CSE463 Computer Vision

Midterm

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Problem:

In this project, we are supposed to reconstruct a scene with the given x and y point matches of 10 different camera view.

Solve:

For doing this, we need to read all the X coordinates of each point of all the 10 cameras, then Y coordinates of each point from files to the memory.

After reading all the data, append Y coordinates of each point at the end of x coordinates. So we are going to have (2 * point count) x (10) matrix.

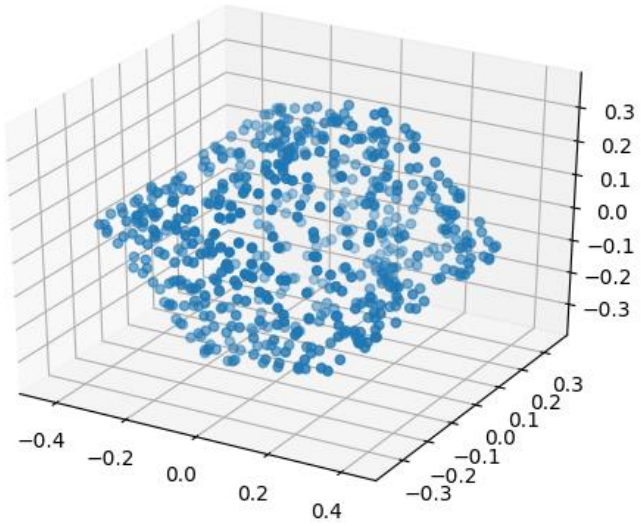
This matrix will be W matrix.

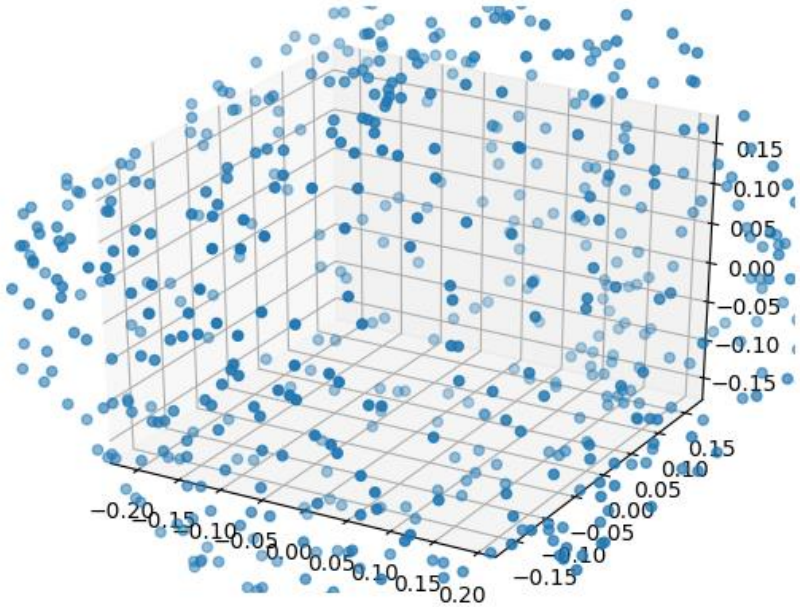
To reconstruct the scene, we need to get actual points from it. For doing this, we simply do SVD to get U E V^T. We will use it for generating real world coordinates.

We use U [2* N, 0:3] * D $[0:3]^{1/2}$ to get M^i;

By using D $[0:3]^{1/2}$ * V $[N,0:3]^T$ to get real world coordinates.

For visualising, I used matplotlib, because it is easier to use,

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0.05
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−0.10
−0.15
−0.20
−0.15
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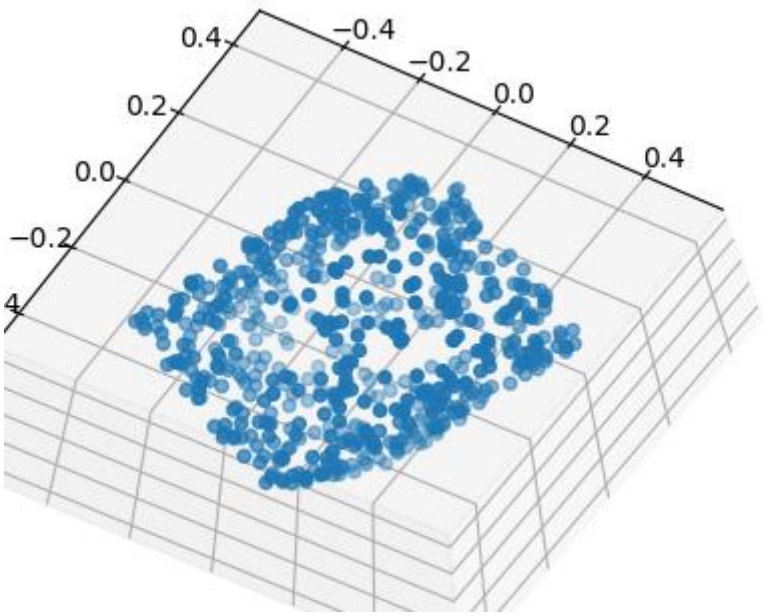
−0.15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