README

Files in the zip folder.

1. run.m - main file where the data needs to be loaded using the respective directories.
2. Setright_IMU.m - function that takes in the accelerometer and gyroscope readings and converts them to readable data and outputs this along with the respective discrete cosine matrices and Euler angles.
3. timestamps_v_i.m - synchronises the time stamps of vicon data and IMU
4. timestamps_c_i.m - synchronises the time stamps of camera data and IMU
5. timestamps_v_c.m - synchronises the time stamps of vicon data and camera data
6. get_UKF.m – takes in the accelerometer and gyro processed data and outputs the UKF rotation matrices and quaternions.
7. vector_quaternion and quaternion_vector.m - convert from vector form to quaternion and vice versa.

Addition:

Uncommenting the avi file making code lines creates a video of sequence of rotplots.

get_UKF_7.m – UKF for 7 states but does not give accurate output as of yet.

Other files used from the aerospace toolbox:

quatinv.m, quatmultiply.m, quatnormalize.m, quat2dcm, dcm2quat, etc.

NOTE : I did not have aerospace toolbox in my matlab hence I have pasted the .m files in my folder.