

K2 Napari

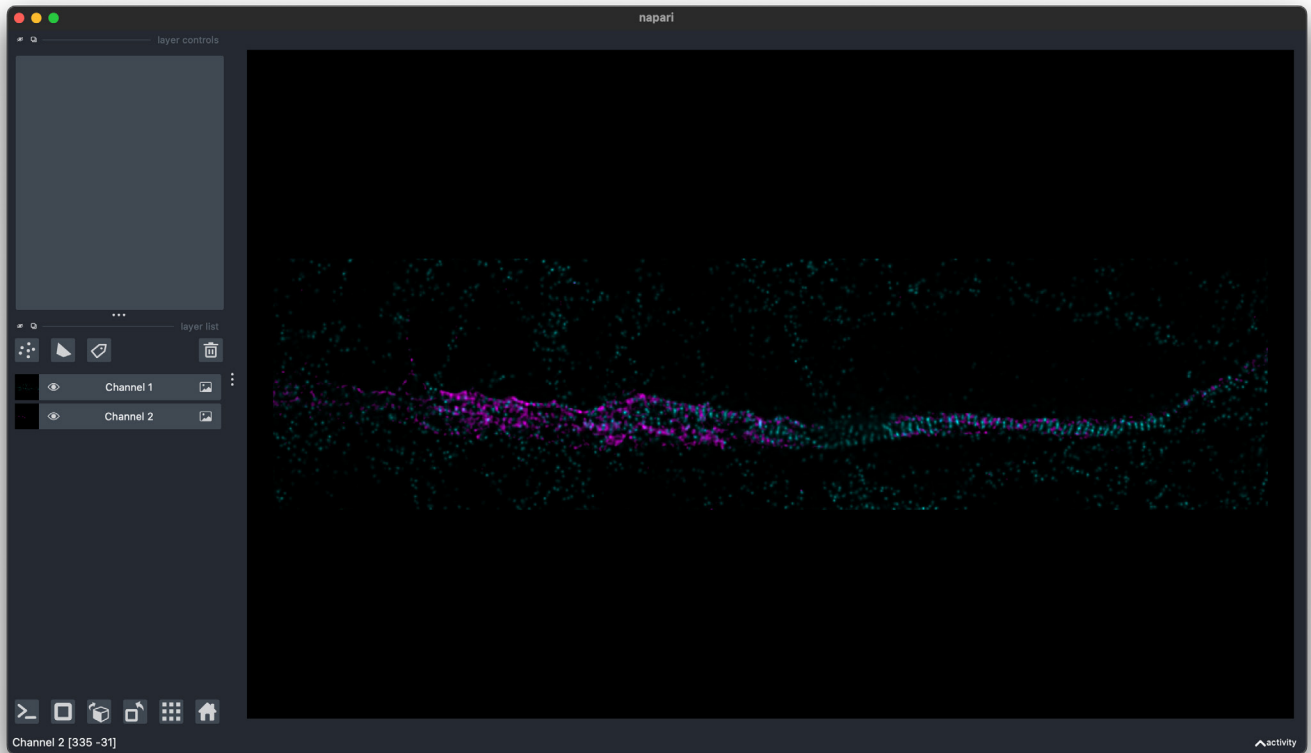
Wave Breaker

User Manual

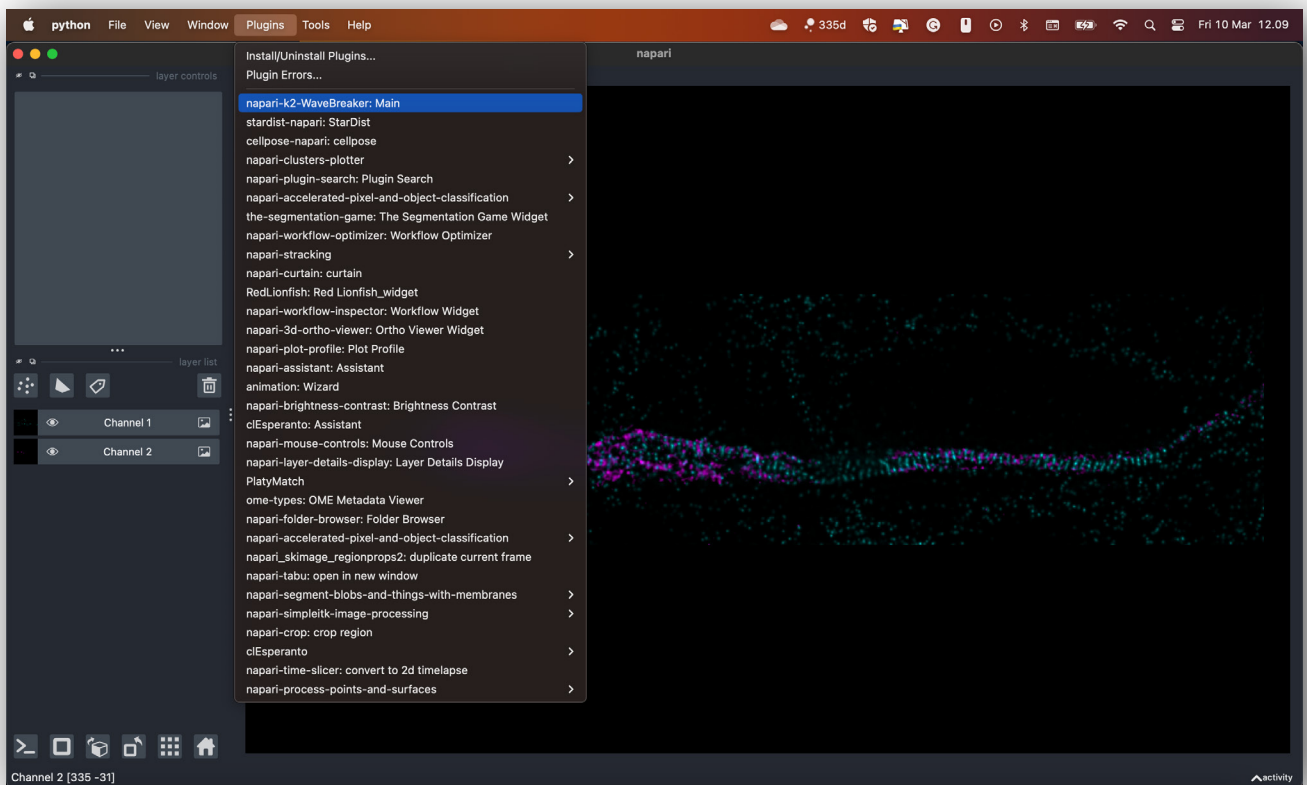


V0.2.0

Getting Started

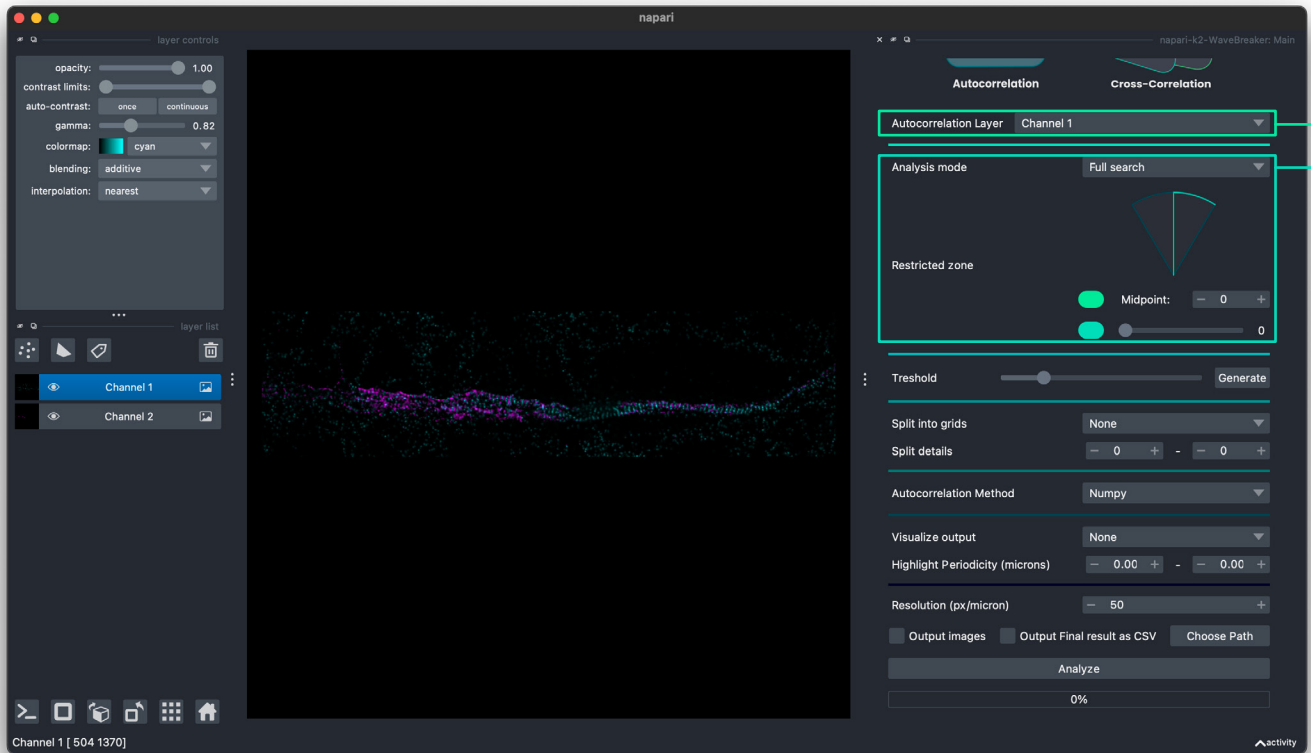


Add Images to Napari by dragging them to the main viewer