Project 03: Newton’s Cradle

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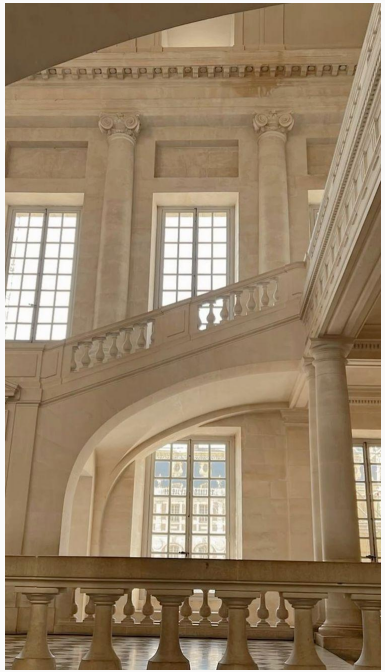
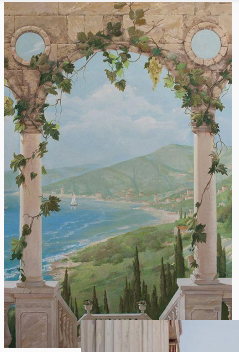
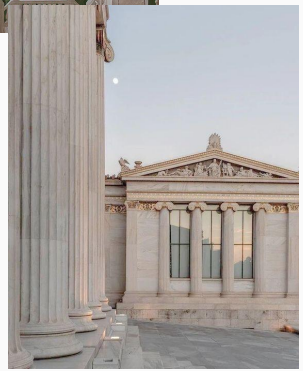
My Coding Progression

1. Basic design idea and understanding modeling with code
2. Modeling a new design using loops, bevels, extrusions, etc, taking out “hard coding”, grouping code together
3. Animating with expressions
4. Creating lighting using an HDRI
5. Texturing the model
6. Adding a camera
7. Rendering final animation

Design Research



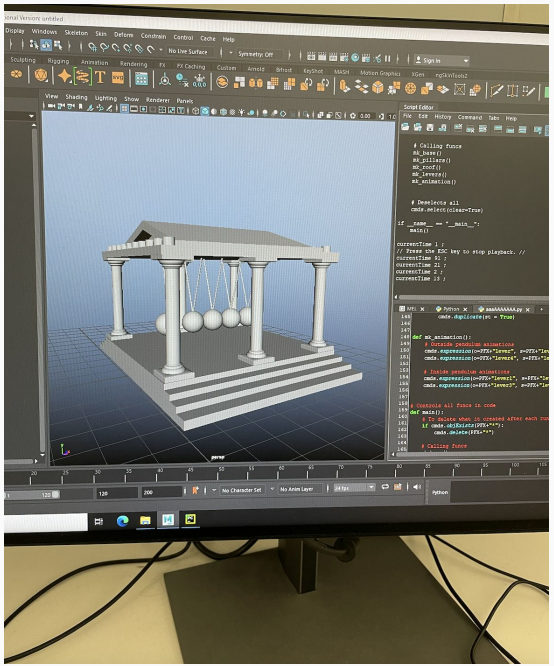




Project Issues

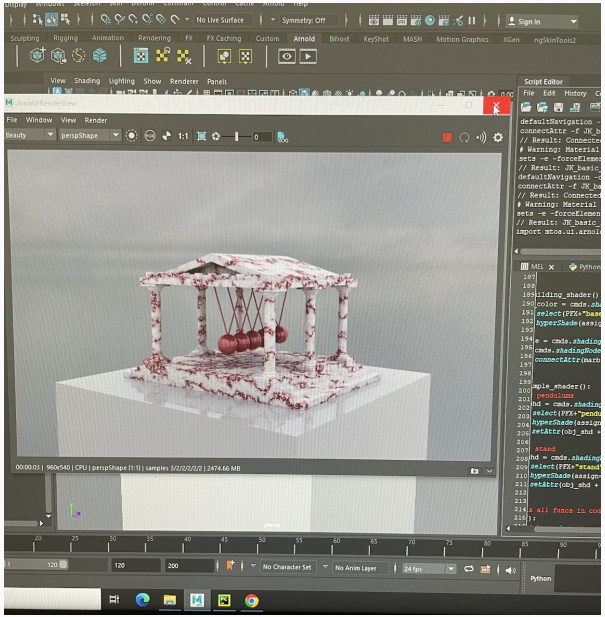
One of my biggest issues happened with my “mk_levers()” function, when I was working with the balls and ropes that held them. I was trying to figure out how to group a ball and two ropes together, while also then duplicating those groups correctly so the pivot spot showed up in the correct spot every time with each new duplication. I also then had an issue with those groups working. It took a lot of trial and error to figure out the order of the code to get everything working correctly, but once I did it was very satisfying.

