

Workshop 6: Power hour on AI tools

Contacts

MIB/Matlab/BAND:

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Empanada/BAND:

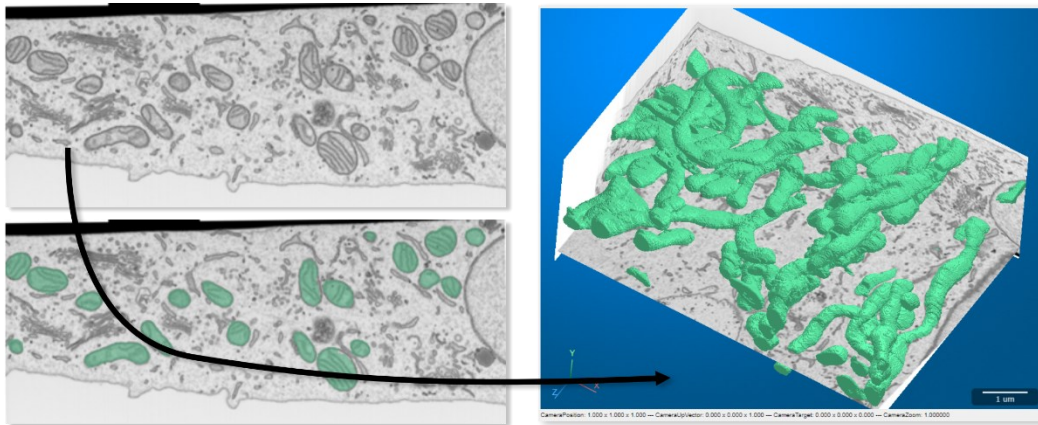
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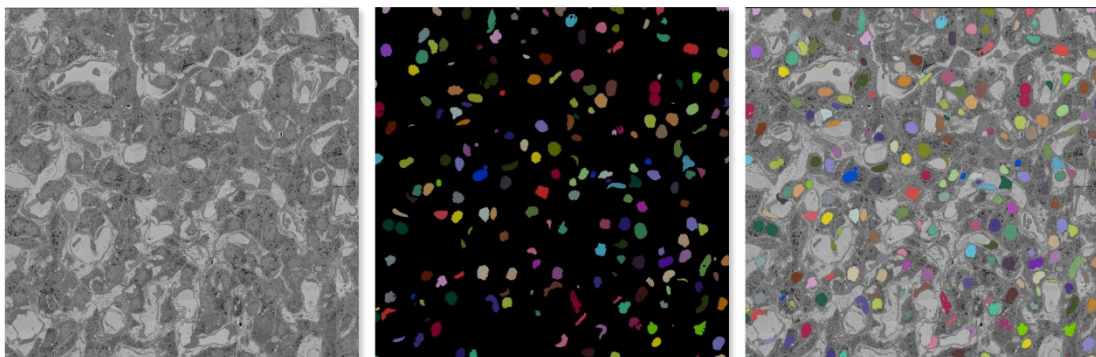
Feel free to contact us in case of problems and issues related to the following instructions.

Description

In the first part of the workshop, we will explore the use of the Microscopy Image Browser (MIB, <https://mib.helsinki.fi>) to employ deep learning for the segmentation of mitochondria in a FIB-SEM dataset. Within 45 minutes, we will use the 'segment-anything' tool to generate ground truth labels, which we will later use to train a convolutional neural network for the segmentation of mitochondria.



In the second part of the workshop, we will explore a napari plugin called empanada, which enables users to create, train, fine-tune, and run inference for DL models on vEM data for segmentation tasks. empanada also allows quick proofreading (corrections such as split/merge errors, filtering by size etc). Attendees will be walked through some of these modules with test AT and FIB-SEM datasets. Documentation for empanada v1.1 is here (we guarantee you it's detailed and easy to follow): <https://empanada.readthedocs.io/en/latest/index.html>



The demonstration is supported by the EMBL Bioimage Analysis Desktop (BAND) Platform and will be performed on remote virtual machines available to workshop participants.

Prerequisites and requirements

Please do these instructions before the workshop!

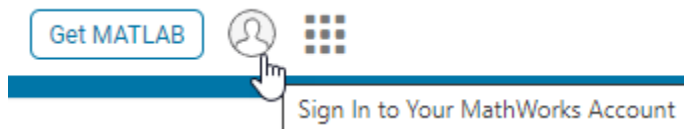
Notebook. Bring your own notebook, preferably with a mouse to the workshop. You will use it to log in to BAND: <https://band.embl.de>. As number of virtual machines is limited, be prepared to work in pairs.

Login test to BAND. Open <https://band.embl.de> in a browser and log in using either Gmail or the university account (LSLOGIN). *****It may take several minutes to create a new account, so please do this before the workshop session starts!*****

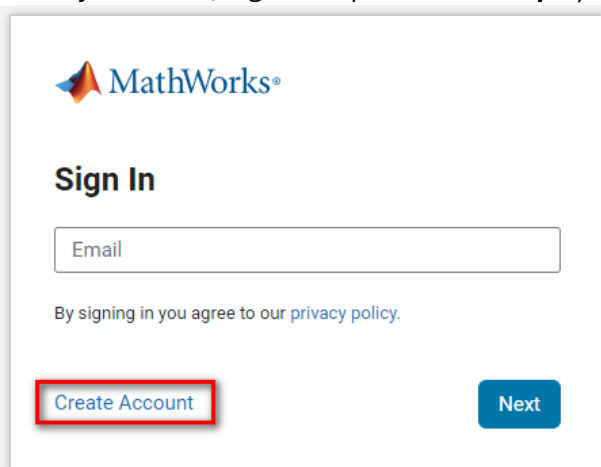
empanada. empanada is open source and is available to download from the plugin list of napari; it can easily be installed from the link here at your leisure <https://empanada.readthedocs.io/en/latest/index.html>. You do NOT need to have this installed for the workshop, as you will be working off of instances running on BAND.

