

# Manual Annotation of Radiology Images using VGG Image Annotator (VIA)

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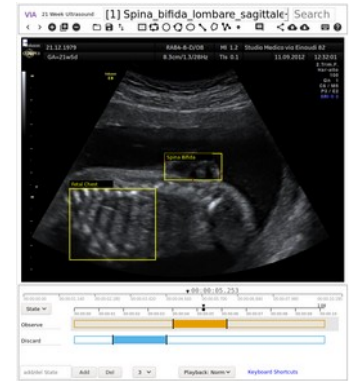
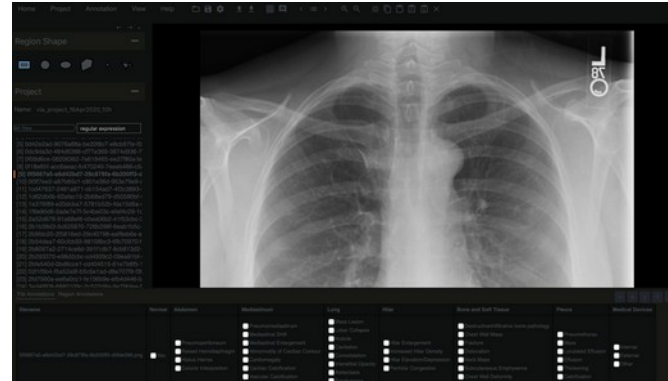
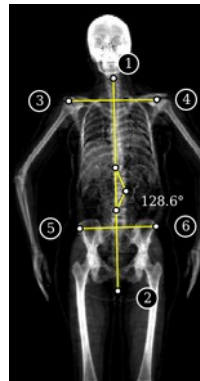
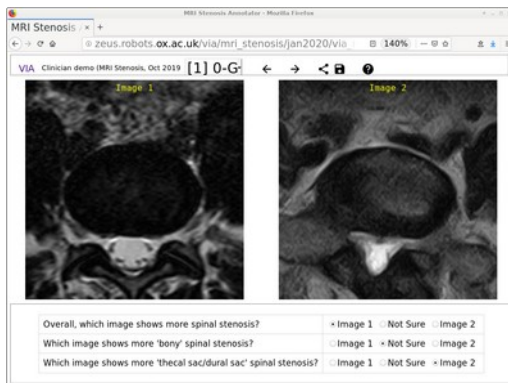
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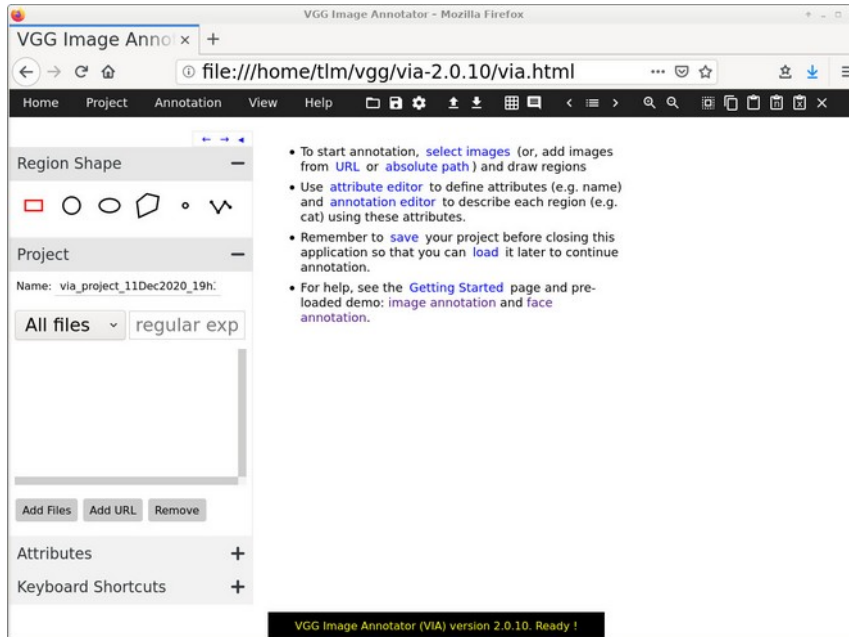
# Introduction

