05/06/24, DHB, dev branches

(These were broken previously to today.)

/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/cones/t\_conesEyeSensitivity.m -- BROKEN!

/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/eyemovement/t\_fixationalEyeMovementsAndConeMosaicVideo.m -- BROKEN!

/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/hyperspectral/t\_hyperspectralSceneTutorial.m -- BROKEN!

04/05/24, DHB:

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/cones/t\_conesEyeSensitivity.m -- BROKEN!

@Nicolas highlighted in yellow means I've pointed Nicolas to these particular ones.

BROKEN in green means tutorial is fixed so it runs, but there is some additional aspect that  
I think needs attention.

Need to think about wvfCompute and LCA, as well as rng state, as per email exchange.

I have started putting @Nicolas and @Brian into places in the source that could use a look over.

For example, places where structs are being accessed directly rather than through sets and gets.

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I am not sure we want demos buried in directories like

isettools/ganglioncells/demos

why aren't the demos in there under tutorials, which is where we would be looking for them?

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/mrgc/t\_mRGCMosaicCheckerBoardStimulus

>> t\_mRGCMosaicCheckerBoardStimulus

Will save figures into /Users/dhb/Documents/MATLAB/toolboxes/isetbio/local/t\_mRGCMosaicCheckerBoardStimulus

Error using load

Unable to read MAT-file /Users/dhb/Aguirre-Brainard Lab Dropbox/David Brainard/IBIO\_rgcMosaicResources/ONcenterMidgetRGCmosaics/intermediateFiles/old/mRGCMosaicEcDegs(7.0\_0.0)\_SizeDegs(6.0\_3.0).mat. Not a binary MAT-file. Try load -ASCII to read as

text.

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/cones/t\_conesMapRF.m -- BROKEN!

Computing mosaic response to stim 361 of 361

Warning: No video frames were written to this file. The file may be invalid.

> In VideoWriter/close (line 282)

In VideoWriter/delete (line 217)

In t\_conesMapRF>visualizeMosaicStimuliAndMappedRFs (line 147)

In t\_conesMapRF (line 142)

Error using subplot (line 286)

Adding subplots to a container with the 'AutoResizeChildren' property set to 'on' is not supported.

Error in t\_conesMapRF>visualizeMosaicStimuliAndMappedRFs (line 166)

axMosaic = subplot(2,3,1);

Error in t\_conesMapRF (line 142)

visualizeMosaicStimuliAndMappedRFs(theConeMosaic, theConeMosaicExcitation, thePSFData, theDisplay, spatialSupportDegs, theRFMappingStimulusScenes, theRFmaps, maxRFconeType, stimParams);

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/cmosaicrect/t\_cmosaicRectBigArray.m -- BROKEN!

@Brian, 12/25

I fixed this so it runs by updating 'show' -> 'plottype' in the call to the window method of coneMosaicRect. But,

if you run it to the end it produces a strange plot that looks like this:

A screenshot of a computer

Description automatically generated

\*\*\*\*\*

/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/cones/t\_conesEyeSensitivity.m -- BROKEN!

As per Nicolas, we need to keep enough of the hex mosaic method do generate a hexagonal lattice for cMosaic.

Once this runs, check for stray warnings.

This is a tree shrew related tutorial. It was calling a function coneMosaicTreeShreeCreate, which fails because

we no longer have a cone mosaic. I switched to cMosaicTreeShrewCreate, but that fails because it also calls

coneMosaicHex. It looks like this is to get cone positions. We need to remove this dependence.

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/eyemovement/t\_fixationalEyeMovementsAndConeMosaicVideo.m -- BROKEN!

This one is broken because it loads a precomputed coneMosaicHex. Need to convert to cMosaic. Not sure why we want to

use a precomputed mosaic, either.

Once that is fixed, there may be some warnings that need to be dealt with.

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/eyemovement/underDevelopmentReplaceConeMosaicHex/t\_fixationalEMConeSampling.m -- BROKEN!

DHB: I worked on removing the ConeMosaicHex dependence, by changing to cMosaic and getting rid of the resampling size loop. But it

hits a snag deep in an EM object called fixEMobj.computeForConeMosaic. What that is trying to do at the error is not clear to me,

so will have to hand this off to @Nicolas, 1/2/24, as well as the next two.

>> t\_fixationalEMConeSampling

Loading cone mosaic data from /Users/dhb/Documents/MATLAB/toolboxes/isetbio/isettools/ganglioncells/data/lattices/right\_eye\_cones\_58deg\_mosaic.

Unrecognized method, property, or field 'patternSampleSize' for class 'cMosaic'.

Error in fixationalEM/computeForConeMosaic (line 65)

conePatternSampleMicrons = coneMosaic.patternSampleSize(1) \* 1e6;

Error in t\_fixationalEMConeSampling (line 72)

fixEMobj.computeForConeMosaic(cm, eyeMovementsPerTrial, ...

\*\*\*\*\*

/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/eyemovement/underDevelopmentReplaceConeMosaicHex/t\_fixationalEMTimeSampling.m -- BROKEN!

DHB: I think I fixed the oisCreate part of these, now need to convert from coneMosaicHex to cMosaic.

This probably needs the same fix as t\_fixationEMConeSampling above, although I didn't look at it to make sure.

\*\*\*\*\*

/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/eyemovement/underDevelopmentReplaceConeMosaicHex/t\_fixationalEyeMovementsToIsomerizations.m -- BROKEN!

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/eyemovement/underDevelopmentReplaceConeMosaicHex/t\_fixationalEyeMovementsToIsomerizations.m -- BROKEN!

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/optics/t\_wvfWatsonJOV.m

Got this to work again. There is a comment from before that Brian and I should try

to figure out why the figures we produce don't match up with Watson's. Maybe

a microns/diopters issue in specification of zcoeffs? Just a guess.

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/outersegment/underDevelopment\_os/t\_osCurrentsVsLuminanceLevel.m

Fixed so it runs again. It was underDevelopment, I think, because it is sufficiently undercommented as not to be useful as a tutorial.

Which is to say, the only comments are ones DHB added some time ago, kvetching about the lack of comments.

It does produce some nice looking figures, so could be quite useful if we knew what it was about.

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/Users/dhb/Documents/MATLAB/toolboxes/isetbio/tutorials/wavefront/underDevelopment/t\_wvfComputeAverageObserverConePSF.m -- BROKEN!

This is under development and throws an error that says so. It should not be autorun. We should update it, though.

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t\_mRGCMosaicBasic

I suppressed the warning that the pixel resolution is too small. But then I wondered, how do you make it high enough. The stimulus is specified

as having 1024 by 1024 over 2 degrees in the stimParams struct, but the scene comes back at 132 by 132 pixels. This is fundamentally confusing.  
The reason is that the presentation display has a dpi of 96 ppi at a distance of 0.5 m, and deep in the scene generation code the pixel resolution

is rewritten to match the desired angular size of the scene and the angular size of the display pixels. That is OK conceptually, but this tutorial

needs some comments that explain that that happens, and code that would expose to the user how to increase the pixel resolution of the scene,

so as to make it high enough to enable the cone aperture blur calculation.

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t\_mRGCMosaicVisualize.m

Produces scary red text. Either modify tutorial so it doesn't trigger this condition, or allow some control from the top level and turn off this message  
inside the tutorial, with a comment explaining what the message would have been, why it would have been thrown, and what a user should do

if they write their own version that produces the message.

Computing RF center outline contours. Please wait ... Done in 0.2 seconds

198 of the 233 cones pooled by the continuous model were NOT included in the actual subregion map because they fell outside of the spatial support.

Found mosaic with 3 center cones near the target position (5.90,0.60) at 5.92,0.55

525 of the 556 cones pooled by the continuous model were NOT included in the actual subregion map because they fell outside of the spatial support.