

# Stack

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Each timepoint is a 3D volume (a stack).

Two example stacks. Dendritic spines (left) and vascular tubes (right).

## Overview

- Mouse wheel to scroll up and down through images, arrow keys to pan, +/- to zoom
- Image contrast is critical, open contrast bar with keyboard 'c', adjust min/max contrast with sliders.
- View a histogram with keyboard 'h'
- Closing a stack window does not remove it from memory (the stack remains open)

## Keyboard commands

Arrow keys : pan image left/right and up/down

+ : zoom in (follows mouse pointer)

- : zoom out (follows mouse pointer)

Return/Enter : view entire image

Esc : cancel selection

1 : view channel 1

2 : view channel 2

3 : view a sliding maximal z-projection of channel 1

4 : view a sliding maximal z-projection of channel 2

c : toggle contrast control bar

`h` : open histogram window  
`]` : toggle between two different window sizes  
  
`sift+c` : cycle through 4 different window 'candy' displays  
  
`shift+p` : Set pixel/voxel size  
  
`shift+?` : open the 'Point Info' window  
       Object notes can be set in the Point Info window.

### Contrast bar

- Open the contrast bar with keyboard 'c'
- Pixel intensity values below 'min' will be displayed as black
- Pixel intensity values above 'max' will be displayed as white

**Histogram** The histogram window show a histogram of pixel intensity values for each image in a stack.

- Open the histogram window with keyboard 'h'.
- The histogram window shows a pixel intensity histogram for one image.
- Scroll through the image in a stack (mouse-wheel) and the histogram for each image will be show.

**Navigation window** The navigation window opens a new window with a maximal z-projection of the stack and shows the current zoomed view as a blue square.

- Right click and select 'Navigation Window' menu. A navigation window will be opened and your current zoomed view of the stack will be shown as a blue square.
- Zoom with +/- or pan with arrow keys and the blue-square tracks what you are looking at.
- The navigation window is, by default, a maximal z-projection of the entire stack.

**Point info** The Point Info window shows information about the currently selected object.

- Open the Point Info window from any stack window using `shift+?`.
- Use the point info window to annotate either nodes or edges with notes.
- Use the point info window to annotate edges as 'diving', 'surface', 'Has Pericyte' and 'Branch Order'.

**Important**

- Contrast is critical, if not set properly you will not see objects in your image that are actually there.
- Closing a stack window does not remove the stack from memory.
- Zooming with keyboard +/- follows the mouse pointer