rotors to work