

ISR & INESC-ID

USER MANUAL (EN)

MIMBCD-UI

Contents

Intro 3

Study List 5

WW/WC 7

Invert 9

Zoom 10

Pan 12

Stack Scroll 14

Length 15

Windows 16

Freehand 17

Additional Information 18

Intro

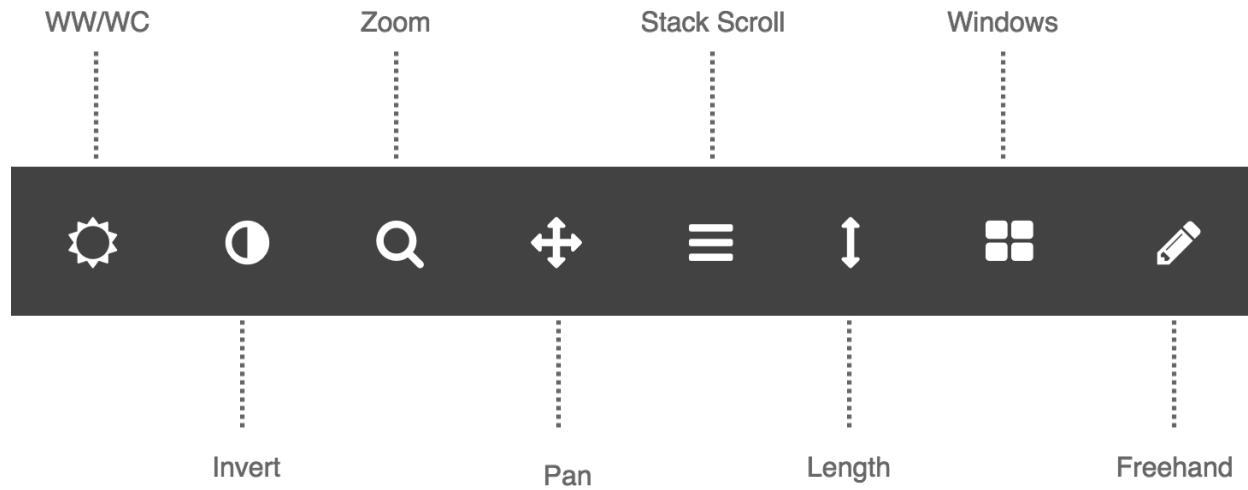
Your decision to use the MIMBCD-UI Cornerstone Prototype shows your commitment to total practice of medical imaging diagnosis for a multimodality view. MIMBCD-UI Project can help you visualize all of your patient's modalities, not only, for the breast cancer diagnosis, but also, for other medical and educational information purpose.

Why MIMBCD-UI System?

MIMBCD-UI tool offers you:

- **Flexibility** – MIMBCD-UI Cornerstone Prototype is an Open Source project where you can add functionality as you want;
- **Functionality** – You can add functionality from the Cornerstone Library;
- **Help** – You can quickly look up information and get answers to questions using the Help system built into MIMBCD-UI Cornerstone Prototype or by reading documentation;
- **Multimodality** – You can work in more than one image modality at the same time;
- **Sharing** – You can share the information with other users;
- **Simplicity** – MIMBCD-UI Cornerstone Prototype is easy to learn and easy to use;
- **Support** – Open Source community to supports you;

A browser application used to only view projection radiographs (e.g. US or MRI) could be designed around using a mouse with a mouse wheel.



