Introduction to QuPath

You before this workshop

You after this workshop

Download the course materials

https://drive.google.com/drive/folders/1d75blbKTOtHpqw5olvx8ryktxSeeui9O?usp=drive_link
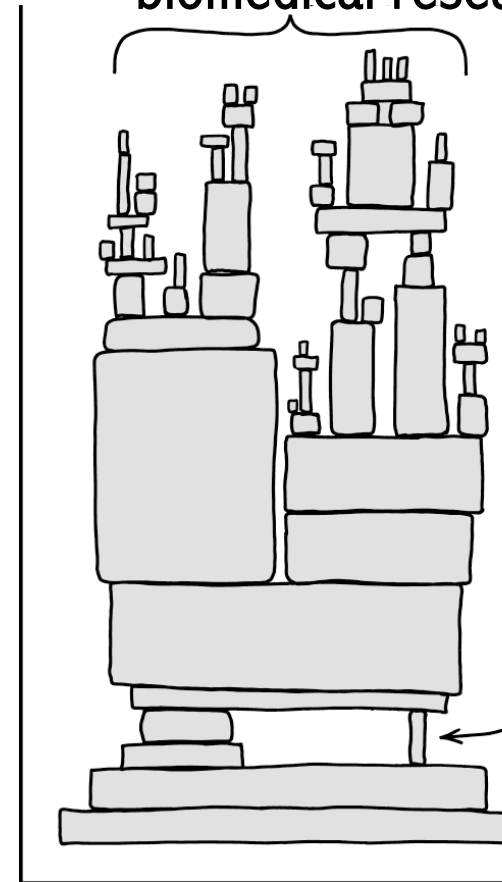
What is QuPath?

QuPath is an open-source software for bioimage analysis

- Developed and maintained by Pete Bankhead and his team at the University of Edinburgh

Key features:

1. Performant when working with very large 2D images, like those produced by slide scanner

2. Extremely well maintained

The world's most complex biomedical research

The open-source image analysis software **Pete Bankhead** has been thanklessly developing in the UK since 2016
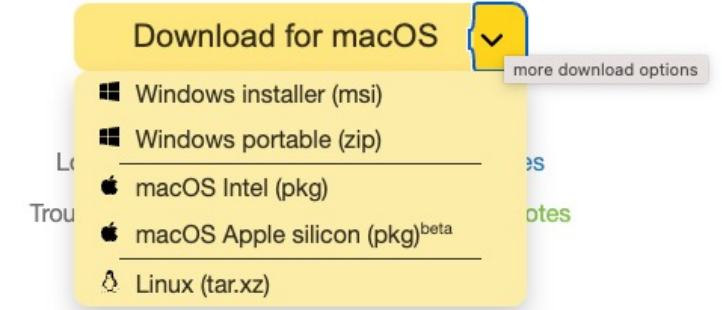
Adapted from https://xkcd.com/2347/

What is QuPath good at?

- It has a nice graphical user interface (GUI)
- It was designed to handle very large 2D images
- It supports common image analysis tasks: segmentation, annotation, feature analysis, and classification
- It support extensive visualization options
- It integrates with many other existing tools (Stardist, ImageJ, …)
- It support scripting (Groovy, akin to Java)

What is QuPath **<u>not</u>** good at?

- Limited to 2D images
    - Only supports the visualization of single planes
- Does not support all file format (e.g. zarr/NGFF)

Installing Qupath

Download for macOS

- Windows installer (msi)
- Windows portable (zip)
- macOS Intel (pkg)
- macOS Apple silicon (pkg)^{beta}
- Linux (tar.xz)

more download options

INSTALL.SH

```
#!/bin/bash

pip install "$1" &
easy_install "$1" &
brew install "$1" &
npm install "$1" &
yum install "$1" & dnf install "$1" &
docker run "$1" &
pkg install "$1" &
apt-get install "$1" &
sudo apt-get install "$1" &
steamcmd +app_update "$1" validate &
git clone https://github.com/"$1"/"$1" &
cd "$1";./configure;make;make install &
curl "$1" | bash &
```
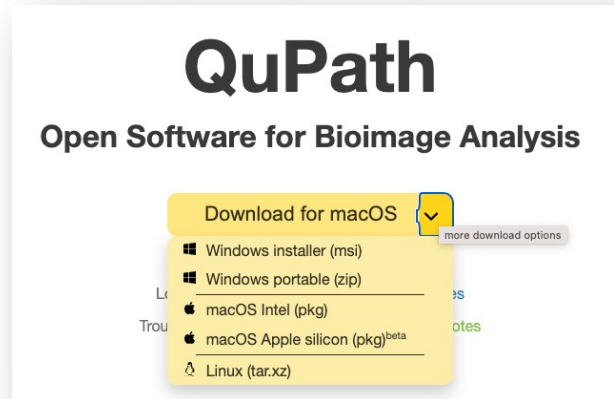
https://xkcd.com/1654/

