Installing YOLOv8 environment on macOS with Apple Silicon (MPS) GPU:

1. Install Anaconda with Homebrew (https://brew.sh).

   a. If you need to install brew first the homebrew page above covers the following one-line install method.

```
> /bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/HEAD/install.s
h)"
```

   b. When brew finishes it will prompt with the following next steps to add brew to the PATH:

```
> (echo; echo 'eval "$(/opt/homebrew/bin/brew shellenv)"') >>
/Users/rdzur/.bash_profile

> eval "$(/opt/homebrew/bin/brew shellenv)"
```

   c. At this point, you should be able to run brew commands such as:

```
> brew info

> brew doctor
```

   d. And brew install anaconda should now be possible for installation and wget (for data download).

```
> brew install --cask anaconda

> brew install wget
```

   e. If zsh is the default shell, the following commands will be required to add anaconda to the PATH or if the default shell is bash then add the PATH to .bash_profile.

```
> echo 'export PATH="/opt/homebrew/anaconda3/bin:$PATH"' >>
~/.zshrc

> source ~/.zshrc
```

   Or

```
> echo 'export PATH="/opt/homebrew/anaconda3/bin:$PATH"' >>
~/.bash_profile

> source ~/.bash_profile
```

   f. Anaconda commands should be available such as:

```
> conda list env
> conda init
```

g. Close the terminal (shell) and reopen to see the base environment activated.

2. Use the terminal prompt on macOS to set up a new environment for YOLO with dependencies. And then activate that environment.

   a. Navigate to github repository with yaml and click code and copy link. For example:

```
> cd /Users/<account>/Documents
> git clone https://github.com/rdzur/ncsu-workshop.git
> cd /Users/<account>/Documents/ncsu-workshop
```

   b. It may be useful to check the ownership of the ~/.conda directory and set the ownership to the current <account>

```
> sudo chown -R <account> .conda
```

   c. An environment file (environment.yml) can be used to create the necessary environment packages. In the example below the named environment is called “tem-env” and can be changed to whatever name may be desired.

```
> conda env create -n tem-env --file environment.yml -y
> conda activate tem-env
> conda list -n tem-env | grep numpy
```

   d. Check the numpy version if it is 2x it may be wise to uninstall and install an older version which may be more compatible with other library dependencies.

```
> pip uninstall numpy
> pip install numpy==1.26.4
```

e. The next two libraries are necessary for data preparation and prediction tasks.

```
> pip install ultralytics

> pip install rvt-py

> pip install fiona laspy[lazrs,laszip]
```

3. Test the environment

```
> python3

>> import rvt.default
>> import ultralytics
```