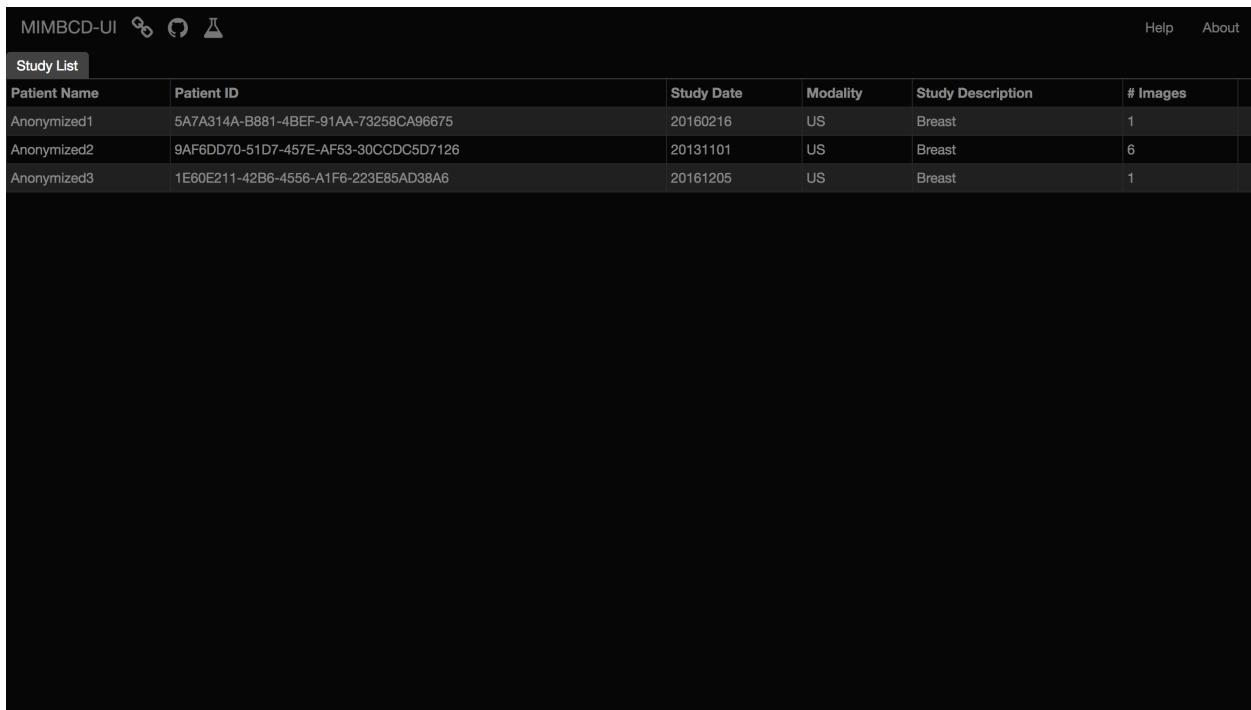
The functionality exposed would be as follows:

1. Change Luminosity (**WW/WC**);
2. **Invert**;
3. **Zoom** In and **Zoom** Out;
4. Image Position (**Pan**);
5. **Stack Scroll**;
6. **Length** Measurement;
7. Manage Number of **Windows**;
8. Annotations (**Freehand**);

The mouse wheel would be used to **Zoom** the image. The UI would present a button for the other tools allowing the user to select which one to use the LEFT mouse button for. For example, the user could press the **WW/WC** button and adjust the **WW/WC** by LEFT click dragging. After this, they could select the **Length** button and left click drag to create a length measurement. A successful attempt was also made to bring this kind of tools to the [touch-based¹](#) and mobile-based environments.

Study List

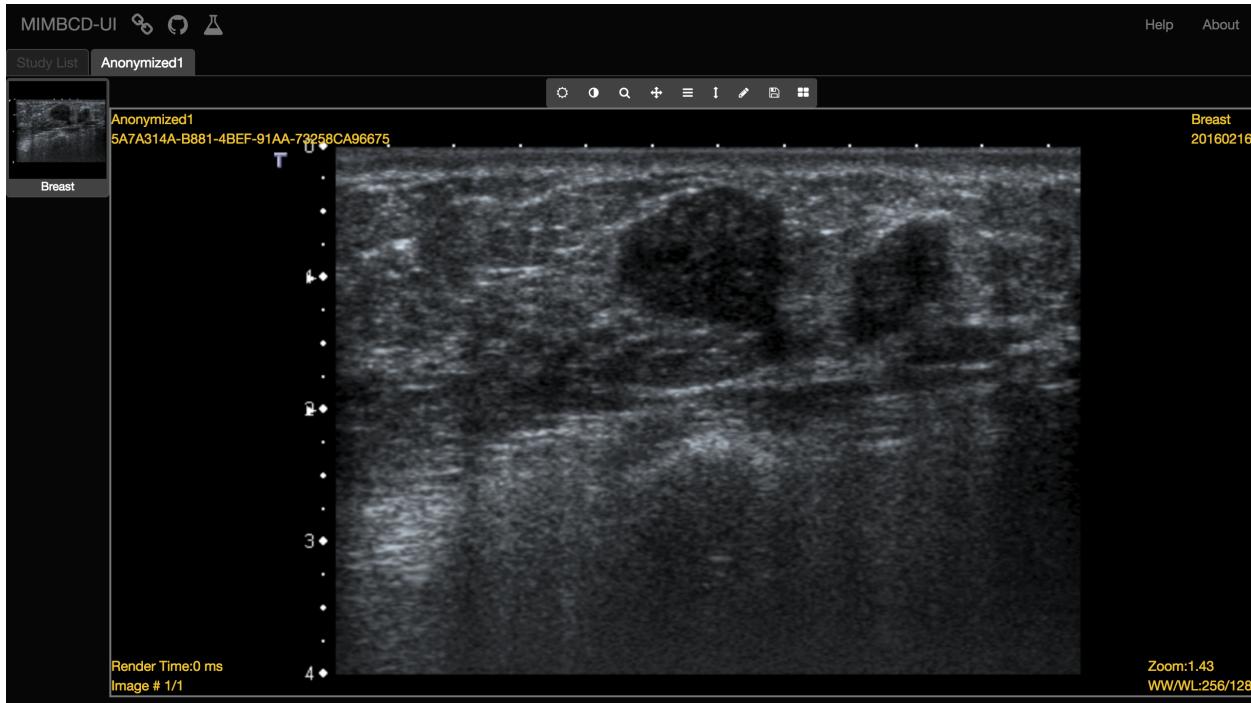
In this section we will describe the Study List, or more vulgarly known as list of patients. Study List allows to visualize your studies and patients.



The screenshot shows a dark-themed user interface for a medical imaging database. At the top left is the text "MIMBCD-UI" followed by three small icons: a magnifying glass over a brain, a circular arrow, and a test tube. On the far right are "Help" and "About" links. Below this is a navigation bar with a "Study List" tab selected, indicated by a grey background. The main area is a table with the following data:

Patient Name	Patient ID	Study Date	Modality	Study Description	# Images
Anonymized1	5A7A314A-B881-4BEF-91AA-73258CA96675	20160216	US	Breast	1
Anonymized2	9AF6DD70-51D7-457E-AF53-30CCDC5D7126	20131101	US	Breast	6
Anonymized3	1E60E211-42B6-4556-A1F6-223E85AD38A6	20161205	US	Breast	1

1. Open the MIMBCD-UI Cornerstone Prototype;
2. Each column has the following description:
 - (a) **Patient Name** – The name of the patient linked from your PACS;
 - (b) **Patient ID** – The ID of the patient;
 - (c) **Study Date** – The date when the study was created or edited;
 - (d) **Modality** – Modality of the image or the set of modalities of the patient;
 - (e) **Study Description** – Description of the study;
 - (f) **Images** – Number of images of the patient;
3. By pressing with the patient with LEFT mouse button, you will open the study;