MathWorks account. MIB is an open-source software available as Matlab code (which requires a Matlab license) and as a standalone application. For the workshop, we will use the Matlab installation available on BAND. MIB is fully configured for the workshop, but *****you will need to activate a Matlab license prior to the workshop to ensure smooth operation*****.


1. Open MathWorks website (<https://www.mathworks.com>) in a browser.
2. Click on the account icon in the upper-right corner:



3. If you do not have an account at mathworks.com, choose “**Create Account**” (If you already have one, log in and proceed to **step 7**).

A screenshot of the MathWorks 'Sign In' page. At the top left is the MathWorks logo. Below it is the heading 'Sign In'. There is an input field for 'Email'. Below the input field is the text 'By signing in you agree to our [privacy policy](#).' At the bottom left is a blue button labeled 'Create Account' which is highlighted with a red rectangular box. To its right is a blue button labeled 'Next'.

4. Since you may already have a Matlab license via your home university, it is recommended to use your university email address for account creation:




Create Account

Email

i To access your organization's MATLAB license, use your work or university email.

This site is protected by reCAPTCHA and the Google [Privacy Policy](#) and [Terms of Service](#) apply.

- After typing your email, you will be directed to the internal login system.
- Complete the registration process by filling in your details.



yasir.asghar@helsinki.fi

Create a MathWorks Account

We just need a little more info to set up your account.

First Name

Last Name

Location




Department

What describes your role?

I accept the [Online Service Agreement](#)

- Add a license reserved for the workshop by clicking this link: <https://www.mathworks.com/licensecenter/classroom/4358506>
(You do not need to Access MATLAB Online)

The workshop license is now linked to your profile, and you can check it from your account:

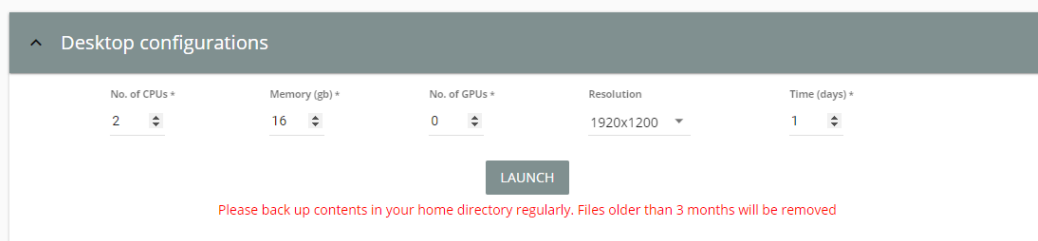




- My Account**
- My Community Profile
- Link License
- Sign Out

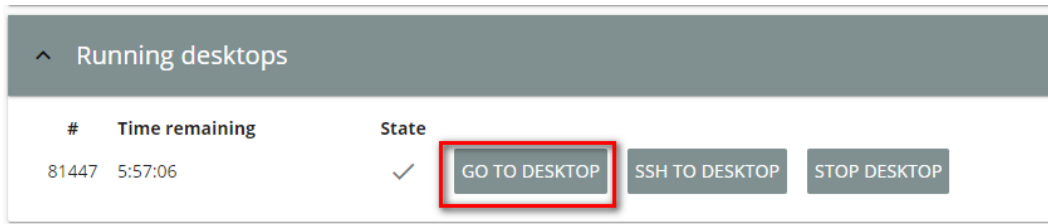
License	Label	Option	Use
12047913	4358506	Total Headcount	Event Support

Test Matlab and Connection to BAND

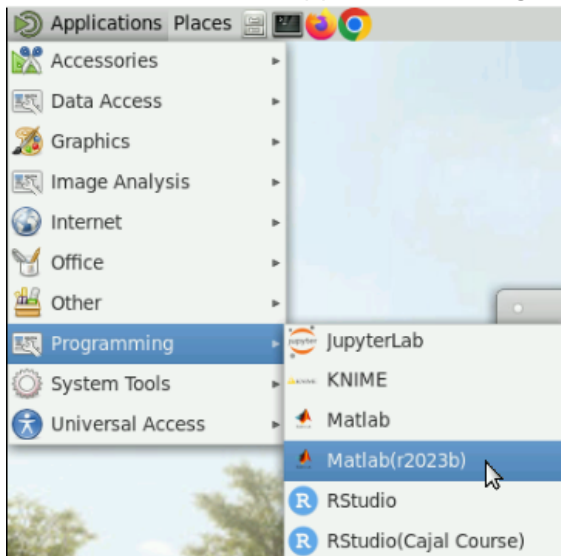
- Connect to BAND (<https://band.embl.de>) using a web browser
- Login and Launch a desktop



- Hit the GO TO DESKTOP button to open the launched desktop in another tab of your browser



- Start MATLAB from Applications->Programming->Matlab(r2023b)



- Use the same email as during creation of an account at MathWorks to start MATLAB
- After testing please stop desktop to release resources to other users:

