Investigation Into The Representation Of 4D Shapes

11/11/2021

The Weeks Progress Report

- Implemented 3D Rotors with the grab ball and swipe rotation
- Developed *what I think* is intuitive of manipulation mechanics
- Create polyvision inspired multi-rotational view of 4D objects
- Began an outline script for how I will conduct tests
  - This will instruct how I develop the testing framework.
- Little more research into rotors and how to multiply multivectors

Questions

- Opinions on my plan for testing:

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: rotation mechanic using click-and-drag and an arc/grab ball. - FAIRLY SUCCESSFUL - needs work - Week 8

Week 6: Implement Rotors - FAIL. Begin new Unity project for more polished scenes

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

Week 8: Create intuitive UI/UX 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

Yes, I am balancing a few aspects of the project at the moment which is freeing up time if any problems arise.

Still not where I hoped to be with rotors but I am making progress.