

Talairach Daemon Database

- ➔ illustrates the relationship between the Talairach coordinate system and the human brain.

INSTRUCTIONS:

1. Download and install the Talairach Daemon Java client 1.1 and the Talairach database software 1.0 from

<http://biad02.uthscsa.edu/projects/registration/download.htm>

2. Prepare a text file with a list of the x-y-z Talairach coordinates that you want to label. The file "Test_me.txt" is an example of the required format.

Start the application: Start ->Programs ->Talairach Network Client ->Talairach Database
Select your file from the **File menu**. The number of coordinates will be printed in the information window.

Press the **Process** button to begin. Several messages will be printed in the information window to inform you of the progress during processing.

e.g Test_me.txt

```
-28    -4    -16
26     2    -16
-12    28     0
 4     16    12
-13    11     8
-6     10     4
34    -26    -4
-40   -11     3
28     10     0
-28    10     4
36     0    -12
35     15    18
etc.
```

3. Suggestions

SUGGESTED USES.

Brodmann Area (BA) Labels for Cortical Activations. When seeking Brodmann Area labels for cortical activation sites it is possible to extend the search diameter to find the nearest BA label. For an experiment designed to activate the M1 mouth motor region only 38% of the sites were found to fall within Brodmann Areas, but as the search diameter was increased to 3 mm, 5 mm, and 7 mm, BA labels were obtained for 62%, 92%, and 100% of the sites. This example shows the utility of obtaining BA labels for cortical activation sites. While the appropriate search range may vary from site to site within the brain, this is easy to test. The current release of the Java TD client supports the 3-11 mm search diameter. As the search range increases the number of labels found increases. This presents two problems to the user. First, the label retrieval process becomes much slower. For a 5x5x5 mm search range 125 voxels are searched and many labels are found. The TD client reduces the number of labels by only responding with unique labels. The unique labels are organized by incidence within the search range, with the highest label incidence being the first label returned. Along with each of the unique labels is the number of voxel within the search range with that label. Second, with large search ranges, the user has to deal with much larger files to sort through. The recommended strategy is to search with a small search region initially, remove coordinates with BA labels, and proceed using smaller input files for larger search ranges. Anatomical Organization of Coordinate Data. For applications that provide Talairach coordinates (SPM, MEDx, etc.) it is helpful to use anatomical labels from the TD to organize findings anatomically. The data saved by the Java TD search client can be used to create a labeled file. A common use of this labeled file is to open it in Excel

and rearrange the original slice-ordered data into 3-D anatomical groupings by sorting by lobe and gyrus. This provides users with a good sense of which activation sites to group together anatomically.