**Getting Visual Plankton to run…**

1. Download Visual Plankton from <http://www.whoi.edu/main/vpr/?id=1007>

The link is in the box labeled “Files” on the right hand side

1. Extract plgui folder and subfolders to a directory of choice, which you will access from MATLAB
2. In Matlab, find the “plgui” folder, right click, and hover over add to path… and click selected “folders and subfolders
3. Type in “plmaingui” in matlab command window. The Visual Plankton Gui will appear. Briefly explore the different steps used for data extraction, building the classifier, image classification, and plotting. Read the help sections for each. Note that steps 1 and 2 are done in Autodeck.
4. To build the classifier, create the following directories:

C:/data/cruise\_X/rois/vprX/dXXX/hXX

C:/data/cruise\_X/trrois/vprX/dXXX/hXX/taxa\_ids

Cruise\_X is the cruise id : e.g., IML2018051

vprX is the vpr tow number, ascending from 0: e.g., vpr0

dXXX is the Julian Day: e.g., d365 is the last day of the year

hXX is the hour within the day: e.g, h24 is the last hour of the day. There may be multiple hours

dXXX and hXX are provided in the autodeck image extraction

taxa\_ids represents at least 2 folders with images (at least 100?) of confirmed taxa used to build the image classifier in Visual Plankton

The directories must be created as specified, as Visual Plankton is sensitive to them directory names

1. Make the following small changes to the code

**“PLtrain.m”**

Line 6: Uncomment this line

**“extridsize.m”:**

Line 31: change ‘PCWIN’ to ‘PCWIN64’. Type ‘computer’ into the command window and make sure it matches ‘PCWIN64’

Line 98: change the path name if necessary (if there is no external drive), from ‘E:/’ to any path. Images are will be temporarily stored in this directory.

Enter the following code on the line above eval([comd\_str, ramfile]); :

cd path,

where “path” is the full path to the “sbin” subfolder within “plgui”. This tells MATLAB to look in the “sbin” folder immediately before executing the eval function, which seems to be required for the program to run properly.

1. Modify batch file in “sbin” folder, “pbin\_dos.bat”. Right click on the file, click edit, then update the path so that it is correct. It currently things that the “plgui” folder is on the C drive, although this is not necessarily the case. If you change the name of the batch file, make sure to update this on line 32 of “extridsize.m”
2. In the Visual Plankton GUI, select “Step 3: Train the computer” and press Apply
3. A new window will appear. Click “Build Classifier”.
4. A new window will appear asking for a base path. Enter the path, C:/data/cruise\_X/trrois/vprX/dXXX/hXX from step 5.
5. A new window will appear tabulating the images from each hour from the VPR tow of interest. In this window CTL + click on the upper two rows, select the min and max number of images to process (say, 100 for now), enter a name for the classifier, and “Build Classifier”. Go to the Matlab command window, where you should see the progress of the imaging processing.

**SVM component**

Support Vector Machine (SVM) is a classification method that can be used in addition to the Neural Network. However, in the files mexSVMtrain and mexSVMclass do not work in recent versions of MATLAB. A solution is to download the latest SVM software from: <https://www.csie.ntu.edu.tw/~cjlin/libsvm/>. A compiler can be used to create new MEX (Matlab executable) files to run the software in Matlab.

The new software appears to be very similar to the older version but requires a few changes:

\*Check line 30 in extracplbinchas2r.m to see if you made that modification or was made previously…