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Intermediate submission

Medical Image Processing - 11763

Task 1: DICOM loading and visualization

I've implemented the following components for the DICOM visualization assignment:

a) Successfully downloaded the associated dataset
b) Loaded and visualized all 3 standard anatomical planes (Axial, Coronal and Sagittal) with 3D Slicer, along with the 3D volume and the segmentation mask overlays.
c) Implemented the following for now:
   i) Successfully loaded the sample dataset using pydicom
   ii) Implemented a robust sorting algorithm that handles various DICOM metadata attributes (ImagePositionPatient, SliceLocation, InstanceNumber, AcquisitionNumber)
   iii) Created a function to properly arrange slices into a 3D volume with [z, y, x] ordering
   iv) Created an auxiliary file to view the slides on the different views with python.
   v) Implemented Maximum Intensity Projection for the 3 standard views.

Issues so far with this task:
● I've loaded the segmentation DICOM, but still haven't managed to overlay it correctly on the sample dataset.
● Managed to create the animation GIF, but having issues generating the MIP on rotated volume (works fine with the standard views).
● Also having issues with the Aspect ratio of the views when trying to apply the rotation.

Task 2: 3D Image Segmentation

Haven't had the time to start with task 2 yet, and wanted to have task1 done for this intermediate submission, but haven't managed to finish it yet.

But I would like to ask what is referenced exactly with "Create a semi-automatic tumor segmentation algorithm", given the BBox or centroid of a tumor, should the algorithm automatically create the segmentation mask?

Github link