Intrinsic signal optical imaging: data analysis cheat sheet

1. Run **iman** on the raw stream files:

iman –s1 –D –T1 –t T_ABC.1x00 where ABC is a code for the date and 1 is the experiment number and x is the run number (0-z)

iman G_ABC.1x00 to view green images (surface vasculature).

To print a green image, Press <RETURN> in command window. In response to the prompt "Save image?" type y. It will output a string with suggested filename and output method in the form "G_ABC.1x00.ps/VCPS". Copy and paste that string, then press enter to save the PostScript file.

Running iman with the –t option allows you to look at the power spectrum of any selected point, and at the stimulus phase sawtooths.

All interactive commands except saving the map are given in the interactive window.
In all cases iman produces a mapraw file with a name like T_ABC.1x00.mapraw1_46_58_2641dt1, with the numbers telling about the frames and cycles included in the analysis.

2. mapans can be used to normalize the mapraw files generated by iman

mapans –i –o6 T_ABC.1x00.mapraw1_46_58_2641dt1 generates a file of the same name with the suffix _a

To select an area for normalization, hit 'c' (for 'crop') in the interactive window (a grey scale window) and trace a region of interest for normalization (left mosue button to mark points, right to close region), and then hit 'n' (for normalize). If you don't crop first but just hit 'n', then it uses the whole image for normalization. If you like it, hit 'c' and then 'c' again to normalize the whole image according to the values obtained from the region of interest.
All commands are given in the interactive window. 'S saves the file. 'Q' quits.
With excellent quality images, normalization is not requires, but it generally does not hurt if the full range of phases is present in the response, or if there is enough off-brain area with random pixels in the image

3. mapamn2 can be used to compute the average image from two normalized images that were made from stimuli moving in the opposite directions (time-reversed stimuli).

mapanm2 –i16 file1 file2 where these files are the output of mapans.
Topography: file1: 0 deg, file2: 180 deg; or else file1: 90 deg, file2: 270 deg
All commands are given in the interactive window. 'S saves the file. 'Q' quits.

4. To print pictures, **mapans file1** where file1 is the output of iman (ends with dt1) or mapans (ends with dt1_a).

Press <RETURN> in command window. In response to the prompt "Save image?" type y for both the phase and amplitude maps, or Y if you want just the phase map. It will output a string with suggested filename and output method in the form "T_ABC.xxxxxxx.ps/VCPS". Copy and paste that string, then press enter to save the PostScript file.
To view the file, **gv file1** where file1 is T_ABC.xxxxxxx.ps.