Localization of Spherical Fiducials in CBCT/CT using Volume

The files contained in this directory are the matlab source code for localizing a spherical fiducial imaged with a CT or cone-beam CT. If you use the code in your research please cite it as:

"Evaluation of Spherical Fiducial Localization in C-arm Cone-Beam CT using Patient Data", Z. Yaniv, *Med. Phys.*, vol. 37(10), pp. 5298-5305, 2010.

or

"Localizing spherical fiducials in C-arm based cone-beam CT", Z. Yaniv, *Med. Phys.*, vol. 36(11), pp. 4957-4966, 2009.

Interesting functions (algorithmically or technically):

- ransacSphereConstrainedRadius.m

- getEdges3D.m

- fiducialLocalization.m - drawSpherePlaneIntersection

- fiducialLocalization.m - intensityWeightedCentroidFiducialLocalization

Data files:

- exampleData1 - 001-010.dcm, ProgramSettings.xml, 6mm fiducial.

- exampleData2 - 001-010.dcm, ProgramSettings.xml, 4mm fiducials.

To run the program type `sphericalFiducialLocalization3D`. The program is configurable via an xml file, in which case you type
`sphericalFiducialLocalization3D(@emptyFunction,'YourSettings.xml')`. When no file is given This will use the default settings which are appropriate for use with the exampleData1

For a description of available functionality use the program's help menu or read the help.txt file.

For questions and/or bug reports contact Ziv Yaniv, zivy@isis.georgetown.edu

Distribution manifest:

1. README.pdf
2. drawCircle.m
3. exampleData1 directory
4. exampleData2 directory
5. getEdges3D.m
6. help.txt
7. license.txt
8. ransac.m
9. ransacSphereConstrainedRadius.m
10. saveFigure.m
11. savePlot.m
12. sphericalFiducialLocalization3D.fig
13. sphericalFiducialLocalization3D.m
14. thresholdSelectionDialog.fig
15. thresholdSelectionDialog.m