

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.awv** 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.
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 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 next to the 'Slice' slider bar.

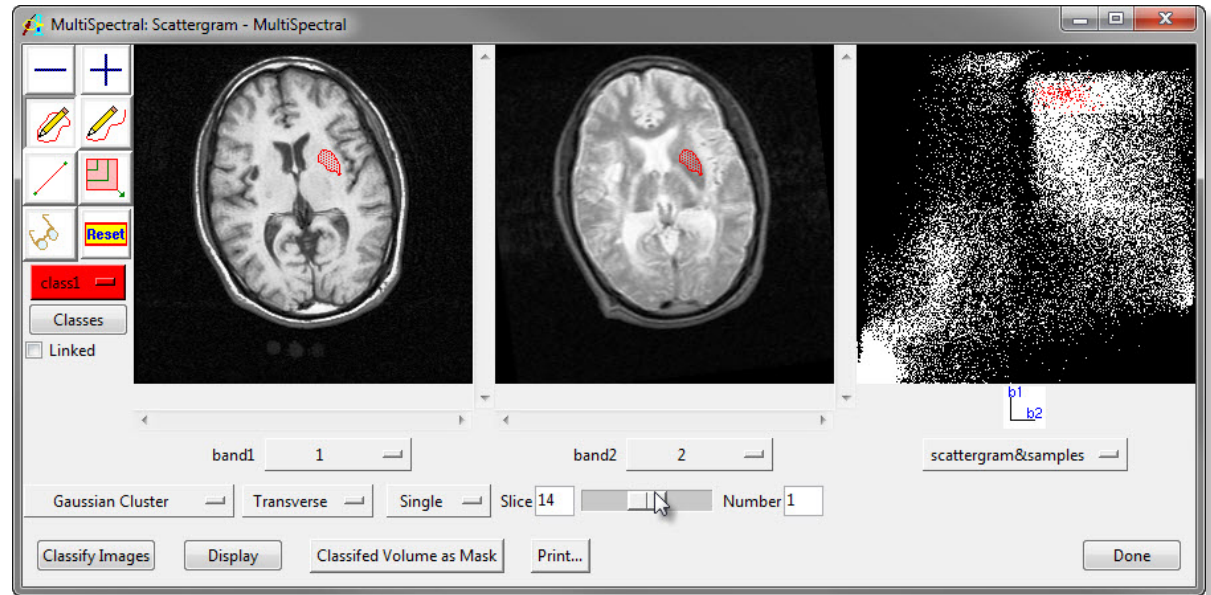


Figure 1

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. Choose 'class 2' from the **Classes** drop-down menu before starting the trace. Select the **Curved Line** tool and define a small region of grey matter (peripheral brain tissue) as class 2. The paired values will show as green in the scattergram and in the image display.
7. Select the **Closed Trace** tool and define a small region of cerebrospinal fluid (in the central ventricles) as class 3.

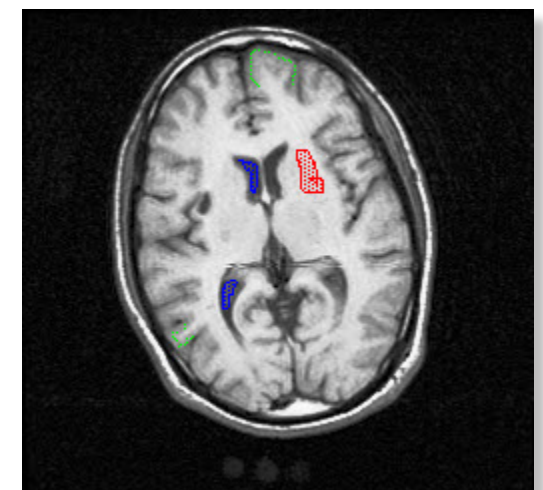


Figure 2
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8. Click **Classify Images**. The Gaussian Scattergram Classifier window will automatically be returned (figure 3), click **Classify**. Click **Done** to dismiss the window.
9. In the main Multispectral Classification window, the classified image will be returned (figure 4).
10. 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 5).
11. 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.
12. Close the Multispectral Classification module before proceeding to the next exercise.

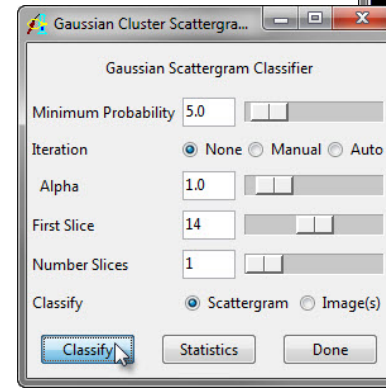


Figure 3

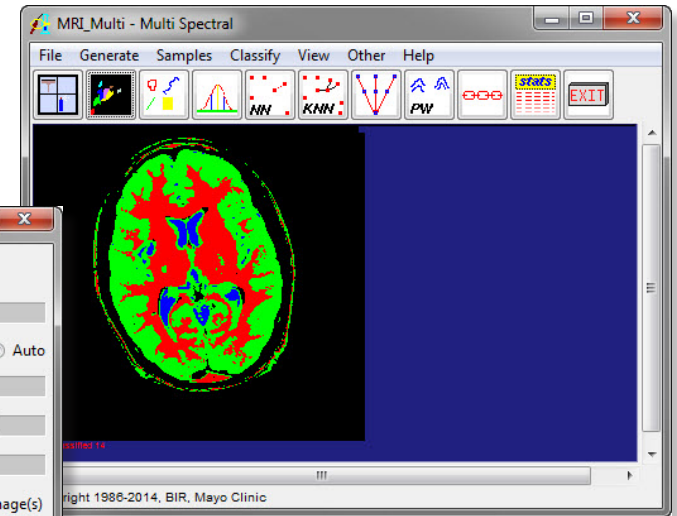


Figure 4

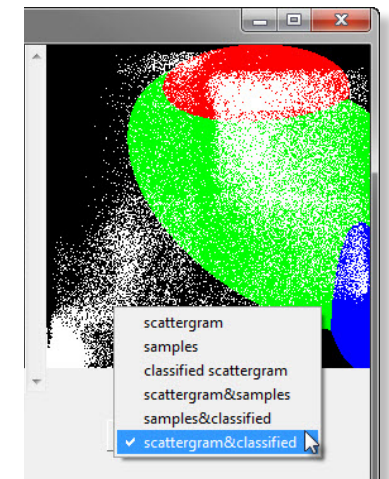


Figure 5