COMP0119: Acquisition and Processing of 3D Geometry

Coursework 1: Iterative Closest Point

This report will demonstrate the algorithm implemented for the Iterative Closest Point.

Task 1: Point-to-Point Alignment

Task 2: Rotation Matching

This task requires to produce a rotated version of M1, which can be simply done with the GUI interaction. The GUI provides three text fields for x, y, z axis rotation in degree, and our goal is to check how well the algorithm can handle different degrees of misalignments.

The model used for this task is “bun000.off” and the initial rotation degrees for x, y, z axis are 0, 0, 0 respectively. The result is provided below:

From the result, it can be noticed that the iterations required for a perfect alignment increases almost at the same as the rotation degrees increases either clockwise or anticlockwise.

Task 3: Adding Noise

bla

Task 4: ICP

bla

Task 5: Multiple Meshes Alignment

bla

Task 6: Point-to-Plane Alignment

Bla

Reference

Pairwise, Rigid Registration: The ICP Algorithm and Its Variants. Max Planck Institut Informatik. Retrieved from <http://resources.mpi-inf.mpg.de/deformableShapeMatching/EG2011_Tutorial/slides/2.1%20Rigid%20ICP.pdf>