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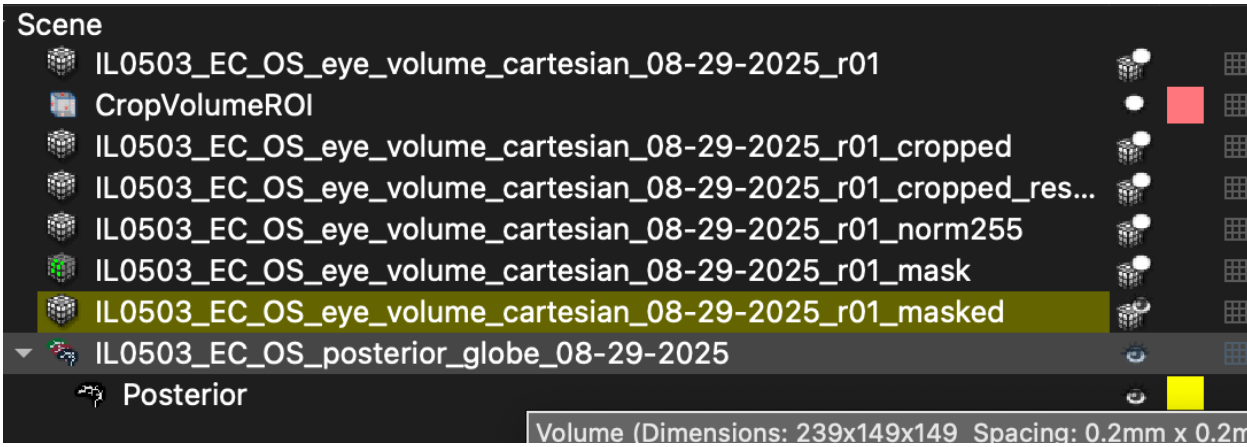
3D Ultrasound Radial Protocol

1. Collect raw data via Ellex Eye Cubed US device
    a. Note that output folder will contain multiple files/formats, but we only care about the images folder
        i. Check the images folder and you should see our "slices," around ~300-360 for the radial reconstruction
2. Run uc_eye program (bat for Windows, cmd for Mac)
    a. Outline
        i. Key imports and timer setup
        ii. Inputs and file naming
            1. Note that the cone mask is an outline that is applied to help "crop out" the background of the raw image
            2. Device mm is the depth of the ultrasound obtained from Ellex Eye Cubed documentation
            3. Voxel mm is defining the "real-world" sizing of each voxel (3D pixel). We choose 0.20mm to:
                a. Match native resolution
                b. Produce voxels for accurate geometry
                c. Keep globe reconstruction consistent
        iii. Load frames and QC 1st, middle, and last frame
            1. Of note, the first and last frame do NOT overlap (meaning they are not the same frame)
        iv. Creating a JSON file for consistent apex definition and applying the cone mask
            1. On first run, a JSON will be generated with key parameters stored using the cone mask
            2. Repeat runs on the same file will use the already created JSON for consistency
        v. Unwrapping images to polar coordinates

vi. Builds the bridge between our polar coordinates and Cartesian grip we'll resample to later
vii. Cartesian Reconstruction
viii. Saves NRRD file in parent folder
ix. UC Eye PreProcess

3. Process and Segmentation in Slicer
    a. Copy/paste the UC Eye PreProcess cell in Slicer's Python script
    b. 

    c. Check data module to see all files generated
    d. 

    e. We only care about the "masked" file highlighted above
        i. Make sure the eye is clicked on for this one. You should see the slices populate on the axis views
    f. Segment Editor Module-> Set to "masked" file
    g. Add 2 segments
        i. Name them Posterior (RGB: 255, 255, 0) and Background (RGB: 0, 255, 255)
    h. Start with the R view and scroll to the first slice where you're able to differentiate the posterior globe
    i. Go to Paint on L toolbar, set diameter to 2-5% and annotate posterior and background regions every 5 slices
        i. Do this in each view (Axial and Coronal)
        ii. 3-4 blobs on each slice
        iii. EACH SLICE MUST HAVE BOTH POSTERIOR AND BACKGROUND MARKED
    j. Go to Grow from Seeds, hit Initialize
        i. Should now see yellow outline of the posterior globe
    k. Check each slice to make sure the yellow outline is hugging the TRUE posterior globe

        i. Use Erase tool to fix slices, then hit Initialize again
l. Click Apply, then show 3D to show new raw segment of posterior globe
m. Go to Islands, keep largest island, keep minimum size 1000 voxels, then apply
n. Go to Smoothing, choose Median, set it to 0.40mm, then apply