

TP - Traitement d'images

Séance 4 : Développer un plugin Napari

Metuarea Herearii - LARIS, Université d'Angers

Master 2 Data Science, Université d'Angers

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Plan de la séance

Développer des outils click-boutons pour faciliter la prise en main des algorithmes de traitement d'images

TP

TP Noté

Développer des algorithmes de traitement d'images : de la programmation et des maths



The CO logo consists of two overlapping circles, one orange and one yellow, with the letters 'CO' in white inside each circle.



The JupyterLab logo features the word 'jupyterlab' in a lowercase sans-serif font, with a small 'TNG' in superscript. It is surrounded by three dark grey dots and a light grey elliptical ring.

S2 (Weighted Loss) Unet_segmentation_notebook.ipynb ☆

Fichier Modifier Affichage Insérer Exécution Outils Aide Dernière modification effectuée le 27 juillet

+ Code + Texte

Split train data into train and validation

```
[ ] from sklearn.model_selection import train_test_split
      x_train, x_val, y_train, y_val = train_test_split(X_train, Y_train, test_size=0.2, random_state=42) #text_
[ ] print('Train data shape is:',x_train.shape)

print('validation data shape is:',x_val.shape)
```

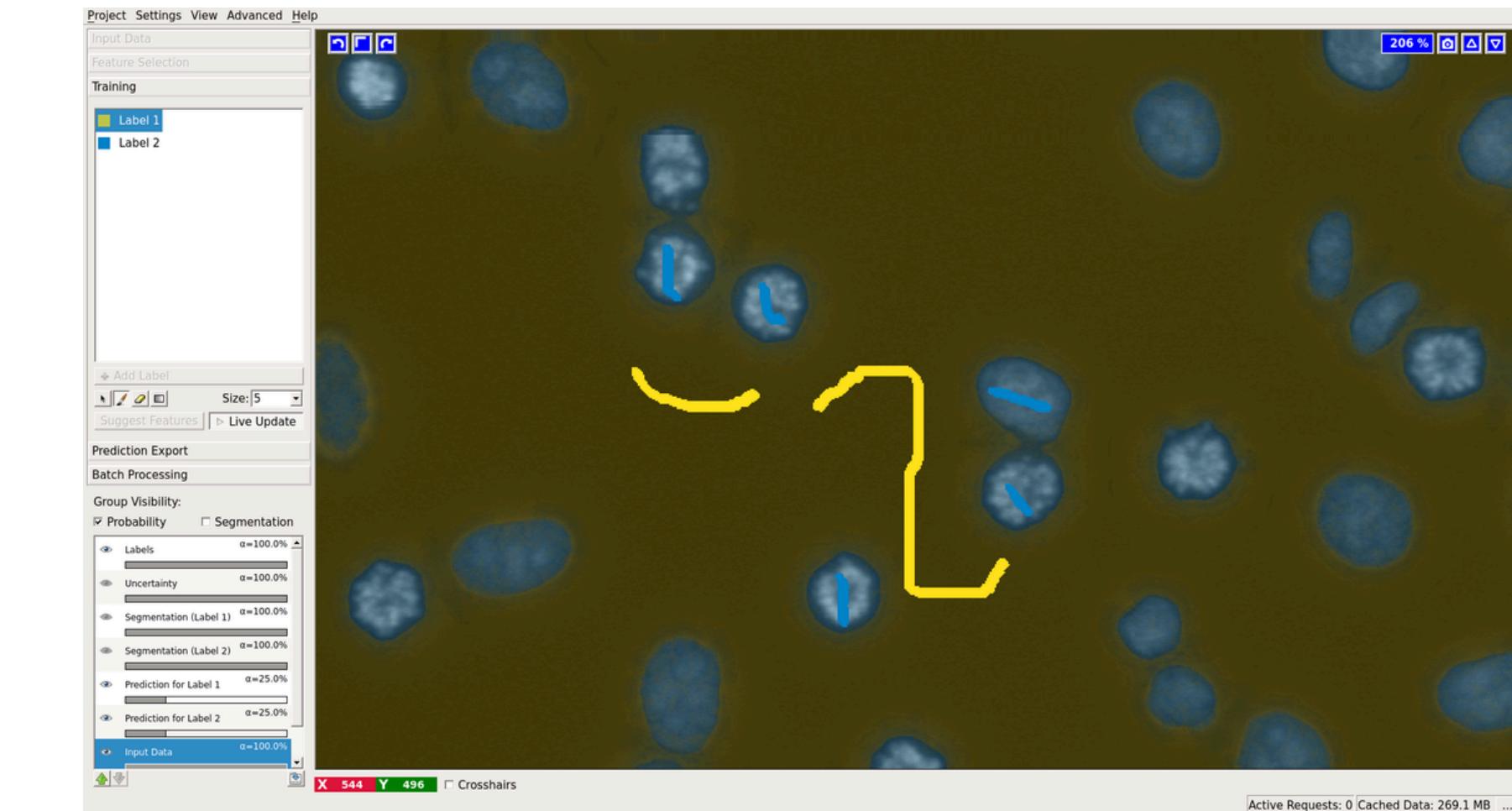
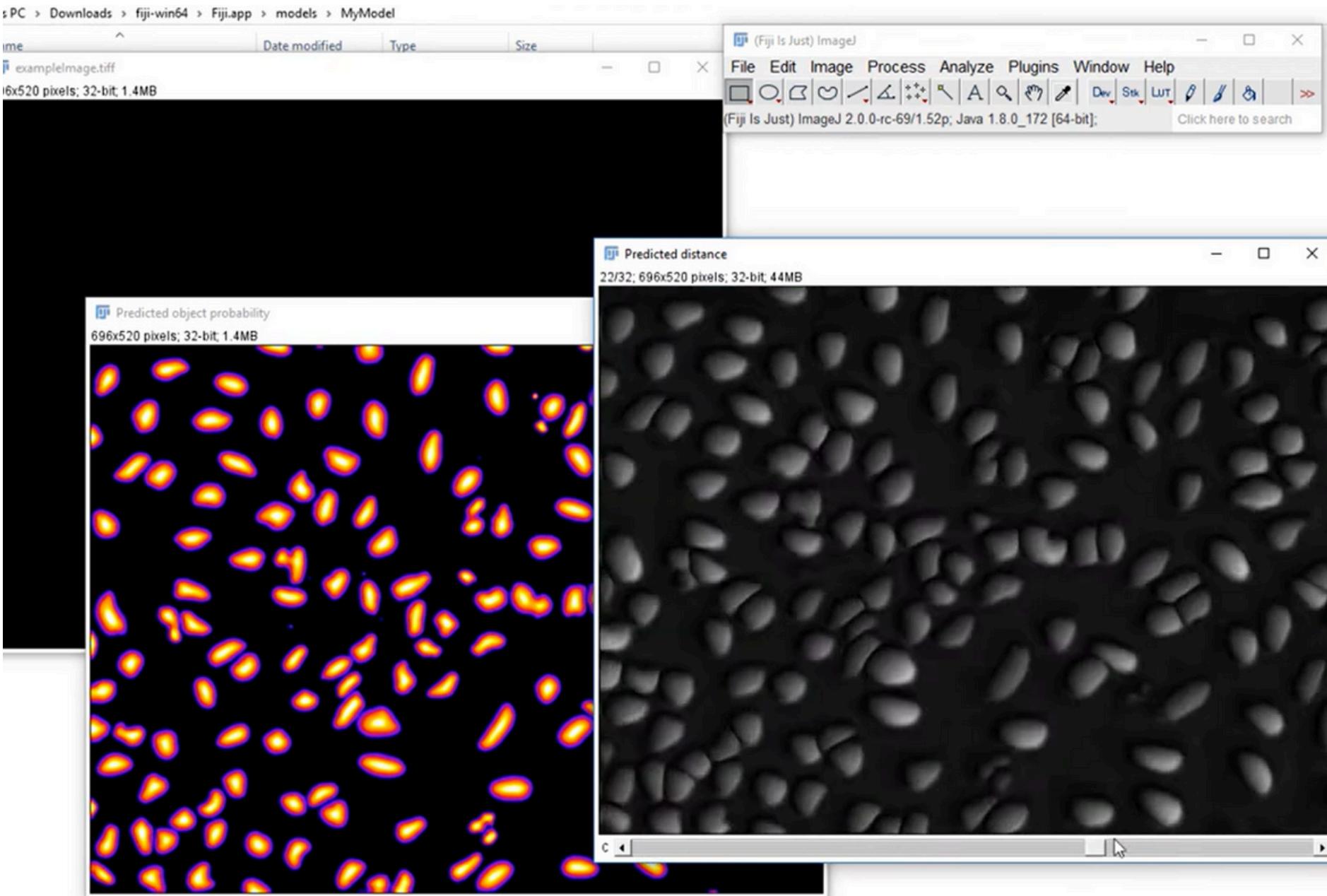
Train data shape is: (32, 256, 256, 3)
validation data shape is: (8, 256, 256, 3)

```
[ ] # Fiting the model
      results = model.fit(x_train, y_train,
                           validation_data=(x_val,y_val),
                           batch_size=2, epochs=50,
                           callbacks=[early_stop,Model_check])
```

