Histogram Operations: Histogram Normalization Exercise 27

The Histogram Operations module provides the ability to do histogram processing, such as histogram matching, flattening, and equalization (normalization). The goal of this exercise is to demonstrate how to normalize the histograms of SPECT images taken under different conditions.

1. Load both the **SISCOM_Ictal_SPECT.avw** and **SISCOM_Interictal_SPECT. avw** data sets from the **$:\BIR\images\TutorialData** directory.

2. With only the **SISCOM_Ictal_SPECT** data set selected in the Analyze workspace, open the Histogram Operations module (**Process > Histogram Ops**).

3. Open the **Function** window (**Generate > Function**).

4. In the Function window select Histogram Normalize and set the following parameters (figure 1):

   • **Use Histogram: Median**

   • **Target Value: 150**

   • **Image Display: Original and Filtered**

   • **Histogram Display: On**

Figure 1

5. Click **Filter**. An Input and Output Histogram will automatically be returned. The filtered result will be displayed in the main Histogram Operations window.

6. In the Function window change **Action** to **Memory** and click **Filter** again. A dialog box will be returned stating that the action modifies the loaded volume, click **Change a Copy of the Loaded Volume**.

7. Drag-and-drop the SISCOM_Interictal_SPECT data set from the Analyze workspace into the main Histogram Operations window.

8. Press the **Filter** PowerBar button. In the dialog box returned, click **Change a Copy of the Loaded Volume**.

9. The two new volumes you have created have been normalized to the same value, so equivalent numbers in the images now indicate levels of metabolic activity (figure 2). Additionally, both normalized volumes have automatically been saved to the Analyze workspace.

10. Close the Histogram Operations module before proceeding to the next exercise.
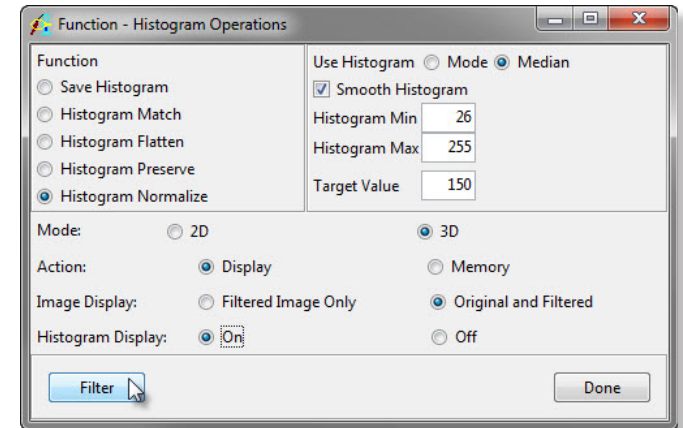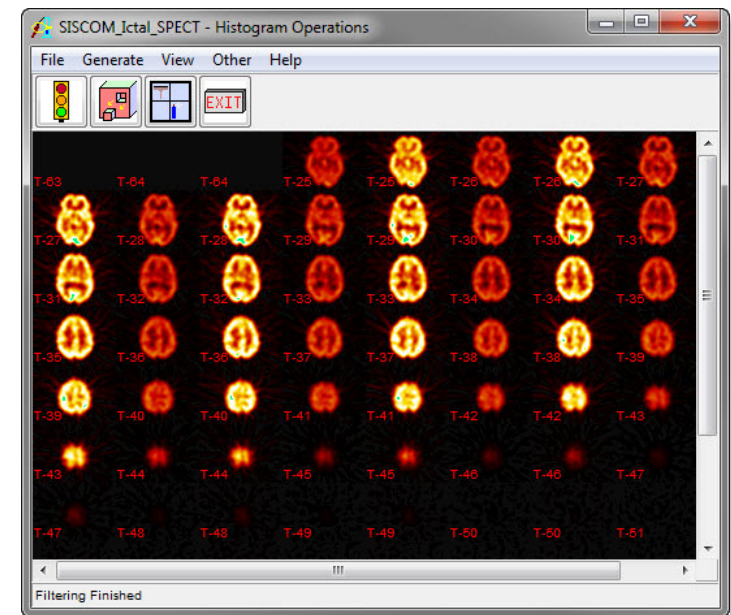

Figure 2