- VIA can be used for manual annotation of **images and videos**.
  - Supports regions of any shape (e.g. rectangle, polygon, ellipse, etc.)
- Runs in a web browser (no installation required, **offline** application)
  - Critical for annotation of sensitive data (e.g. medical images)
- Developed solely using HTML/CSS/Javascript (no external libraries)
  - Full application is a single HTML file of size ~ **400KB**



# Download and Setup of VIA

- **Download** latest version of the VIA software from :
  - <https://www.robots.ox.ac.uk/~vgg/software/via/>
  - <https://www.robots.ox.ac.uk/~vgg/software/via/downloads/via-2.0.10.zip>

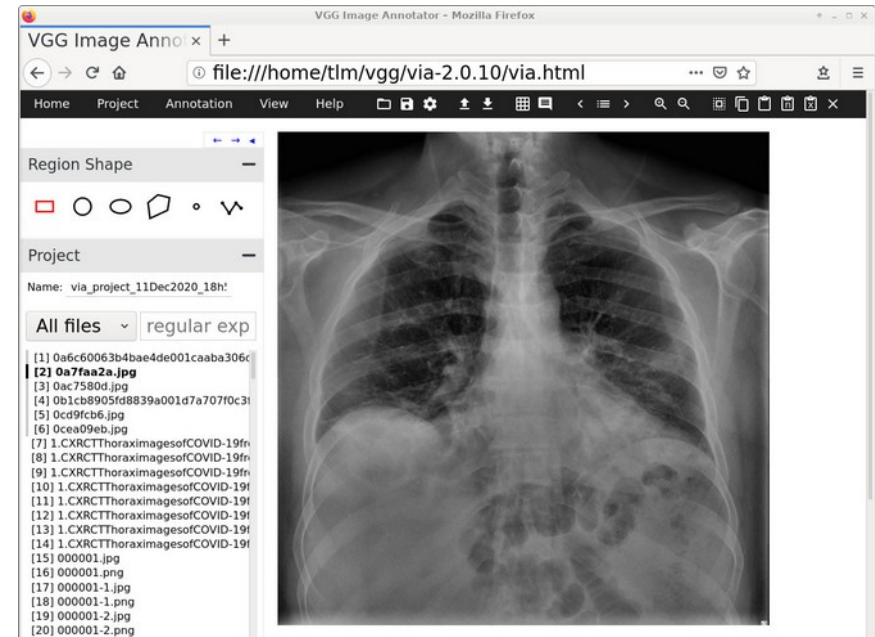
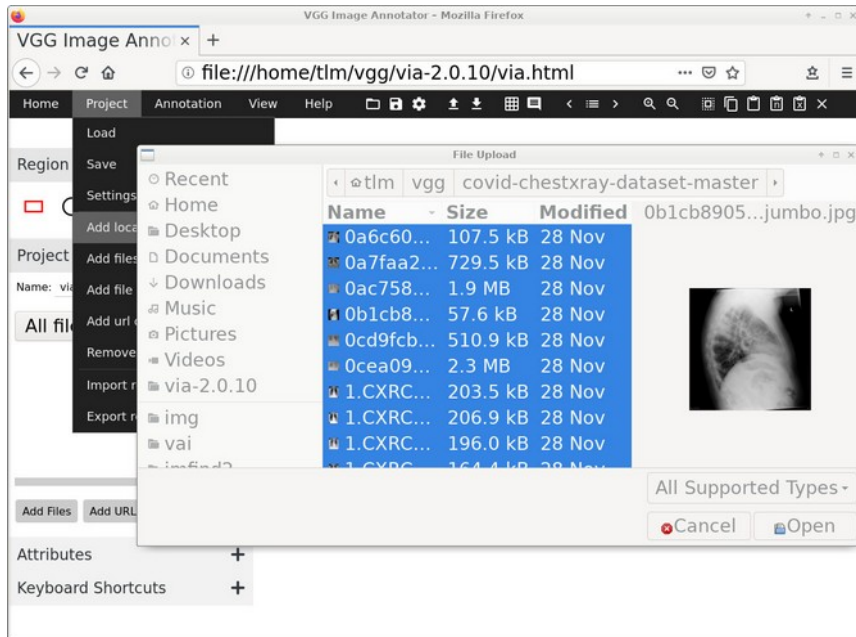


