

Exercise 32 : Multispectral Classification

The goal of this exercise is to demonstrate the use of the Scattergram tool in the Multispectral Classification module to illustrate the various supervised classifiers in the multispectral measurement space.

1. Load the **MRI_multi.avw** data set from the **\$(\BIR\images)\TutorialData\MultiSpectralTutorial** directory. This file contains a spatially co-registered MRI T1 and T2 volume of the same patient.

note | If you use the Load As module to load the data set into Analyze, select 'Single Multivolume' when prompted.

2. Open the **Multispectral Classification** module (**Segment > Multispectral Classification**).



3. Open the **Scattergram** window (**Samples > Scattergrams**).

4. In the Scattergram window (figure 1), move the **Slice** slider bar [A] to **slice 14**. The T1 and T2 sections are displayed side-by-side along with the scattergram of the pixels. To increase the image display size, change Single to **Double** in the drop-down menu [B] next to the 'Slice' slider bar.



5. Select the **Closed Trace** tool and define a small region of white matter (central brain tissue) as **class 1** by drawing on the image display. The paired values found in this region are colored red in the scattergram display and on the image displayed in the main Multispectral Classification window (figure 2).



6. Select the **Curved Line** tool and define a small region of grey matter (peripheral brain tissue) as **class 2**. Make sure to choose 'class 2' from the **Classes** drop-down menu [C] before starting the trace. The paired values will show as green in the scattergram and in the image display.

tip | To move a defined region hold <Shift> then click and drag the region to the desired location.

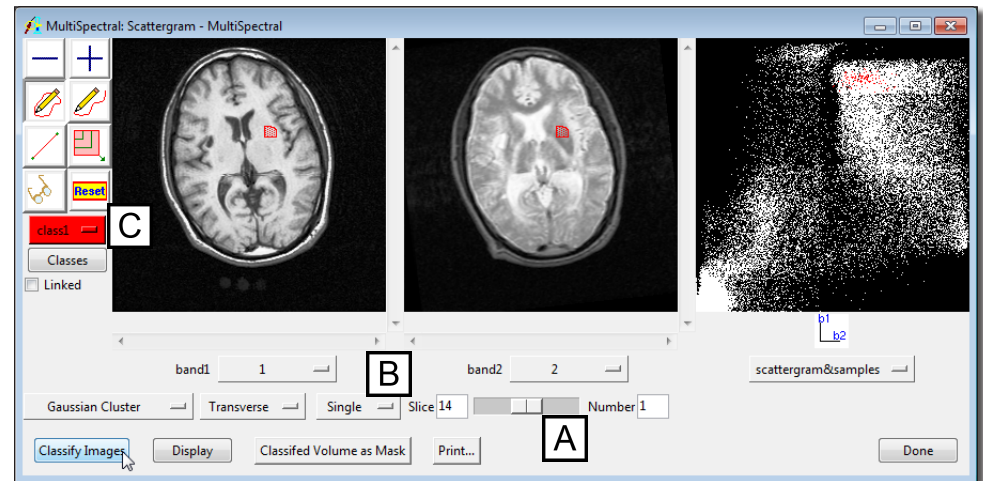


Figure 1

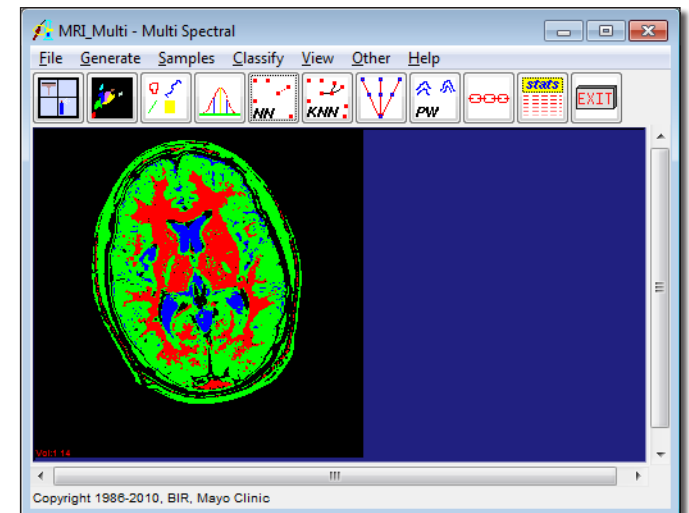


Figure 2

Exercise 32 : Multispectral Classification

7. Select the **Closed Trace** tool and define a small region of cerebrospinal fluid (in the central ventricles) as **class 3**.
8. Click **Classify Images**. The Gaussian Scattergram Classifier window will automatically be returned (figure 3), click **Classify**. Click **Done** to dismiss the window.
9. Choose **Scattergram & Classified** from the drop-down menu below the far right pane of the Scattergram window to view the Gaussian class boundaries derived from the samples (figure 4).
10. By selecting classifiers other than 'Gaussian Cluster' in the Scattergram window before clicking Classify Images, other supervised classifiers can be demonstrated on the same samples.
11. Close the Multispectral Classification module before proceeding to the next exercise.

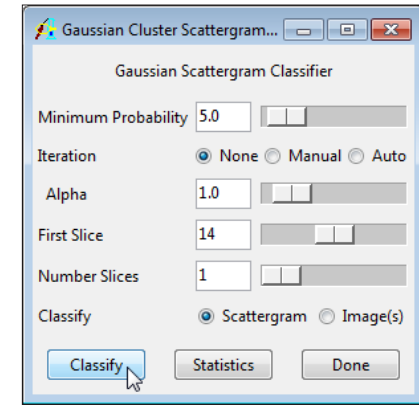


Figure 3

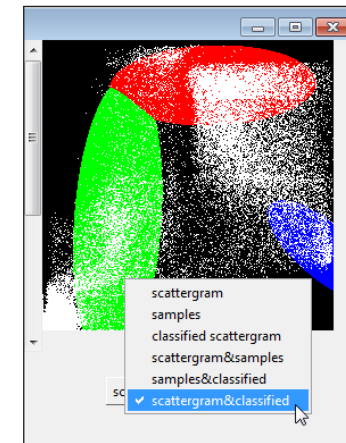


Figure 4