Epoch 11/50
16/16 [=====] - ETA: 0s - loss: 5.5026e-04 - dice_coefficient: 0.2432
Epoch 11: val_loss improved from 0.00069 to 0.00065, saving model to /content/gdrive/My Drive/data/best_mo
16/16 [=====] - 1s 44ms/step - loss: 5.5026e-04 - dice_coefficient: 0.2432 - val_

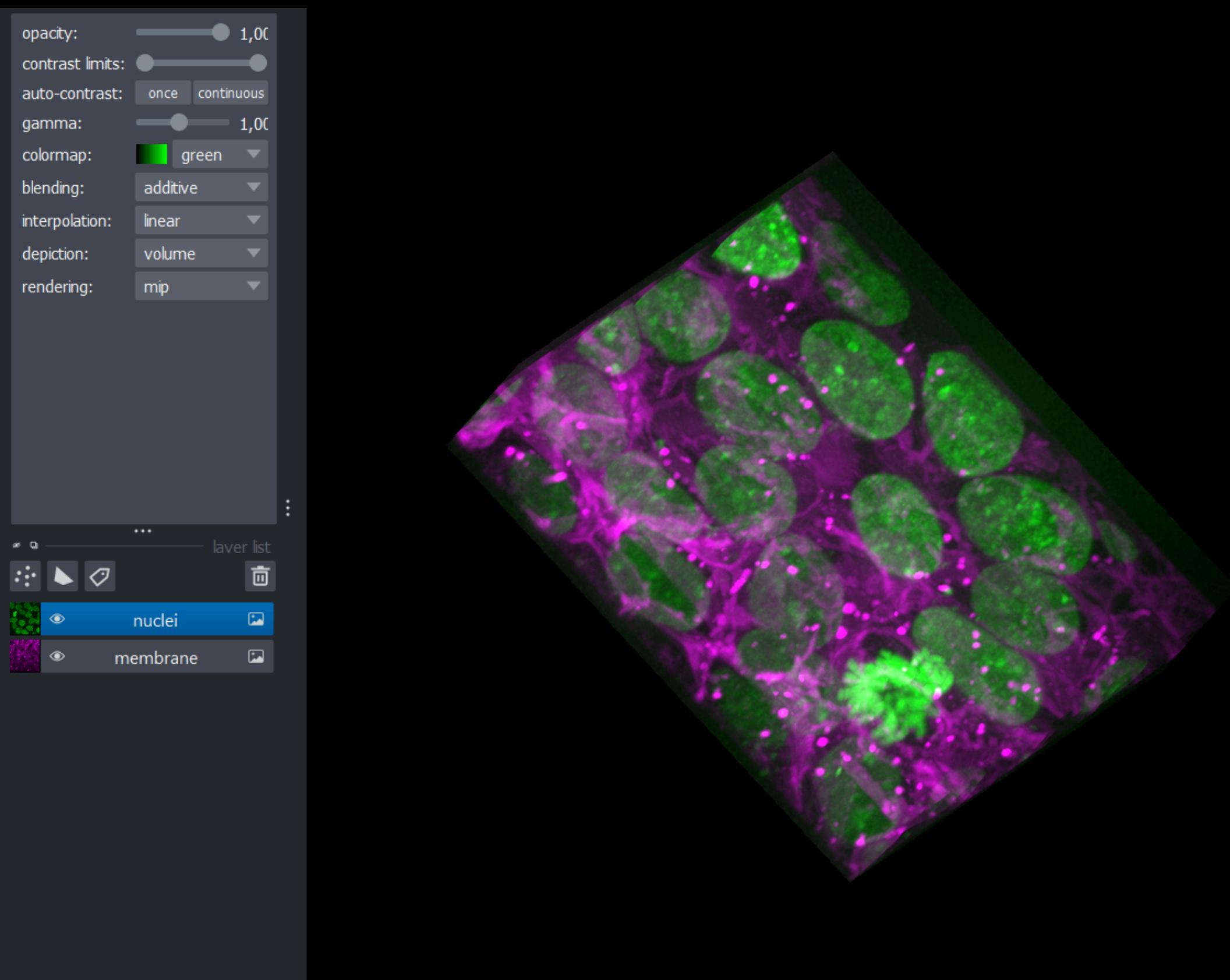
