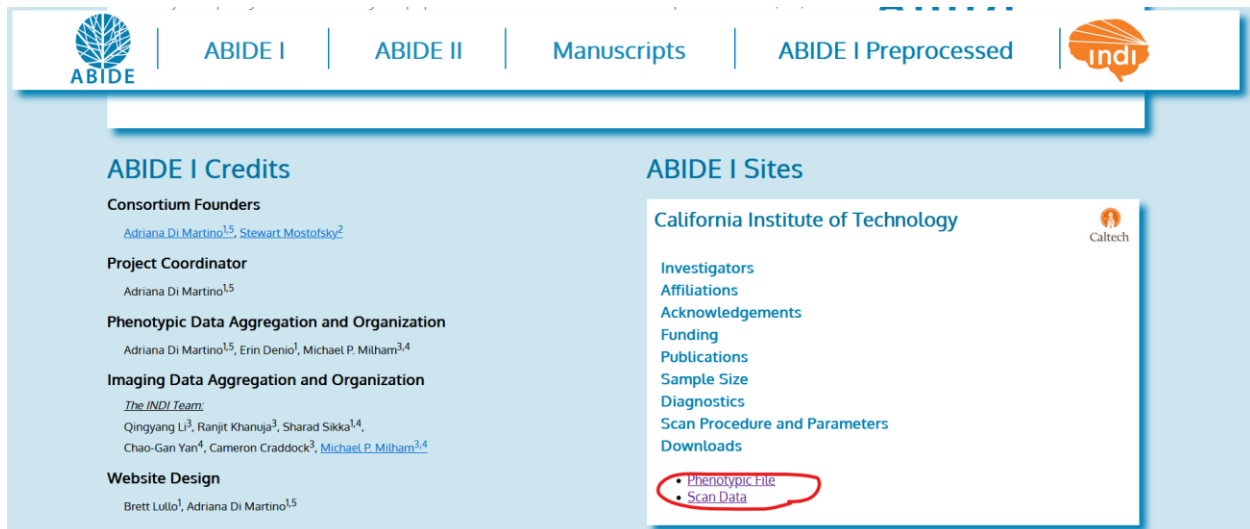


About the ABIDE Dataset:

Using the Caltech dataset of 38 patients

http://fcon_1000.projects.nitrc.org/indi/abide/abide_I.html



Autism Spectrum Disorders (ASD): 19 (17.5-45.1 years)

(13 Autistic Disorder, 6 Either Asperger's Disorder or Pervasive Developmental Disorder-Not Otherwise Specified)

Typical Controls (TC): 19 (17-56.2 years)

For the purposes of this dataset, as brain-scan images are 3-dimensional of the form (176, 256, 256) where the third dimension represents the number of slices per patient's scan, we must choose one single slice as our image.

In the Python script, I have written two functions:

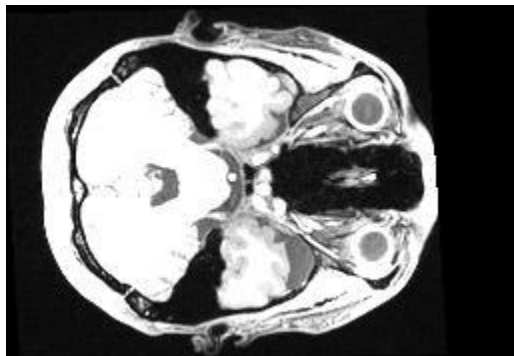
```
SLICE_NUM = 120

def extract_slice(nii_image_path, class_name, slice_number = SLICE_NUM):
    """
    Read in an .nii image, convert it to a numpy ndarray. Return the array and its file name.
    """
    nii_img = nib.load(nii_image_path).get_fdata()
    slice = nii_img[:, :, slice_number]
    if class_name == "control":
        slice_name = nii_image_path[10:17]
    if class_name == "treatment":
        slice_name = nii_image_path[12:19]
    return slice, slice_name

def nii_to_jpeg(nii_slice, slice_name, save_dir):
    """
    Save the ndarray representation of the nii image to JPEG format, named according to its original name.
    """
    im = Image.fromarray(nii_slice)
    im = im.convert("L")
    print(save_dir + slice_name + ".jpeg")
    im.save(save_dir + slice_name + ".jpeg")
```

There are 256 slices per image, and this code will take the 120th slice and extract it, then save it to JPEG format so it can be used in the ML training algorithm.

For example, this is one slice of a patient's brain as a JPEG image:



In order to run the script and obtain the JPEG image, please create an empty folder on your machine, and add the script (nii_reader.py) in there. Then, copy both 'control' and 'treatment' folders in there.

You should run the script in that local folder, if you have Python on your machine by using either an IDE like VS Code which can see the contents of the folder, or by cmd prompt (run the command 'python nii_reader.py').

Once it's working, and you see that the JPEG folders are getting populated (see screenshot below), you should try playing around with the slice index, to see which slice we should extract from each brain scan.