Download QuPath

1. Go to https://qupath.github.io/

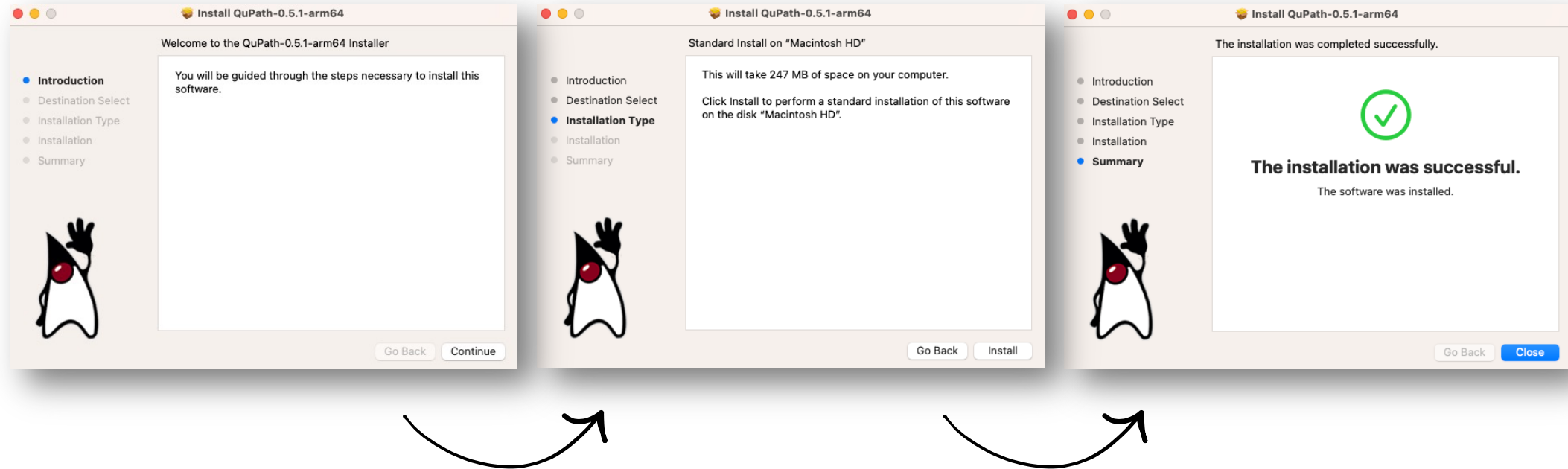2. Download the installer for the latest version
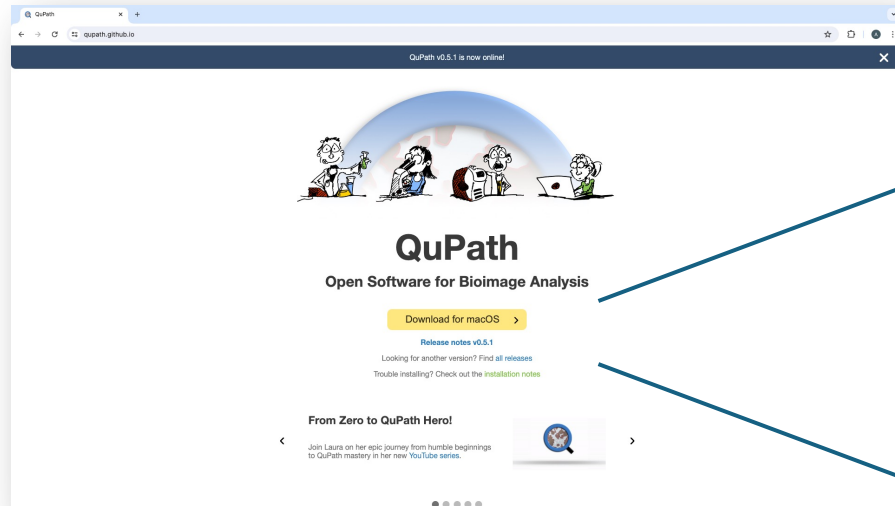
3. Choose your OS