WW/WC

1. Select the WW/WC option;



8 USER MANUAL

2. Drag down and up on the image viewer with the LEFT mouse button;

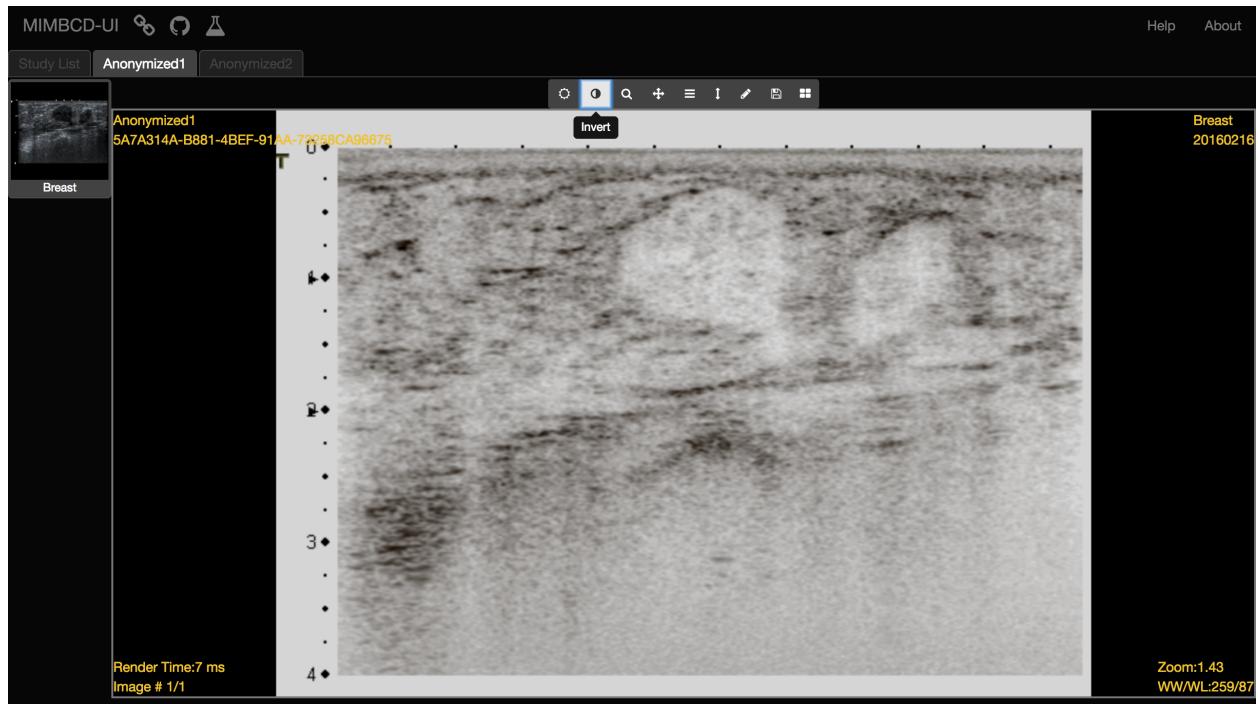


3. Configure the pretended WW/WC level;



Invert

To flip the image in the active image viewer, click button and select **Invert** tool.



Zoom

Select Zoom Tool and down on the image with the LEFT mouse button.

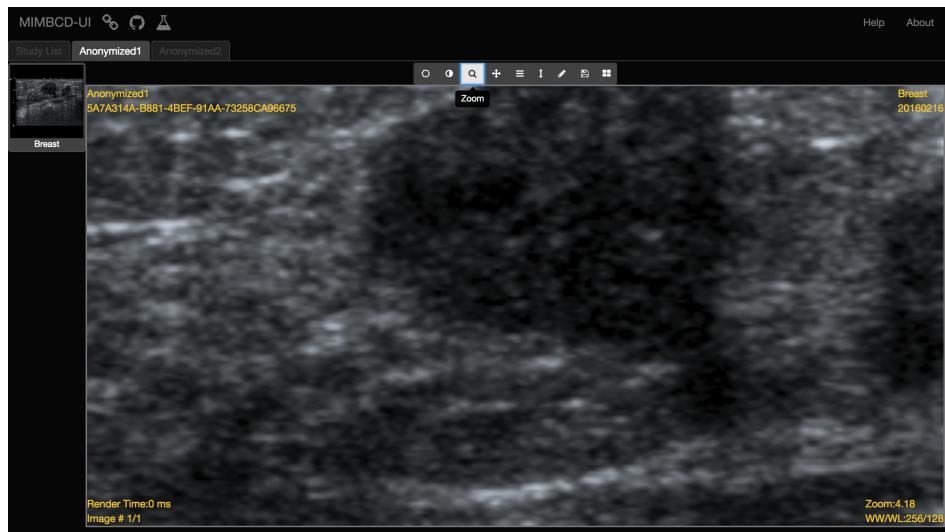
1. Select the **Zoom** option;