Epoch 12/50

Ouvrir la prise en main à tous : outils click-bouton





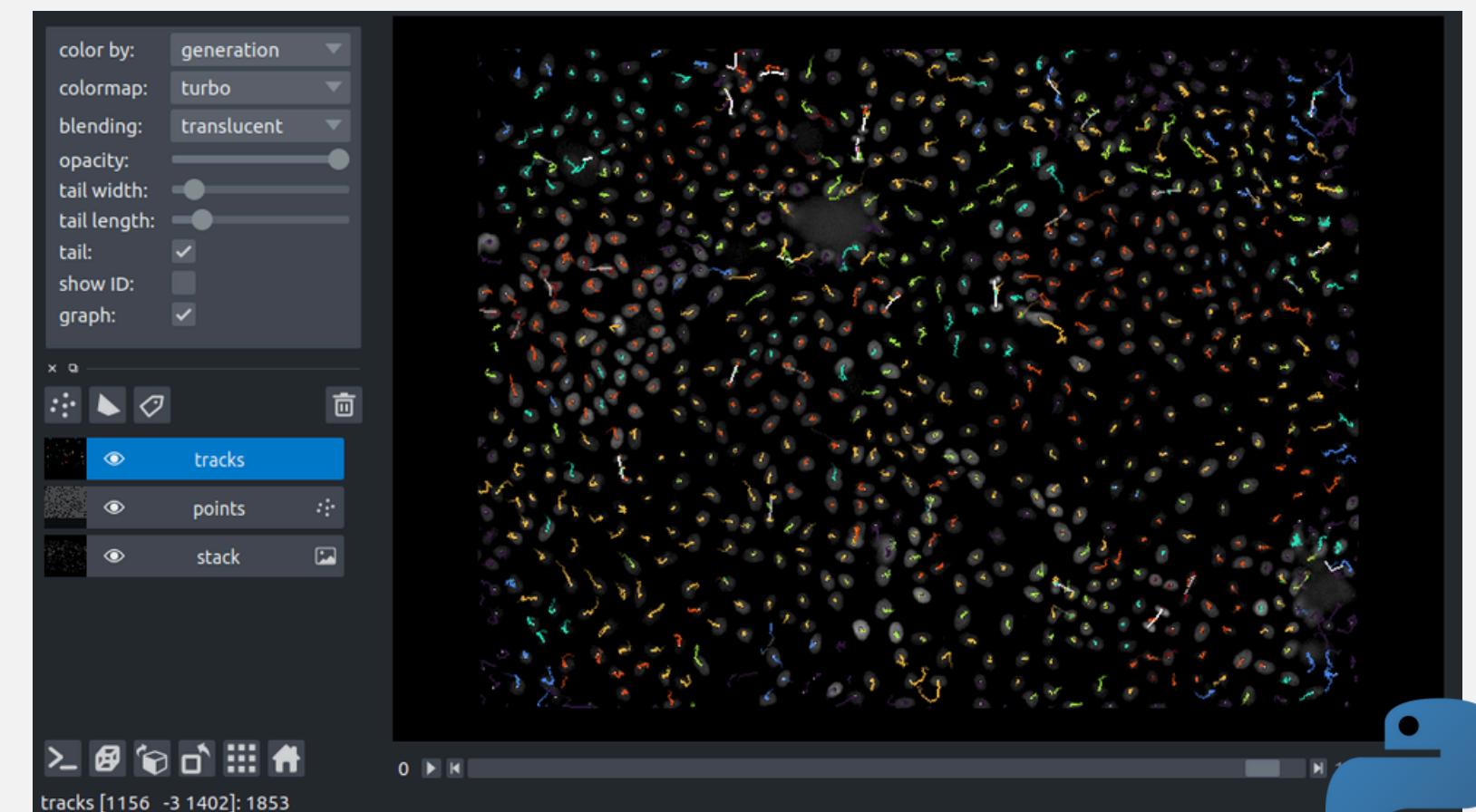
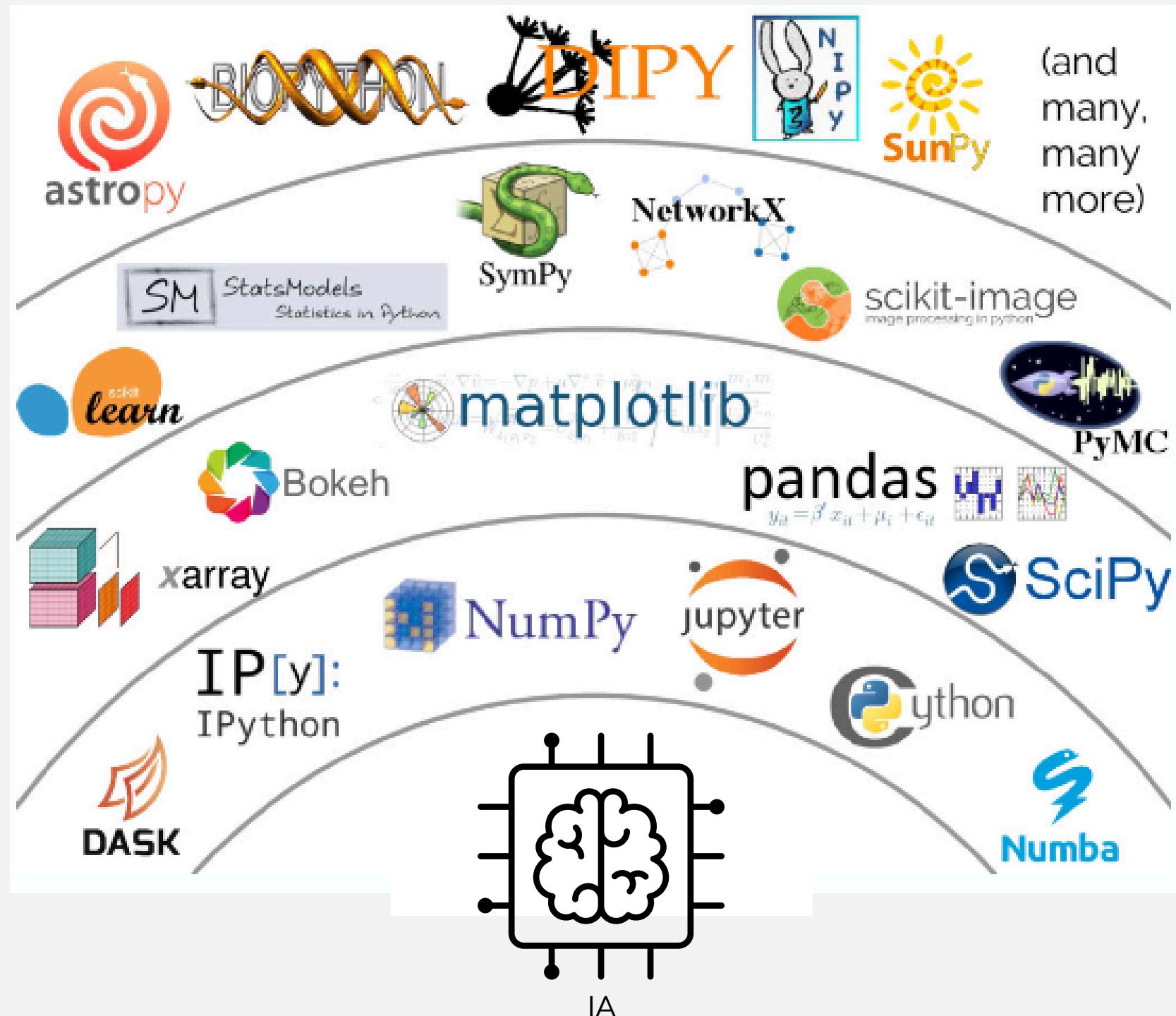
napari