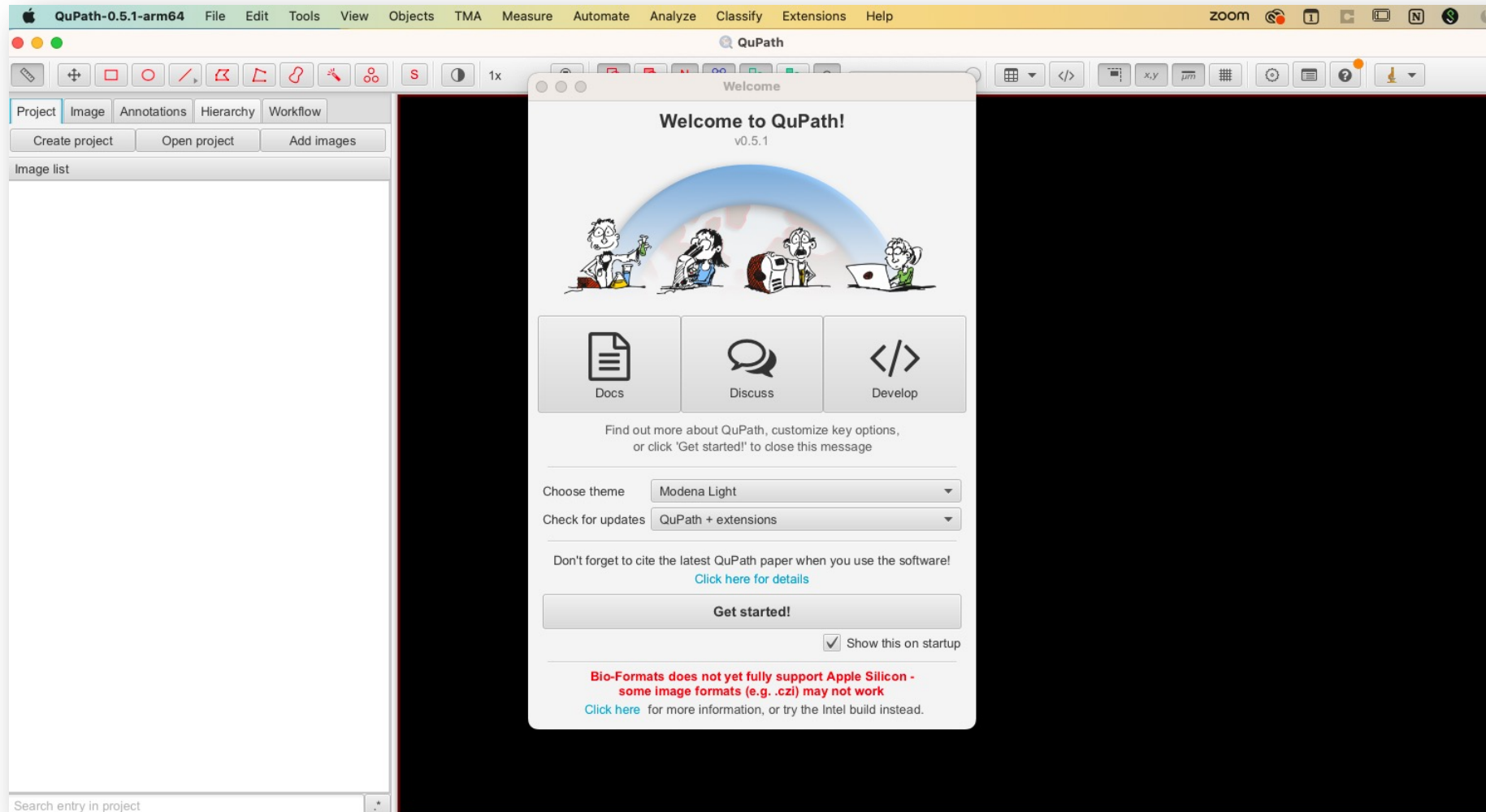

4. Right-click on the installer file > Open > Confirm Open

Download QuPath
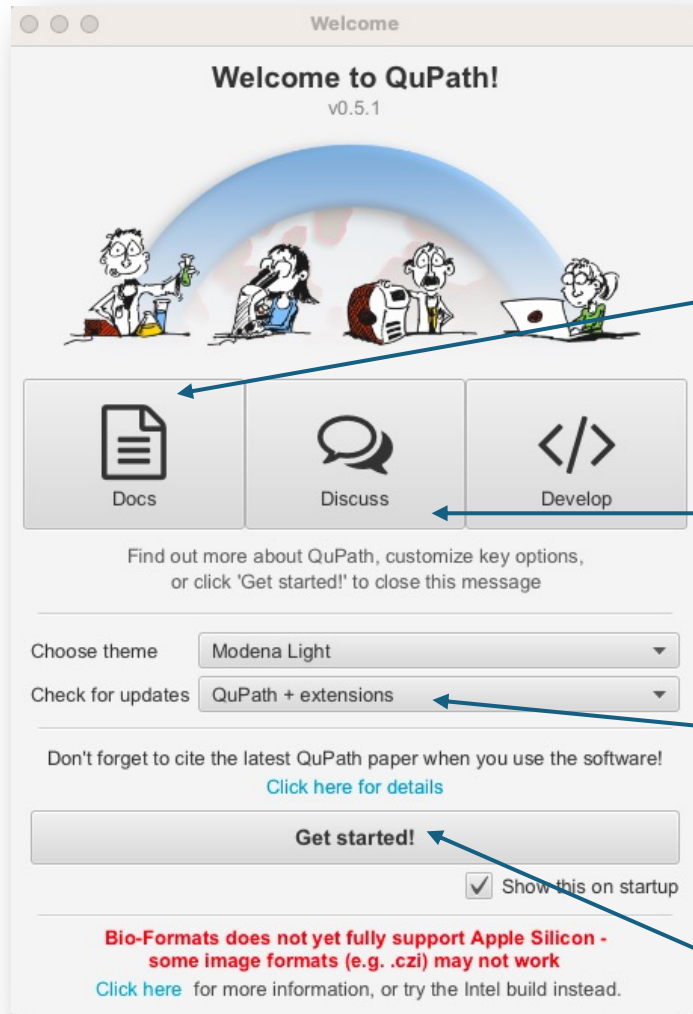
Follow the steps of the installer