2. Drag down and up on the image viewer with the LEFT mouse button;



3. Zoom In and Zoom Out;



Pan

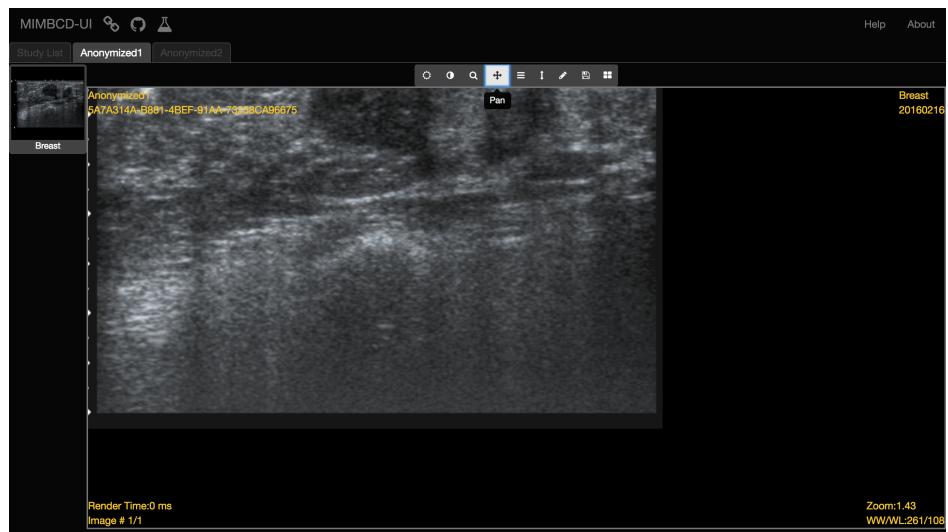
1. Select the WW/WC option;



2. Drag the image down and up, left and right on the image viewer with the LEFT mouse button;



3. Positioning of the image;



Stack Scroll

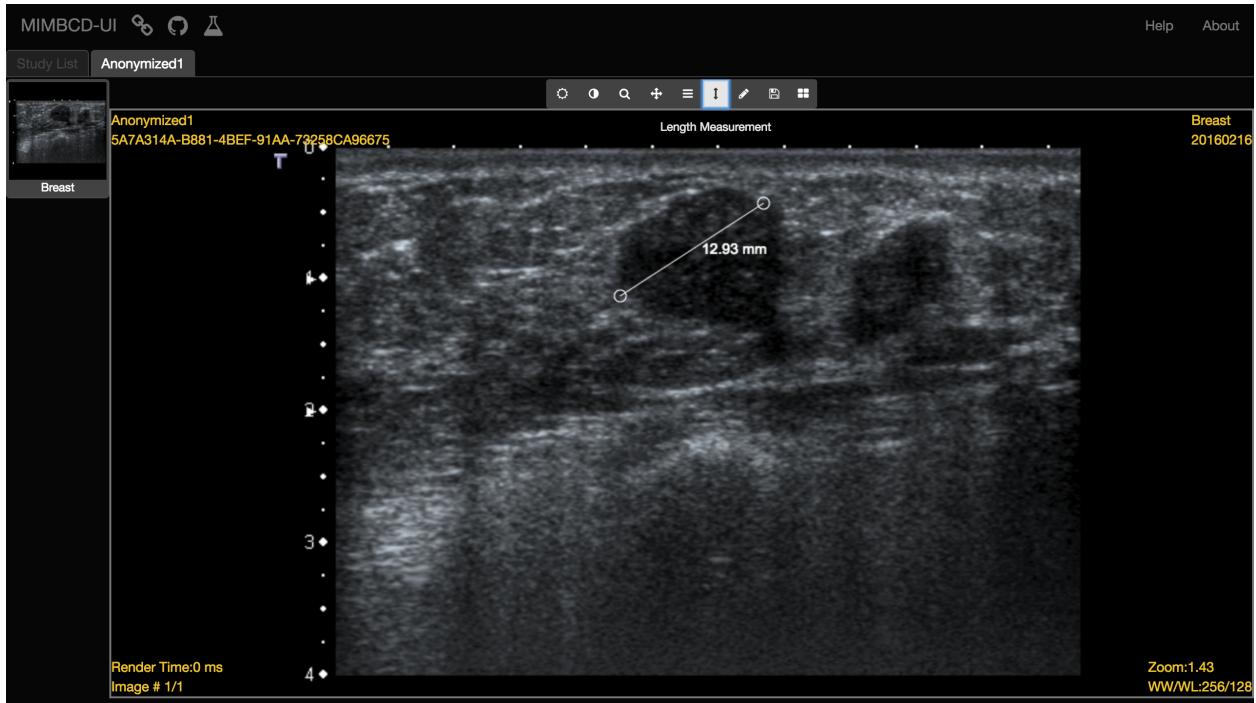
An image **Stack Scroll** is a feature to scroll over a collection of one or more images that are closely related. The best example of this is a CT or MRI series. A stack can include all images in a series or a subset of them. A stack can even include images from different series in different studies. To use this feature over your images just follow the next instructions.

