NTUST: 2023 Advanced Computer Graphics

Homework#4: Create the “Tiny Planet” and “Crystal Ball” effects for a panoramic image

Date Due：2023. Dec. 5th Thu. PM11:55, and upload to Moodle2. (around 2 weeks)

Description：

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1. Write a program (javascript, python or C/C++) to read a panoramic image as the texture of one sphere. Try to use THREE.TextureLoader() in three.js, and find the way to render. If you can not import images, please prepare for a textured sphere by blender and export.
2. Carefully design the geometrical relation between the camera and the sphere, and try to simulate the “Tiny Planet” and “Crystal Ball” effects as illustrated in commercial products of 360-degree cameras. T
3. Try to control camera or add constrains to have reasonable user experience for users.
4. You need to submit **1+1** items

   (1). **Source code** in javascript (or C/C++/C#/python et. al. to proof the concept), with simple comment,

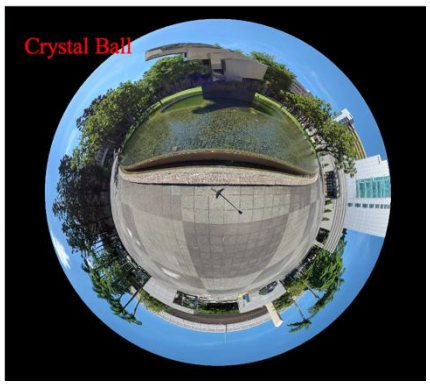
   (2). Optional: if you have Execute file (including all necessary dynamic link files),
5. Reference Grade: Correctly generate both “Tiny Planet” and “Crystal Ball” effects in a program (75%), and provide the interaction of the mouse control (25%).

Hint:

1. Four sample images in NTUST are given. Proofing for one of them is enough.




2. Reference result from commercial products.



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