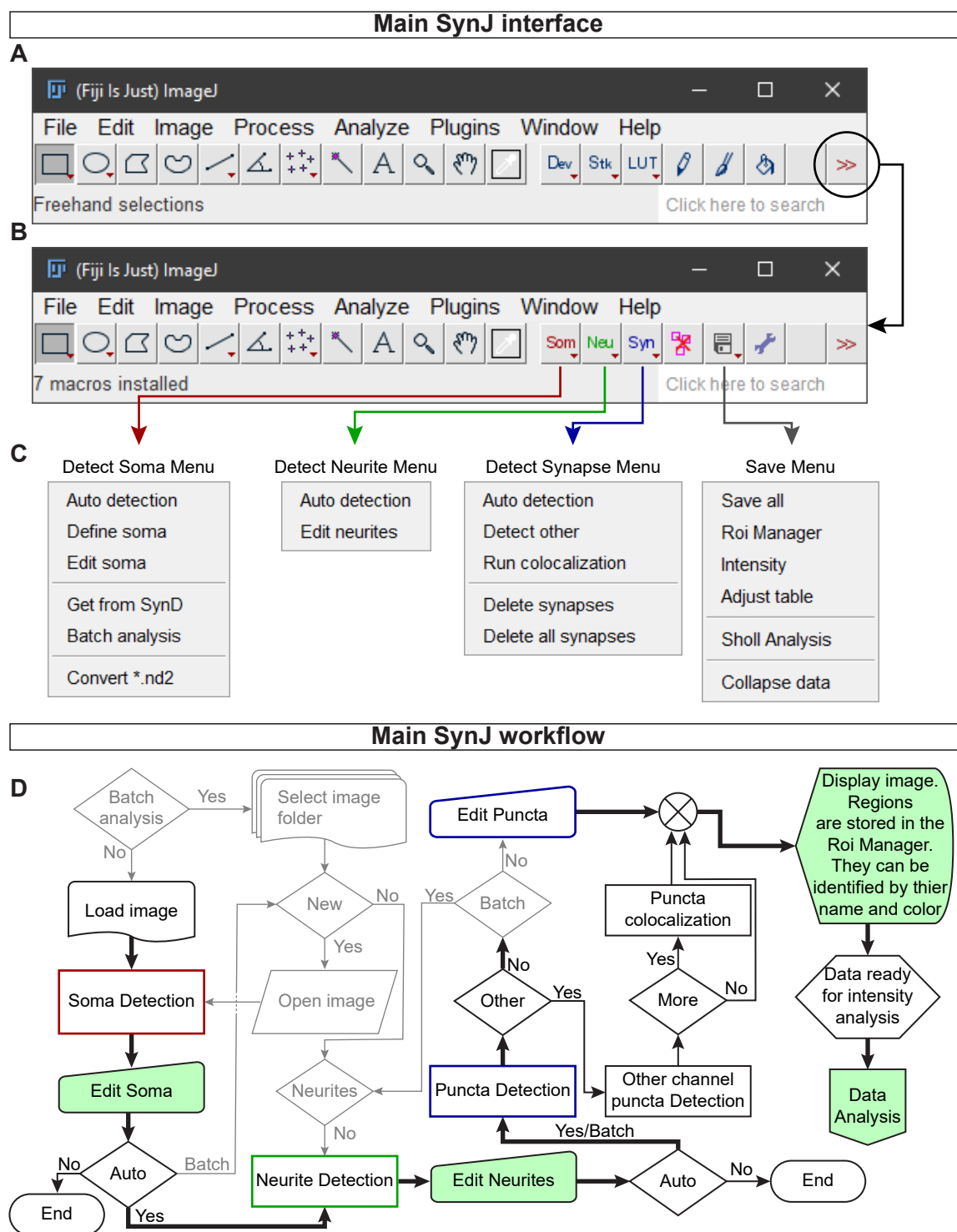


Figure 1 - Main interface and workflow

Figure 1 - Main interface and workflow



Appendix - SynJ
Figure 2 - Menu options

A

SynJ Options

Channels options

Morphology channel1

Synapse channel2

Other channel3

Soma Detection

Minimum soma radius15

Maximum soma radius20

☒ Detect one soma

Neurite Detection

Gaussian Blur sigma1

Estimate line width5

Minimum neurite length50

Synapse detection

Tophat radius4

Synapse radius4

Synapse smooth (0.1-1)0.600

Synapse threshold (std)0.500

Saving options

☒ Save in image folder?

Save asfullname

☐ Visual options

☐ Advance options

☐ Colocalization

OKCancel

B

SynJ - Colocalization

Channel to colocalize3

Post Tophat radius4

Post radius4

Post smooth (0.1-1)0.6

Post threshold (std)0.5

Colocalization parameters

Minimum area ratio for colocazion (0-1)0.3

Colocalization based onBoth

OKCancel

C

Advance SynJ Options

Advance Neurite detection

% of saturated pixel0.300

High contrast220

Low contrast50

Closing iterations2

Advance Synapse detection

Neurite padding (um)1

☐ Detect in soma?

☐ Reset parameters?

OKCancel

Appendix - SynJ

Figure 3 - Result tables

A

Result "image_name".tif:	
Region	Name of the selected ROI. For the neurites reports the number of ends in brackets.
Area	Area of the region in μm^2 . For neurites, length of the region in μm
Morphology	Intensity of the morphology channel inside the region
Synapses	Intensity of the synapse channel inside the region
Other	Intensity of the other channel inside the region

B

Results "experiment":	
CellID	Name of the image (YYMMDD_expID_csID_cellID)
Coverslip ID	Second to last argument of the title (csID above)
Experiment ID	Second argument of the title (expID above)
Group ID	Increasing number based on conditions
Soma Area	Area of the soma region in μm^2 .
Soma Morphology	Intensity of the morphology channel inside the soma
Soma Synaptic	Intensity of the synapse channel inside the soma
Soma Other	Intensity of the other channel inside the soma
Neurite Length	Length of the neurite region in μm .
Neurite Ends	Number of ends in the neurite mask
Neurite Morphology	Intensity of the morphology channel in the neurites
Neurite Synaptic	Intensity of the synapse channel in the neurites
Neurite Other	Intensity of the other channel in the neurites
Synaptic Area	Area of the synapse region in μm^2 .
Synaptic Morphology	Intensity of the morphology channel in the synapse
Synaptic Synaptic	Intensity of the synapse channel in the synapse
Synaptic Other	Intensity of the other channel in the synapse
Synapses per μm	The total number of synapses divided by the neurite length

C

Result Sholl:	
Distance	Length of the radius from the soma (in px)
Morphology(N)	Intensity of the morphology channel inside the neurite mask
Synapses(N)	Intensity of the synapse channel inside the neurite mask
Other(N)	Intensity of the other channel inside the neurite mask
Dendrite #	Number of dendritic region in the Sholl radius
Morphology(S)	Intensity of the morphology channel inside the neurite mask
Synapses(S)	Intensity of the synapse channel inside the neurite mask
Other(N)	Intensity of the other channel inside the neurite mask
Synapse #	Number of dendritic region in the Sholl radius

D

Result Colocalization:	
Region	Synapse_ID
ClosestRegion	Post_ID
CenterDistance	Distance between the two regions (in px)
Overlap	Area of the region (in px)
PreOverlap	Ratio Area(Colocalize) / Area(Synapse)
PostOverlap	Ratio Area(Colocalize) / Area(Post)
Colocalize	1(true)-0(false) based on the region