Exercise 3: Registration

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In this exercise you will implement the rigid registration algorithms we talked about in class, both the iterative algorithm, and the analytic algorithm due to B.K.P. Horn.

Analyze the performance of the algorithms on the following inputs:

1. Precise data (no noise) and rotations limited to small angles.
2. Precise data (no noise) and no limitations on the rotations.
3. Noisy data with noise having a normal distribution $N(0, \sigma)$ with the same standard deviation for all coordinates.
4. Precise data but add 10% to 50% outliers in increments of 10%.

In your analysis assume that the fiducials (marker points) you use are also the target points. This allows you to assume that FRE is TRE.

1 Submission

1. Report in pdf format describing your code and a detailed analysis of the behavior of each of the algorithms.
2. Your source code and instructions on how to compile (C++) and how to run (C++ and MATLAB implementations).