

QUICK UNEDIT SKULL STRIPPING

- Load Macros (Apple & 9)
- Create Stack
 1. File → Import
 2. In the pop - up menu, check **Open, Open All, As Stack, Use import range from file <name.imp>**, hit **Set**. Also, select **16 Bit Unsigned** and **Auto-Offset**. Double Click on a slice and a stack will be created.
 3. File → Save Stack
- Sample cortical tissue
 1. Place ROIs as superiorly as possibly on slice 31, 62, and 93.
 2. Special → Stack Interpolate ROI
 3. Stacks → Dual Threshold → Otsu
 4. Hit T and record threshold values.
 5. Kill ROIs (Shortcut : Hit 'K')
 6. Special → Adjust threshold and Binarize
- Coronal Unedit
 1. Stacks → Erode → 18 Neighbor Kernel
 2. Stacks → Erode → 6 Neighbor Kernel
 3. Stacks → Grow Stack VOI → Seed Value
 4. If there are bridges, find them. Remove using eraser, paintbrush or pen drop. Fill with black.
 5. Isolate brain tissue using grow. Stacks → Grow Stack VOI → Seed Value
 6. Special → Stack Clear Outside
 7. Stacks → Dilate → 6 Neighbor Kernel
 8. Stacks → Dilate → 18 Neighbor Kernel
 9. Stacks → Grow Stack VOI → Seed Value
 10. Special → Roll Ball with 1 Pixel Expansion
 11. Save ROIs – Subject #_CORONAL.UE.initials
- Sagittal Unedit
 1. File → Open Coronal unresliced Stack as Volume
 2. Go to volume controls and move the slider on Bottom Right rotation to (+) 90 degrees.
 3. Stacks → Make Stack from Volume
 - a. Select Top Right and Nearest Neighbor
 - b. Save stack as Subject #_SAG
 4. File → Open → Subject #_SAG Stack
 5. Stacks → Dual Threshold → Otsu
 6. Hit T and adjust the values according to those recorded in step (4) of Sample Cortical tissue above.
 7. Special → Adjust threshold and Binarize
 8. Stacks → Erode → 18 Neighbor Kernel
 9. Stacks → Erode → 6 Neighbor Kernel

12. Stacks → Grow Stack VOI → Seed Value
 13. If there are bridges, find them. Remove using eraser, paintbrush or pen drop. Fill with black. Isolate brain material.
 14. Stacks → Grow Stack VOI → Seed Value
 15. Special → Stack Clear Outside
 16. Stacks → Dilate → 6 Neighbor Kernel
 17. Stacks → Dilate → 18 Neighbor Kernel
 18. Stacks → Grow Stack VOI → Seed Value
 19. Save ROIs
 20. File → Open original Subject #_SAG stack and load ROIs from 19.
 21. Do a quick run through the stack and remove sagittal sinus and membrane that is visible.
 22. Special → Roll Ball with 1 Pixel Expansion
 23. Stacks → ReSave ROIs
 24. Special → Stack Clear Outside
 25. Stacks → Make volume from Stack
 - a. Go to volume controls and move the slider on Bottom Right rotation to (-) 90 degrees.
 - b. Stacks → Make Stack from Volume (Select Top Right and Nearest Neighbor; Save stack as Subject #_SAG.YOYO. Close all stacks.
 - c. File → Open Stack Subject #_SAG.YOYO and double click on the wand tool. Special → Red to Region (Shortcut key : R).
 - d. Save ROIs as Subject #_SAG.YOYO.rois
- Axial Unedit
 1. File → Open unresliced coronal Stack as Volume
 2. Go to volume controls and move the slider on Top Left rotation to (+) 90 degrees.
 3. Stacks → Make Stack from Volume. (Select Top Right and Nearest Neighbor Save stack as Subject #_AX. Close all windows (Apple W or close small square in top left of title bar)
 4. File → Open stack Subject #_AX
 5. Stacks → Dual Threshold → Otsu
 6. Hit T and adjust the values according to those recorded in step (4) of Sample Cortical tissue above.
 7. Special → Adjust threshold and Binarize
 8. Stacks → Erode → 18 Neighbor Kernel
 9. Stacks → Erode → 6 Neighbor Kernel
 10. Stacks → Grow Stack VOI → Seed Value
 11. If there are bridges, find them. Remove using eraser, paintbrush or pen drop. Fill with black. Isolate brain tissue.
 12. Stacks → Grow Stack VOI → Seed Value
 13. Special → Stack Clear Outside
 14. Stacks → Dilate → 6 Neighbor Kernel
 15. Stacks → Dilate → 18 Neighbor Kernel
 16. Stacks → Grow Stack VOI → Seed Value
 17. Special → Roll Ball with 1 Pixel Expansion

18. Stacks → ROIs → Save Subject #_AX.rois
 19. File → Open stack Subject #_AX
 20. Stacks → Load ROIs Subject #_AX.rois
 21. Special → Stack Clear Outside
 - 20.Stack → Make volume from Stack
 - a. Go to volume controls and move the slider on Top Left rotation to (-) 90 degrees.
 - b. Stacks → Make Stack from Volume (Select Top Right and Nearest Neighbor; Save stack as Subject #_AX.YOYO. Close all stacks.
 - c. File → Open Stack Subject #_AX.YOYO and double click on the wand tool. Special → Red to Region (Shortcut key : R).
 - d. Save ROIs as Subject #_AX.YOYO.rois
- Creating the combined ROIs
 1. Special → Hit M for Make 3 stacks. Enter original slice number at time of acquisition (usually 124)
 2. On the first window load the Coronal.UE ROI
 3. On the second window load the SAG.YOYO.ROIs
 4. On the third window load the AX.YOYO.ROIs.
 5. Use F5 and F6 and synchronize the stacks.
 6. Go to slice 1 on all 3 stacks.
 7. Hit C for Combine ROIs.
 8. Save the 3-3 ROIs as Subject #_3-3.rois.initial's
 9. Save the 2-3 ROIs as Subject #_2-3.rois.initial's
 10. File→ Open Stack. Stacks → ROIs→ Open 3-3 or 2-3 ROIs
 11. Special → Roll Ball diameter =3 (without pixel expansion).
 12. Stacks → Save as ROIs→ Subject _ UE.rater's initials