1. Click More button and select Stack Scroll Tool;
2. Drag down and up on the image viewer with the left mouse button;



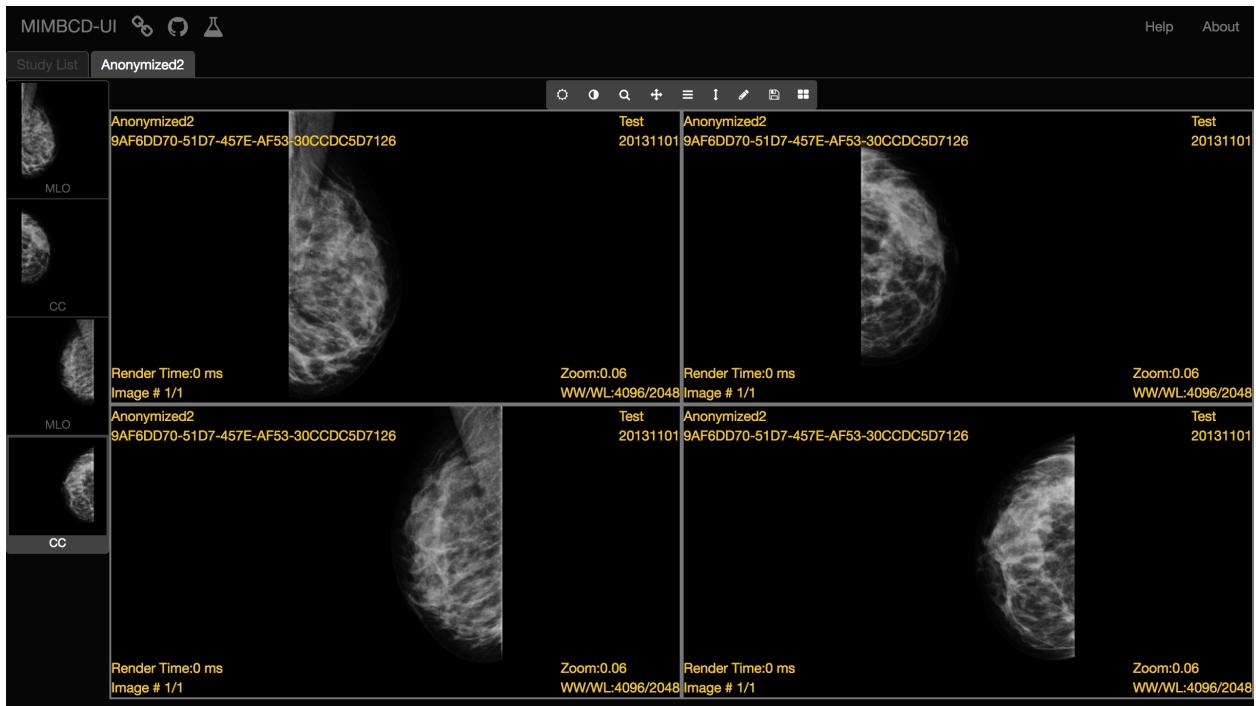
Length

To measure a lesion, click **Length** button at the Menu Bar of the workspace. The **Length** feature will be displayed at the right side of the workspace.