window. It is currently only possible to process image types that are natively supported by Napari. importing images through aicsimageio will, in most cases, not work.



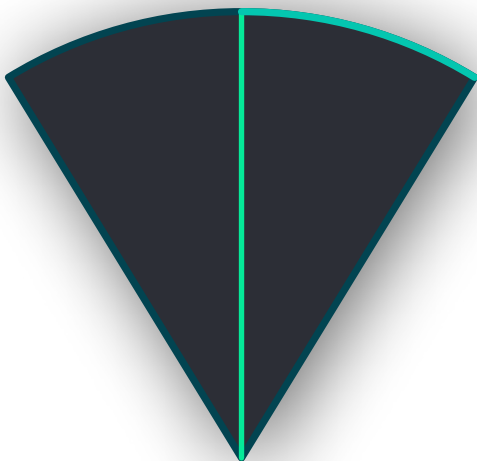
In the plugins tab, select “napari-k2-WaveBreaker: Main”

What to analyze?



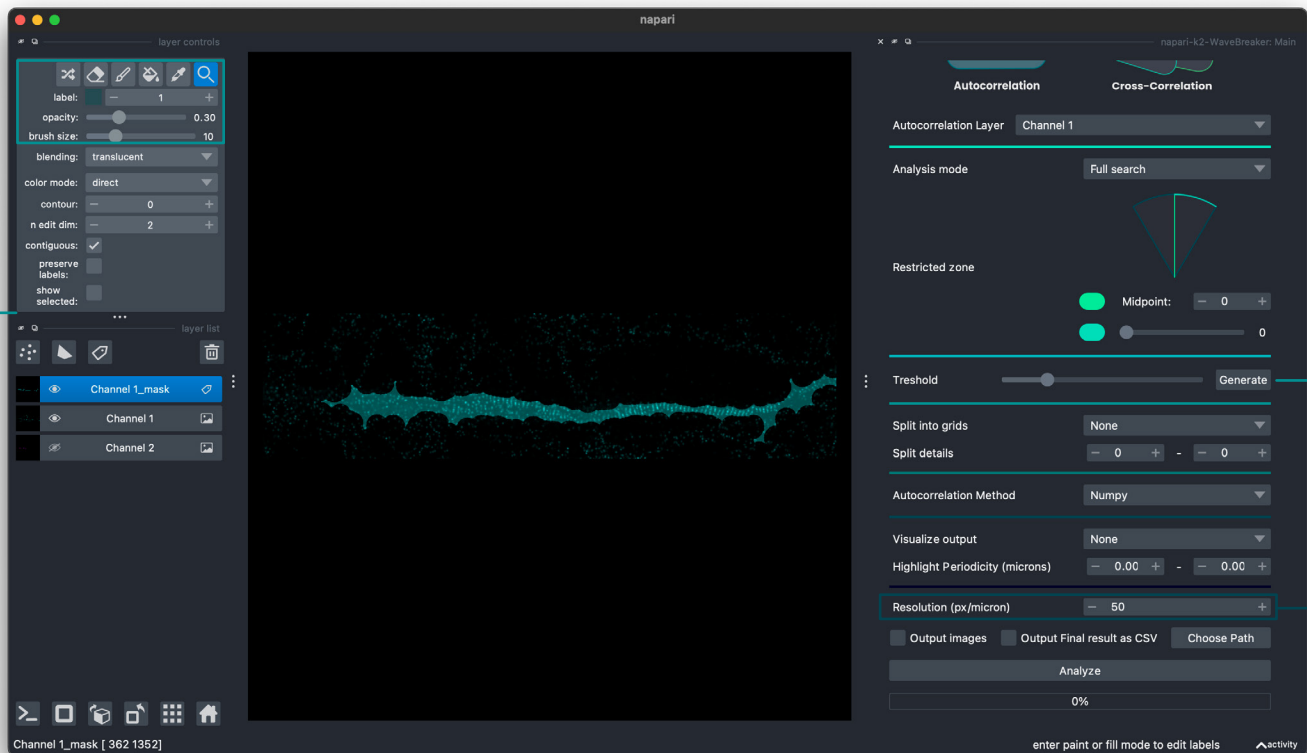
Select the layer that you want to analyze. When in cross-correlation mode, two layers should be selected (in most cases, these will be two channels originating from the same image)