Open the QuPath application

Welcome to QuPath!
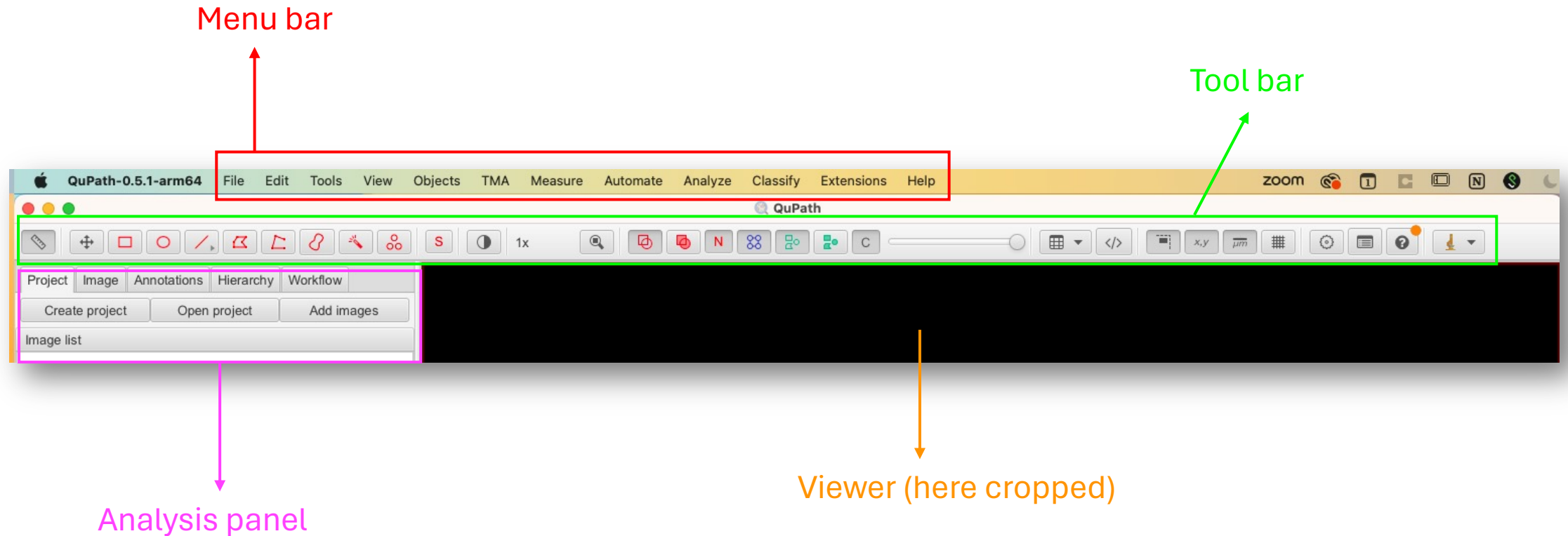

Useful resources:

Documentation:
https://qupath.readthedocs.io/en/0.5/

QuPath-speficic place in 'The Forum':
https://forum.image.sc/tag/qupath

Updater

For now, let's get started

Graphic User Interface (GUI) – intro

Menu bar

Tool bar

Analysis panel

Viewer (here cropped)

Getting help

- In-app documentation: Help menu
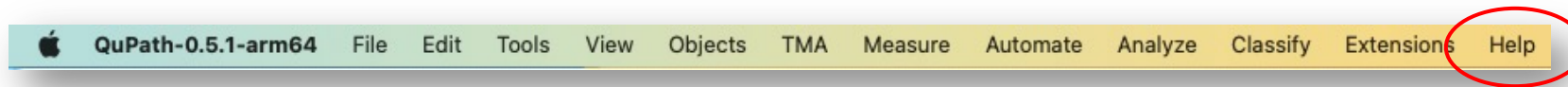
- During this workshop, ask questions to your neighbors, the TA's and me!