**Extract** the downloaded `via-2.0.10.zip` file and open `via.html` file in a web browser (e.g. Firefox, Chrome, etc.)

Tip: online copy of VIA application is always available at <https://www.robots.ox.ac.uk/~vgg/software/via/via.html>

# Loading Images

- Click **Project** → **Add local files** in the top toolbar.
- Select the X-ray images that you wish to annotate (Ctrl + A to select all)



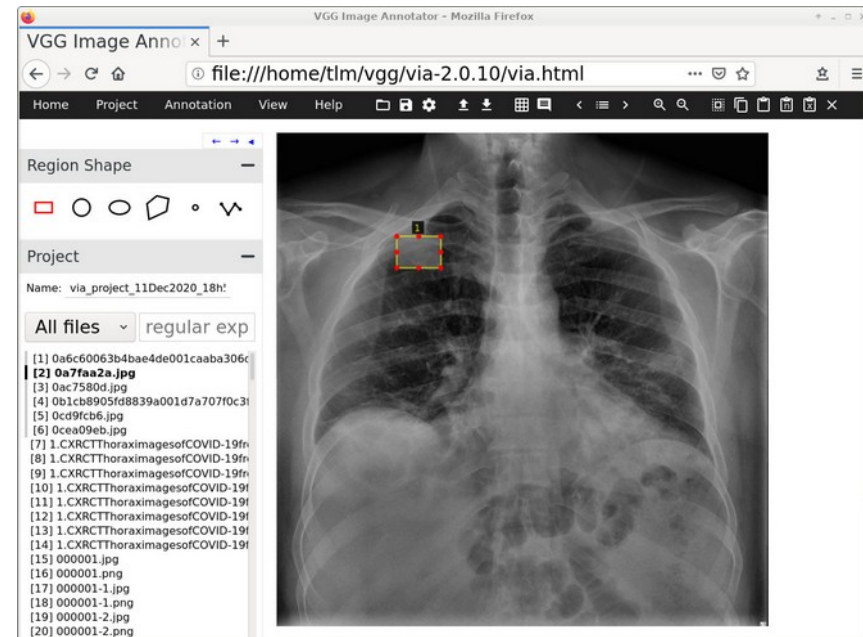
You can download sample X-ray images from <https://github.com/ieee8023/covid-chestxray-dataset/tree/master/images>

# Manual Annotation of X-ray Images

- In the “Region Shape” panel on the left toolbar, select the shape of the region that you want to draw on the X-ray image. The rectangle shape is selected by default.
- Let us say that you want to define a **rectangular region**. Move your mouse pointer to a point on the image where you want to place the top left corner of your rectangular region. Now press your mouse’s left button and drag it until you reach the bottom right corner of your rectangular region.

## Tips:

- If you make a mistake, you can resize the recently drawn region by moving the red circular control points at the edges of the rectangular region.
- You can also move the region by small amounts by pressing arrow keys in your keyboard.
- You can delete the region by pressing the cross icon in the top toolbar.