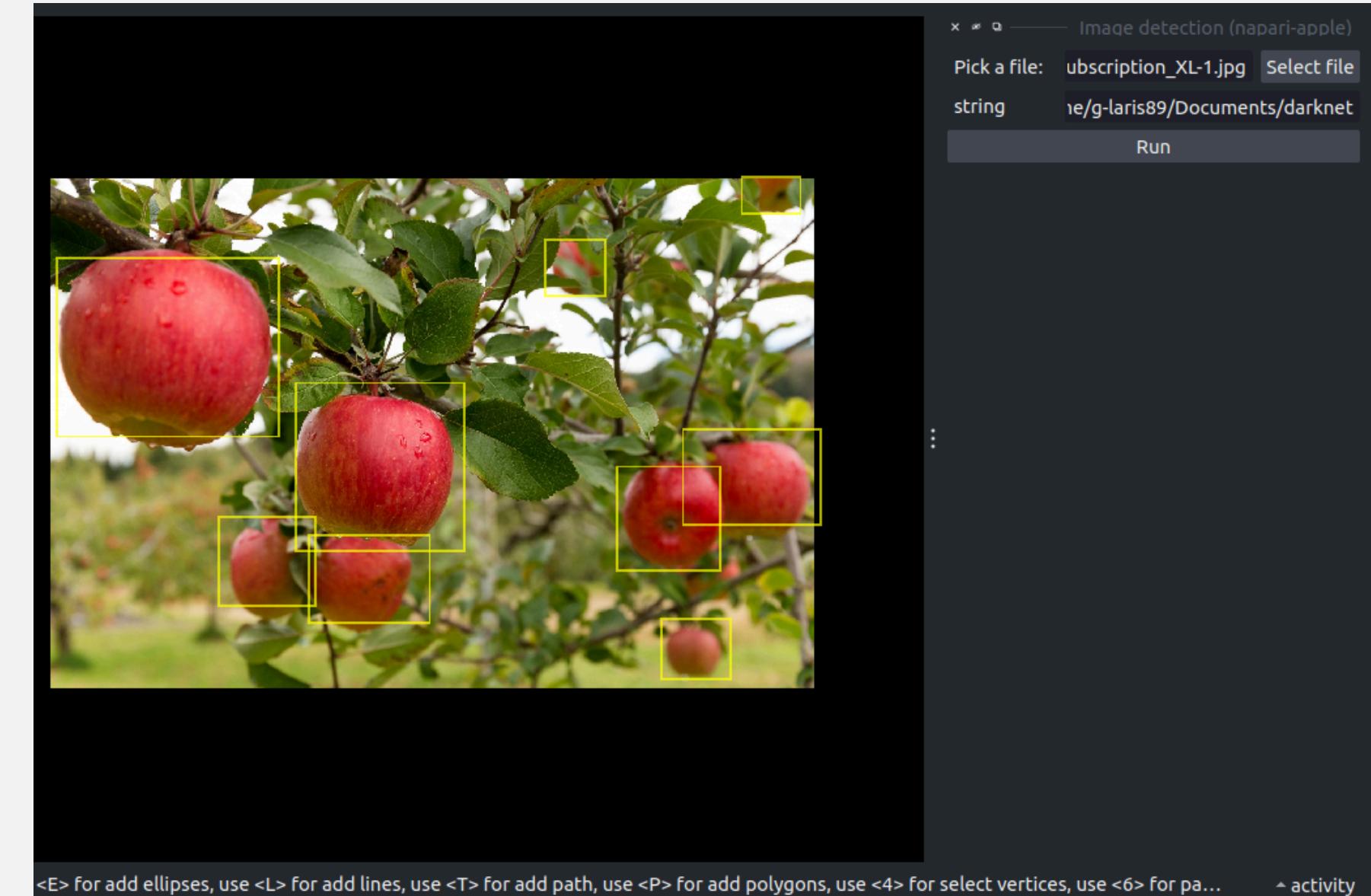
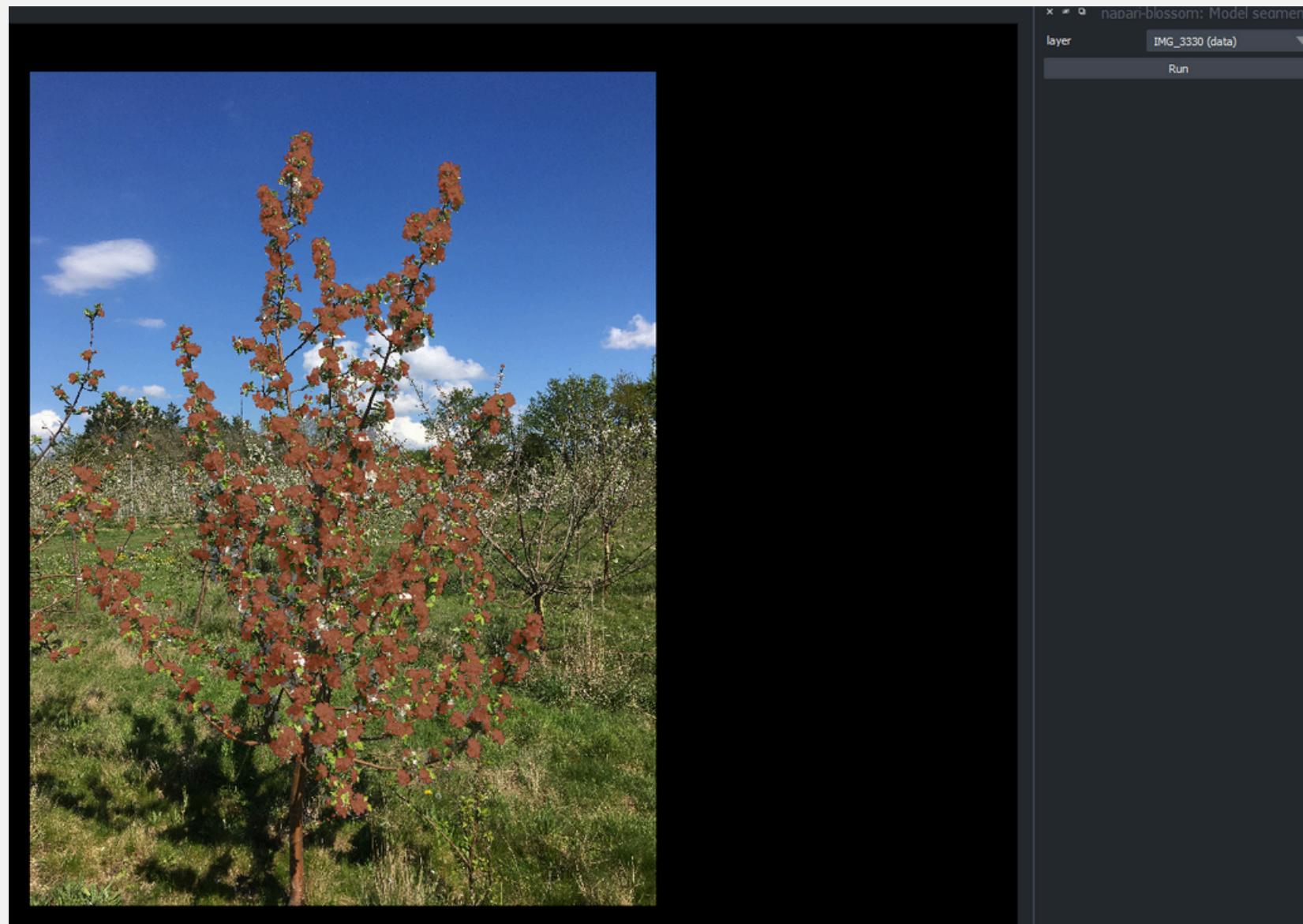
Help scientist to access Python's scientific ecosystem, with no prior coding experience