Analysis can be performed in two ways. When “Full search” is selected, all possible angles will be analyzed for the determination of periodicity. On the other hand, “Restricted will allow for the limitation of the analyzed angles. This is generally advised when analyzing a relatively straight axon, as processing time will be significantly decreased.



Restriction can be done by setting the **middle angle (Midpoint)** and a **radius** around it. For example, restriction of the axon above should be done by setting its overall angle as the midpoint, in this case, 90°. Subsequently, because the axon is not completely straight, the radius should be set to an angle so all possible degrees of analysis relevant to the axon will be covered.

Thresholding & Mask editing

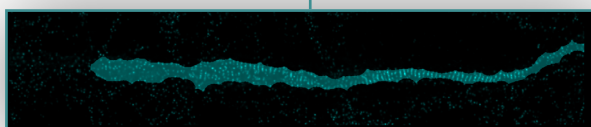


Select the layer that you want to analyze. When in cross-correlation mode, two layers should be selected (in most cases, these will be two channels originating from the same image)

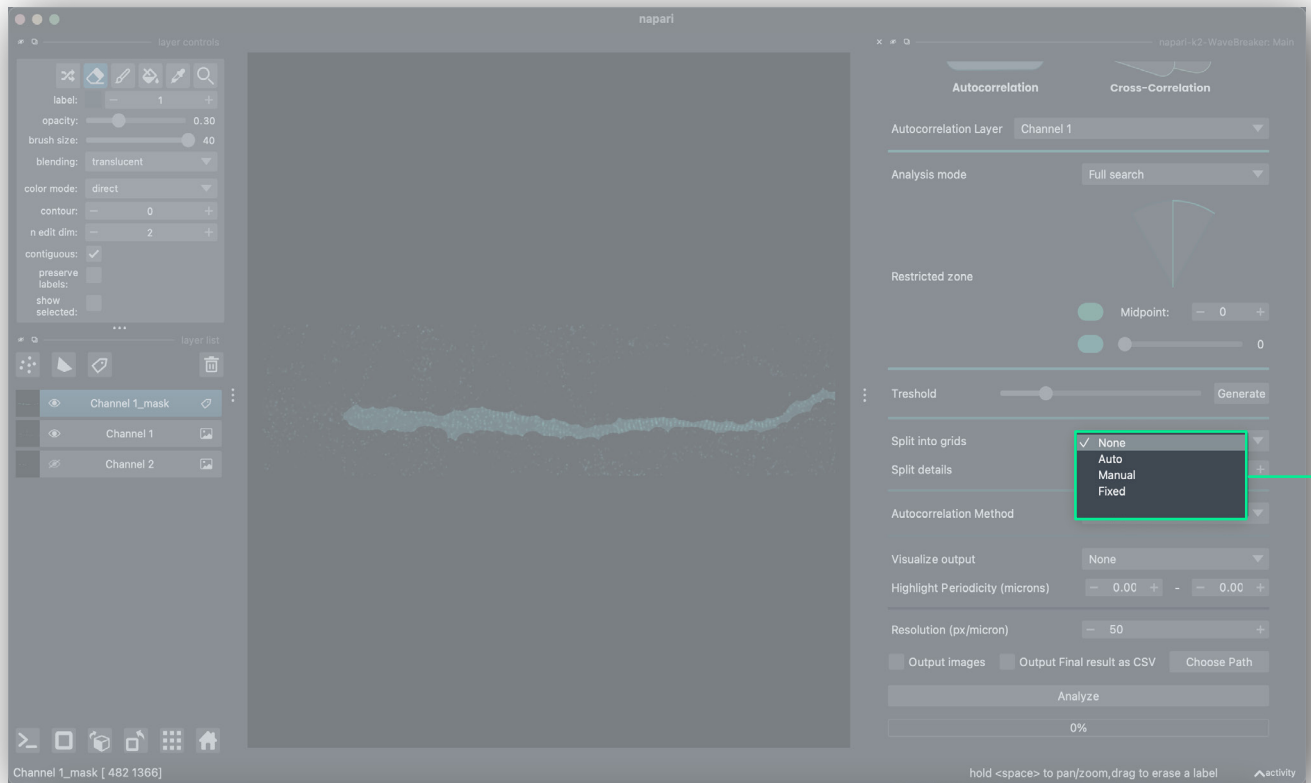
Set the image resolution (px/micron)