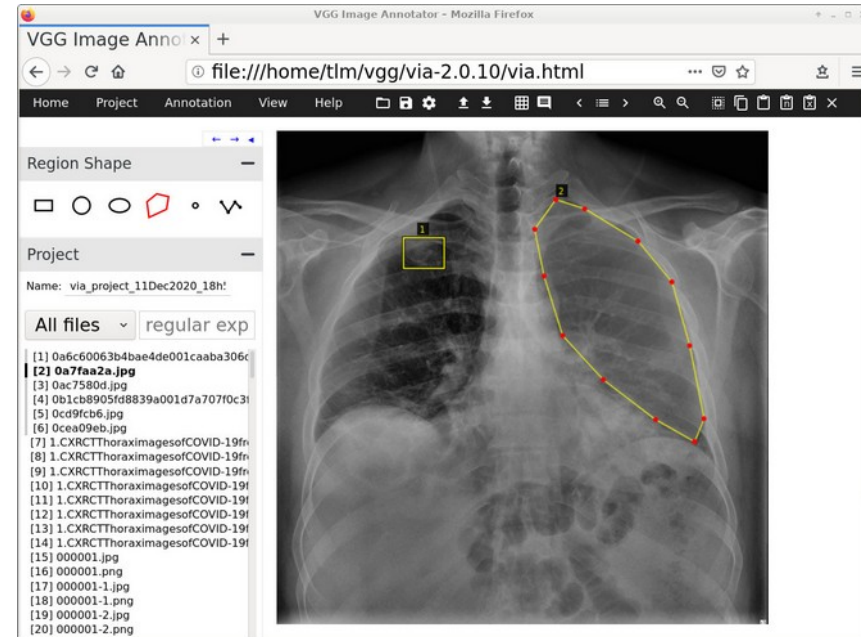


# Manual Annotation of X-ray Images

- To draw a more complex shaped region, select the **polygon** shape in the “Region Shape” panel.
- Click on the first vertex to start drawing the polygon shaped region. Click again to define the second vertex, and so on. When you reach the final vertex, press the Enter key to finish drawing the polygon region.

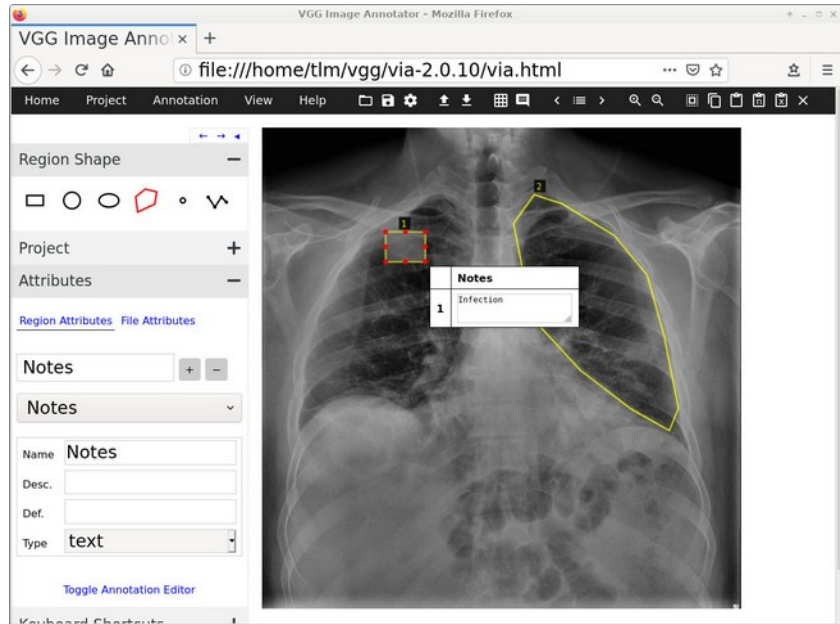
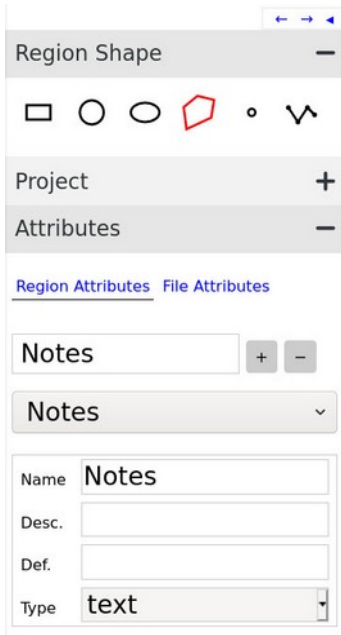
## Tips:

- If you make a mistake, press Backspace key to delete the last created vertex. You can press Escape key to cancel drawing the region.
- You can click inside any region to select it. Once you have selected a region, you can move it by pressing arrow keys, delete it by pressing the cross (x) icon in the top toolbar.



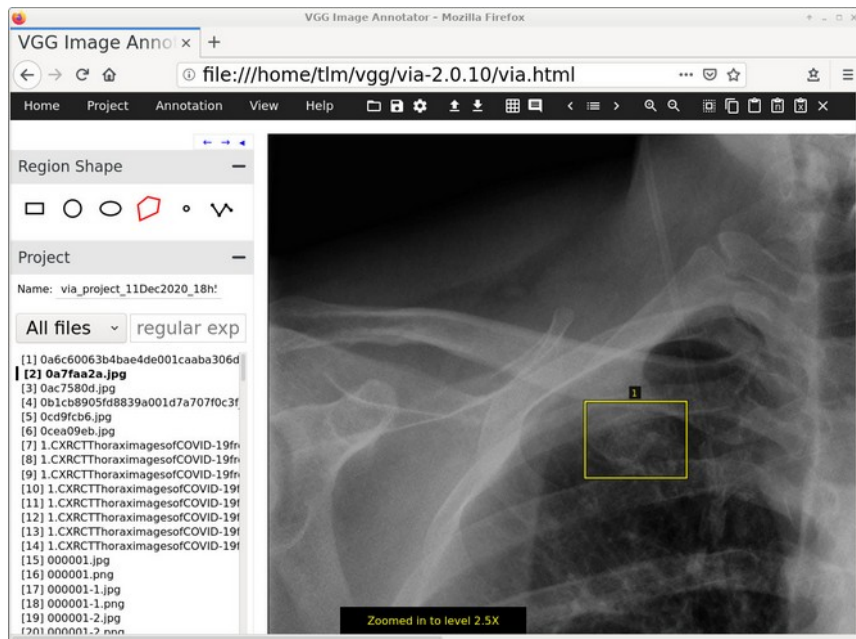
# Region Attributes

- Let us say that you want to assign a text keyword (for example, clinician's notes) to each user defined region.
- You can create an attribute called “Notes” as follows:
  - Enter “Notes” in the text input entry in the Attributes panel on the left hand side and press the “+” button to add this attribute.
  - Now you can click on a region to select it and a text input entry appears in which you can enter the notes corresponding to this region (for example: Infection)



# Zoom

- If you want to inspect finer details of the X-ray image, you can use the **Zoom** button in the top toolbar.





# Save

- Click **Project** → **Save** to save your work as a JSON file for future.
- Next time, you can continue from where you left by clicking **Project** → **Load** and pointing to the saved JSON file.
- You should frequently save your work as **you may lose all you manual annotations** if, for example, you accidentally close your web browser

# More details ...

- If you want to attach a text keyword for each region, you will have to define attributes as shown in this tutorial:
  - [https://www.robots.ox.ac.uk/~vgg/software/via/docs/creating\\_annotations.html](https://www.robots.ox.ac.uk/~vgg/software/via/docs/creating_annotations.html)
- More documentation is available in the User Guide section of the following software page:
  - <https://www.robots.ox.ac.uk/~vgg/software/via/>