I also struggled with adding a 3d texture shader but after some research/problem solving I was able to figure it out.



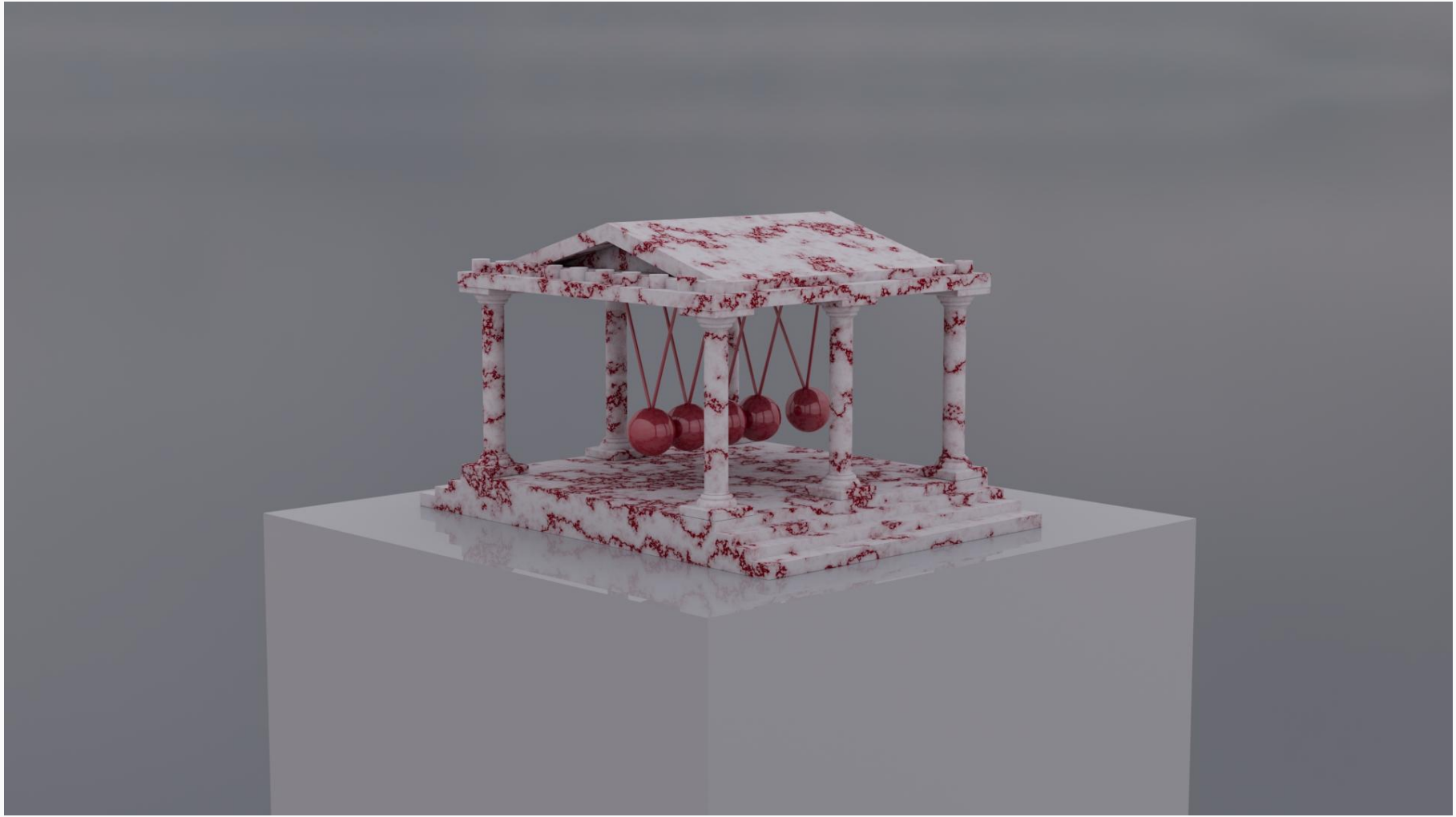
Project Wins

- Finishing my new building model, understanding how to loop and duplicate code
- Getting my textures to work
- Getting my animation to work with correct timing and pivot points
- Seeing it come together for the first time in Arnold Render with lights and textures
- Overall my biggest win is I had a lot of fun with this project!



Future Changes

If I had more time I would check back to my code I did for building my model, there's probably a few lines I could've done more efficiently or changed to read better. I would also take the time to figure out how to animate a camera to rotate around my model, which would add an extra element to my video.

Extra Features

- Additional research in model design, extrusions, 3d texturing, mainly using Python command reference
- Variable number of pendulums, can change through mk_levers() func and changing “num_levers” number
- Following “anatomy of program” for cleaner code
- Rendering out animation as video through Arnold render