DCM2MAT: Convert DICOM MRI Data to MATLAB Matrices

Data Availability

This dataset, Dataset on Infarct Volume in Rodents: A Comparison of MRI and Histological Methods (Version v2), is available on **Zenodo**.

Data Description

Dataset on stroke infarct volume in rodents: A comparison of MRI and histological methods.

File Structure

MRI_Dataset/

MRI scans are categorized into two groups:

- **Acute (<3 days post-stroke, n = 6):**
  IDs: 1f1, 1f2, 1f3, 2f2, 3f1, 3f2
- **Chronic (≥28 days post-stroke, n = 4):**
  IDs: 1f1, 1f2, 2f1, 2f2

⚠ **Note:** The subject **ID "1f1"** appears in both the **Acute** and **Chronic** groups, suggesting a possible duplication.

Scripts/

- **ReadImageJROI.m** → Reads ImageJ ROI files and converts them into a MATLAB structure.
- **DCM2MAT.m** → Converts MRI images (MRI_ID.dcm), ROI masks (RoiSet_ID), and lesion boundaries into MATLAB matrices.

To process MRI data for a specific **Group** and **ID**, run the following command in MATLAB:

```
Group = "Acute";
ID = "1f2";
[ROI, Boundaries, MRI] = DCM2MAT (Group, ID);
```

Outputs:

- MRI → Processed MRI scan as a 3D matrix
- ROI → Binary mask representing the stroke lesion
- Boundaries → Extracted lesion boundaries

⚠ **Note:** Ensure **ReadImageJROI.m** is in the MATLAB path before running DCM2MAT.m.