Multi-dimensional data viewer in Python
open-source, community-developed

Process large data and run Deep Learning (DL) model



Inférence de modèle développé sous Python



Dans ce TP

Exercice 0

Installation de Napari

Exercice 1

Création d'un plugin

Exercice 2

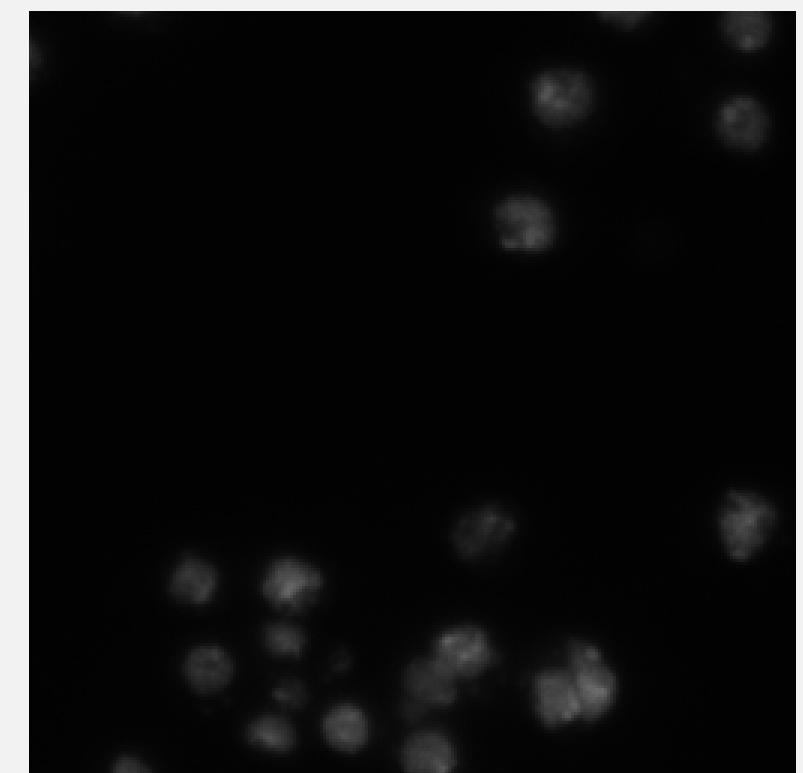
Création d'un widget pour implémenter un script de segmentation d'image avec seuillage

Exercice 3

Création d'un widget pour implémenter un script de segmentation d'image avec modèle deep learning



Segmentation de la surface foliaire



Segmentation de cellule