

MATLAB Mock Midterm Exam

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1. Maximum intensity projection (MIP) (35 points)

Note: Perform maximum intensity projection (MIP) in contrast-enhanced magnetic resonance angiography to visualize the vessel structures. Please open the **MockTest.m** file in the **MImaterials_mocktest** directory, and follow the steps to complete the script.

Steps:

- (1) Please assign the path of **MImaterials_midterm\data** to a variable, *dirname*. (5 points)
- (2) Please remove the elements within *dirinfo* that are not DICOM files. (5 points)
- (3) Please create a for-loop to import all the DICOM files and save them as a 3D variable, *img*. (5 points)
- (4) Please use **montage** function to display all image slices in one figure (as shown in **Figure 1**). Please set up the 'Displayrange' between 0 and 500 and 'ThumbnailSize' as 512-by-416. (10 points)

HINT: help **montage** % for further information

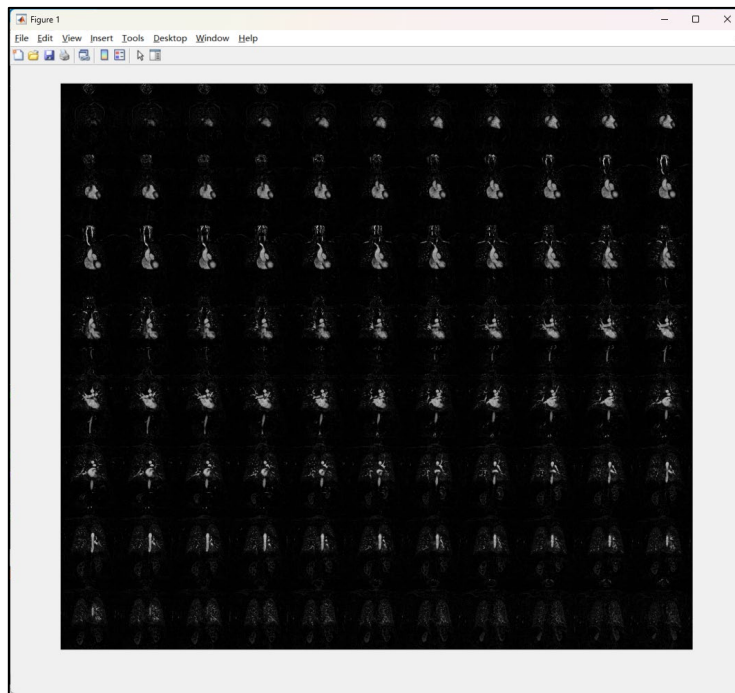


Figure 1

- (5) Please follow the instructions below. (5 points)
 - ✓ Please perform MIP along the third dimension.
 - ✓ Please use **subplot** to locate the image at the first position.
 - ✓ Please use **imshow** with display range between 30 and 400 to plot image.
 - ✓ Please give a **title** to the image: **Anterior-posterior view**.
- (6) Please follow the instructions below. (5 points)
 - ✓ Please perform MIP along the second dimension.
 - ✓ Please use **subplot** to locate the image at the second position.

- ✓ Please use **imshow** with display range between 30 and 400 to plot image.
- ✓ Please give a **title** to the image: [Lateral view](#).

Once everything is done, you should be able to see the MIP images, as shown in **Figure 2**.

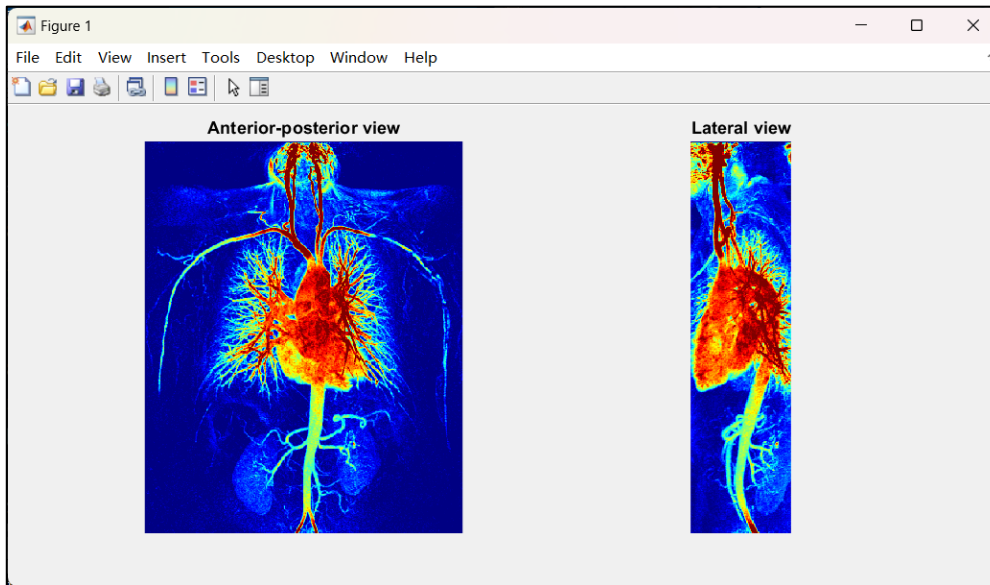


Figure 2