Windows

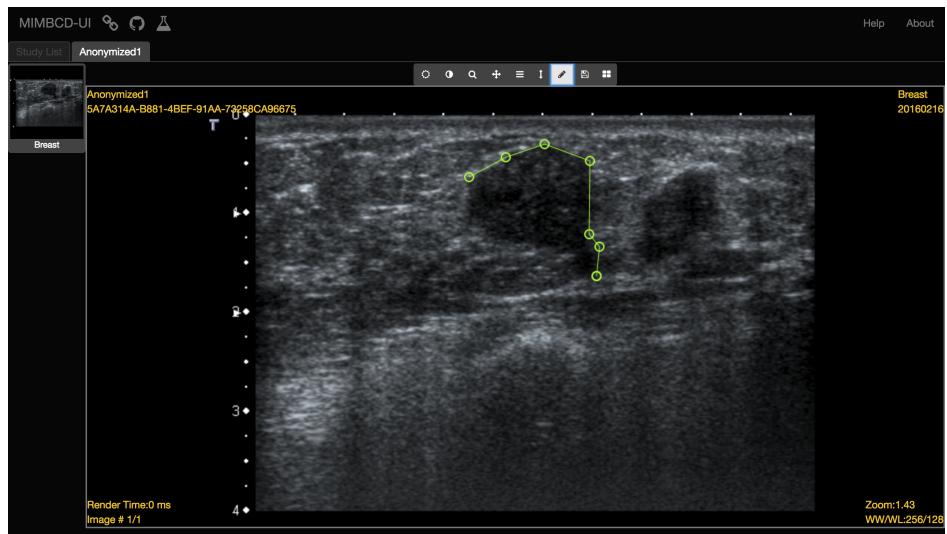
There are a number of default Windows settings in the **Windows** tab. To create a new setting, enter the desired column field.



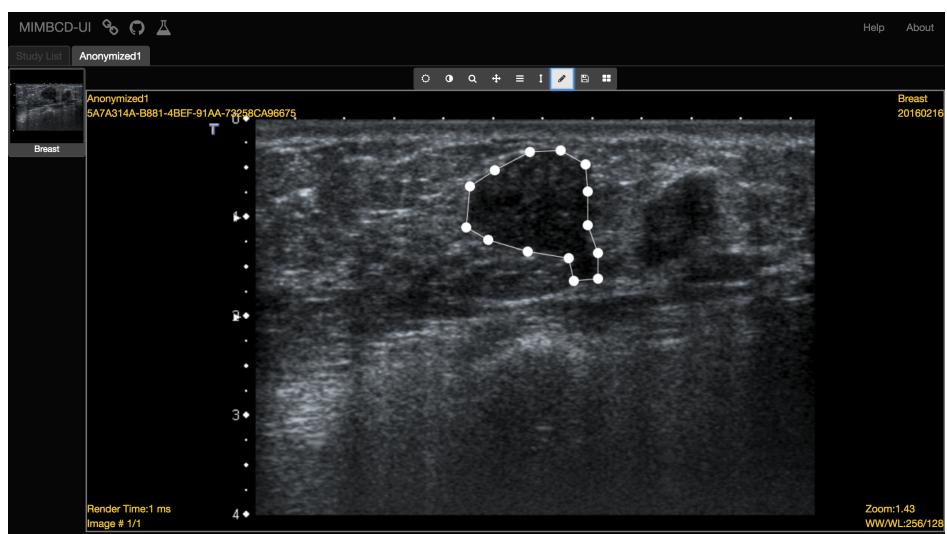
Freehand

To annotate a lesion, click **Freehand** and annotate the number of marks as you want:

1. Select the **Freehand** option and start annotating;



2. Finish annotation by clicking on the first one;



Additional Information

Authors

- Francisco Maria Calisto [GitHub] [ResearchGate] [LinkedIn] [IST] [INESC-ID] [ISR]
E-Mail: francisco.calisto@tecnico.ulisboa.pt