Because the mask has the properties of a napari labels layers, it can be edited by painting additional regions or erasing existing regions.



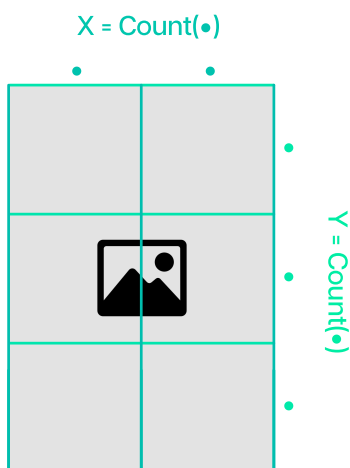
Making the Grid



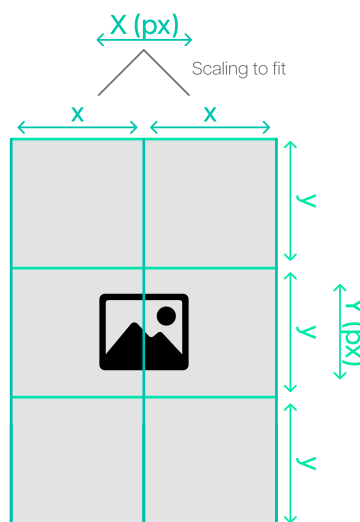
The image can be split into different grids using one of the following methods.



