**Introduction**

In this report, I detail my experience using ChatGPT for the CS405 project, which involved creating 3D animations of a cube. The project comprised of three tasks, each designed to test the capabilities of ChatGPT in generating and applying transformations in computer graphics.

**Task 1: ModelView Matrix Calculation**

The first task involved using ChatGPT to calculate the ModelView matrix for a cube object. I followed the instructions provided in the **transformation-prompt.txt** file, submitting the prompt to ChatGPT 3.5. While ChatGPT did generate a response, the matrix calculated was not accurate.  
  
[*https://chat.openai.com/share/5ffd8db3-5eea-4bb2-b45e-10a9997b3a9b*](https://chat.openai.com/share/5ffd8db3-5eea-4bb2-b45e-10a9997b3a9b)

**Task 2: Manual Matrix Generation**

The second task required the manual calculation of the same transformation matrix, modifying the **getModelViewMatrix()** method in the **utils.js** file. To address this, I developed a JavaScript code (**transform\_calculate.js**) that correctly calculated the transformation matrix. I successfully computed the matrix, ensuring it matched the transformation requirements. Comparing my result with ChatGPT's output from Task 1, it was evident that my manually calculated matrix was accurate, underlining the importance of human oversight in AI-assisted tasks.

The discrepancy in ChatGPT's response highlighted the limitations of AI in understanding and applying complex mathematical transformations in graphics programming.

**Task 3: Animating the Cube**

The final task was about animating the cube using the transformation calculated in Task 2. I asked ChatGPT to write a method to animate the object. After several attempts, ChatGPT provided the correct code for this animation. I implemented this code, resulting in a smooth transition of the cube to the transformed state and back to its initial position over a 10-second interval. This task demonstrated ChatGPT's capability in generating functional animation code, albeit with some initial trial and error.

//FALSE ANSWER: <https://chat.openai.com/share/cdd0201b-2a2e-4f3b-b9bf-12aa5d895dfb>  
//FALSE ANSWER x2: <https://chat.openai.com/share/44ff861f-d817-46e4-9fbc-352fe2403468>

//FINALLY CORRECT ANSWER: <https://chat.openai.com/share/01a46527-c445-4154-9192-deddbc4e5bb5>

**Conclusion**

The project was a fascinating exploration into the potential and limitations of using AI, specifically ChatGPT, in graphics programming. While ChatGPT showed proficiency in writing animation code, it struggled with the mathematical aspects of transformation matrices. This reinforces the idea that AI tools are supplements to human expertise, not replacements. (Sort of like how calculators help mathematicians solve problems; not solve it for them!) My hands-on approach in calculating the correct transformation matrix and testing / regenerating code was crucial in achieving the animartion. This project serves as a valuable learning experience in blending AI capabilities with human skill in software development.