CTViewerApp User Guide

Introduction

The DICOM Viewer is a simple yet powerful tool for loading and visualizing DICOM images in different planes: Axial, Sagittal, and Coronal. This program consists of three classes: DICOMLoader, DICOMViewerGUI, and a utility function load_dicom_folder.

1.DICOMLoader Class

This class provides functionality for loading DICOM images from a specified folder.

Usage

```
loader = DICOMLoader()
volume, shape, axial_aspect, sagittal_aspect, coronal_aspect = loader.load_dicom_folder("/path/to/dicom/folder")
```

The loaded data includes a 3D volume (volume), the shape of the volume (shape), and aspect ratios for axial, sagittal, and coronal planes.

2. DICOMViewerGUI Class

This class builds a graphical user interface (GUI) for visualizing loaded DICOM images.

Usage

```
root = tk.Tk()
viewer = DICOMViewerGUI(root)
root.mainloop()
```

Click the "Load DICOM Folder" button to choose a folder containing DICOM images.

The GUI displays the Axial, Sagittal, and Coronal planes side by side.

Scroll the mouse wheel to navigate through the slices in the axial plane. Different buttons allow switching between axial, sagittal, and coronal views.

3. load_dicom_folder Utility Function

This function is used internally by the DICOMLoader class to process DICOM images.

Usage is detailed in the DICOMLoader section.

Tips:

- Ensure that your DICOM folder contains valid DICOM files.
- Use the "Load DICOM Folder" button in the GUI to initiate the loading process.

- After loading, the GUI allows navigation through slices in the axial plane using the mouse wheel.
- Use the provided buttons to switch between axial, sagittal, and coronal views.

Requirements:

Ensure that you have the necessary dependencies installed, including **pydicom**, **numpy**, **tkinter**, and **matplotlib**.