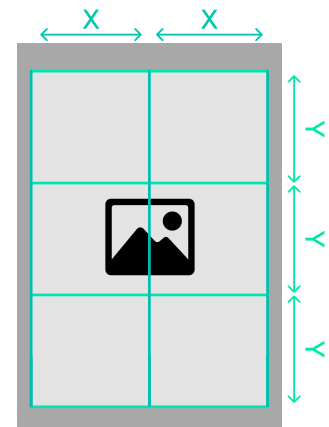
Auto



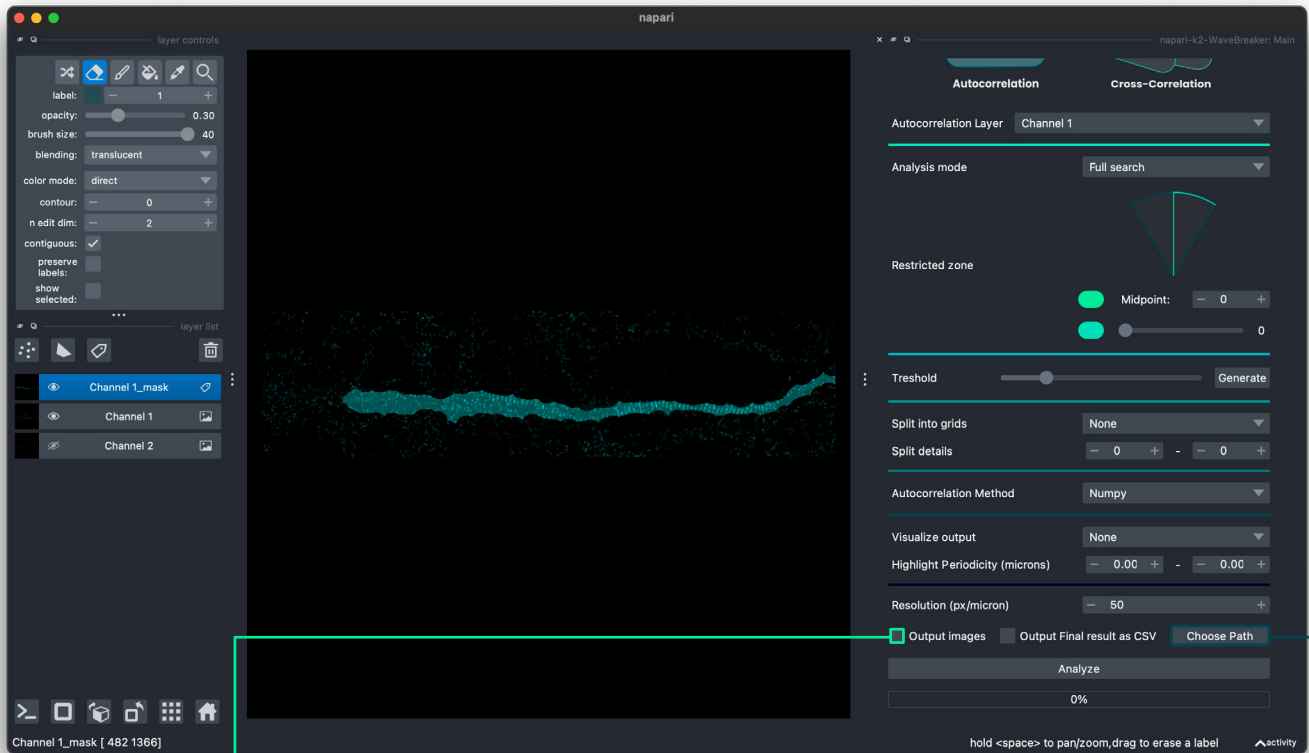
Manual



Fixed

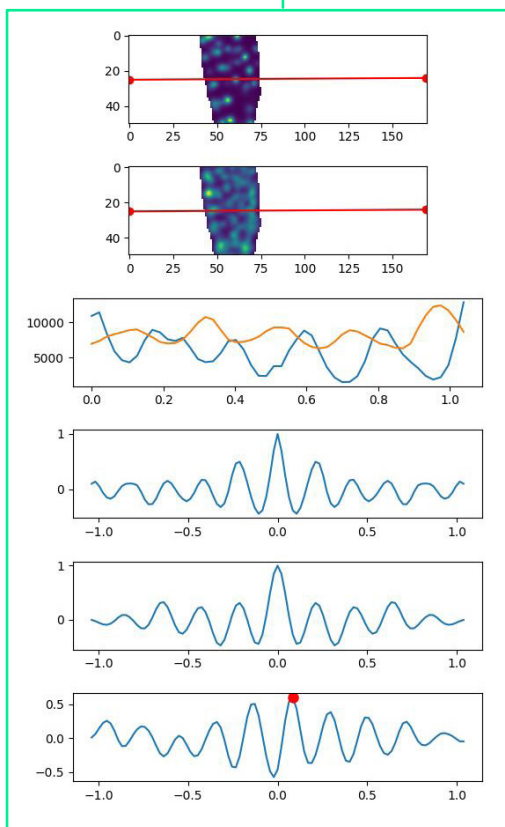


The output



Before analyzing, choose a location on your computer to save the results. WaveBreaker can output

One image will be generated for each grid. This image will contain the below information for the analyzed degree with the best autocorrelation in the autocorrelation channel.



Autocorrelation layer grid

Cross-correlation layer grid

Intensity profiles (blue represents the autocorrelation layer, orange represents the crosscorrelation layer)

Autocorrelation of the blue profile

Autocorrelation of the orange profile

Cross-correlation between the blue and the orange profile

