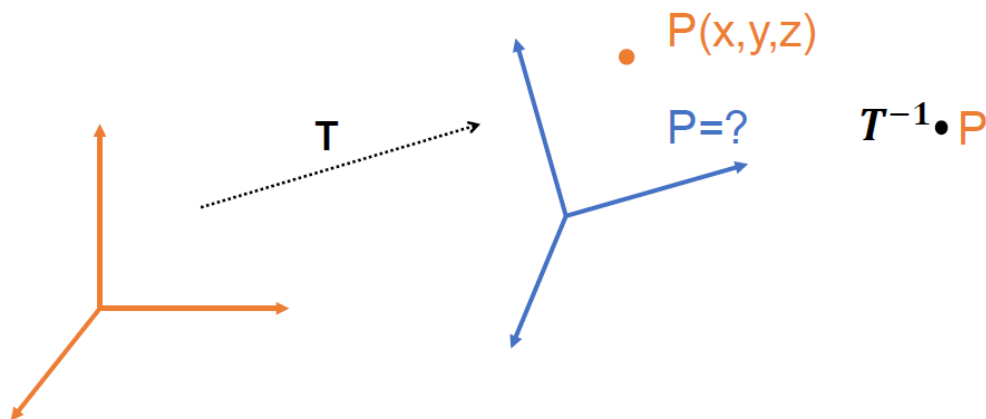


Virtual and Augmented Reality 2022 Fall

Assignment 1: Camera View Transformation

Descriptions:

In the beginning, the camera's local coordinate system coincides with the world coordinate system. The camera then undergoes a rotation of 120 degrees around the z axis, followed by a translation of $(dx, dy, dz) = (2.0, 3.0, 1.0)$ and another rotation of 30 degrees around the x axis. Your task is to 1) compute the 4 x 4 matrix corresponding to each transformation described above and composite them into a single transformation matrix, i.e., the camera transformation matrix; 2) given an object of position $(2.0, 3.0, 4.0)$ in the world space, compute its coordinates in the camera space; 3) visualize the object's position in the world space and the camera space.



Deliverables:

Starter code in python can be found in the provided file *hw1.py*. Please carefully go through the instructions and finish the TODOs. If you are more comfortable with other programming languages (Java, C++, C#, etc), feel free to use them for this assignment. You need to submit your code, computed 3D coordinates (i.e., 3 scalar values) of the given object in the camera space, and the visualization results to Brightspace for grading.