

This project contains a single Jupyter Notebook file: `main.ipynb`, which includes the complete code for all algorithms. Each method is preceded by a markdown cell with the method's name for easy navigation.

Setup Instructions:

1. Install Required Libraries

Run the following command to install the necessary Python packages:

```
pip install nibabel numpy matplotlib scipy scikit-image pywavelets
```

This command is already included in the first cell of `main.ipynb`.

2. Prepare MRI Data

Ensure you have a 3D MRI file in `.nii`, `.nii.gz`, or `.mnc.gz` format.

Sample data from BrainWeb is already included in the project folder.

3. Launch the Notebook

Open `main.ipynb` using Jupyter Notebook.

4. Set File Paths

Edit the relevant file paths in the notebook to match your local directory structure.

5. Run the Code

You can run all cells sequentially to execute the complete workflow.

Alternatively, you can run any individual method, but make sure to first execute the dependency cell (present as the second cell in the notebook), which sets up the shared variables and data structures.