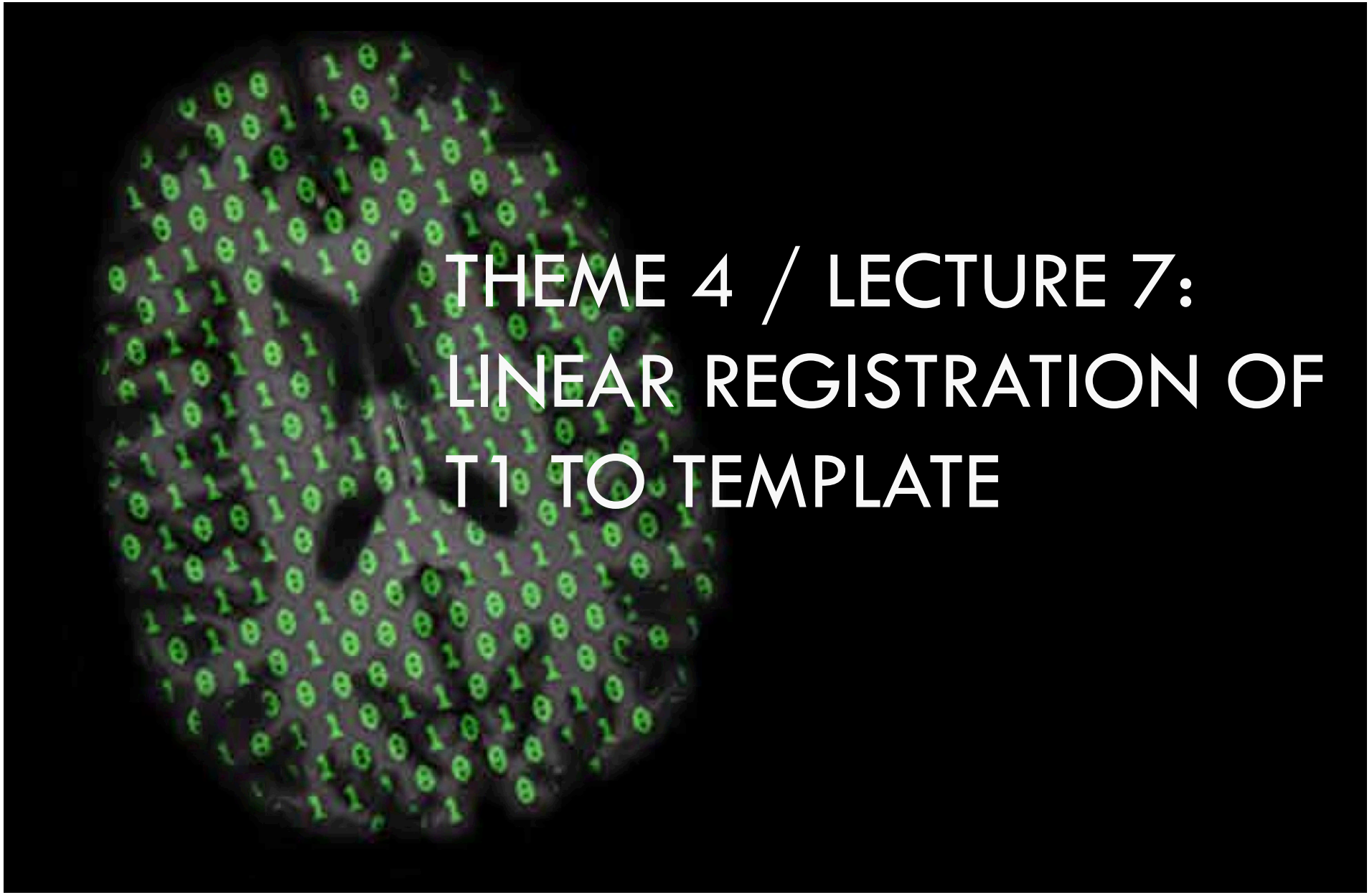
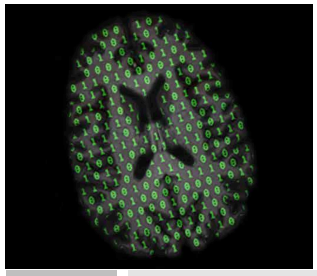
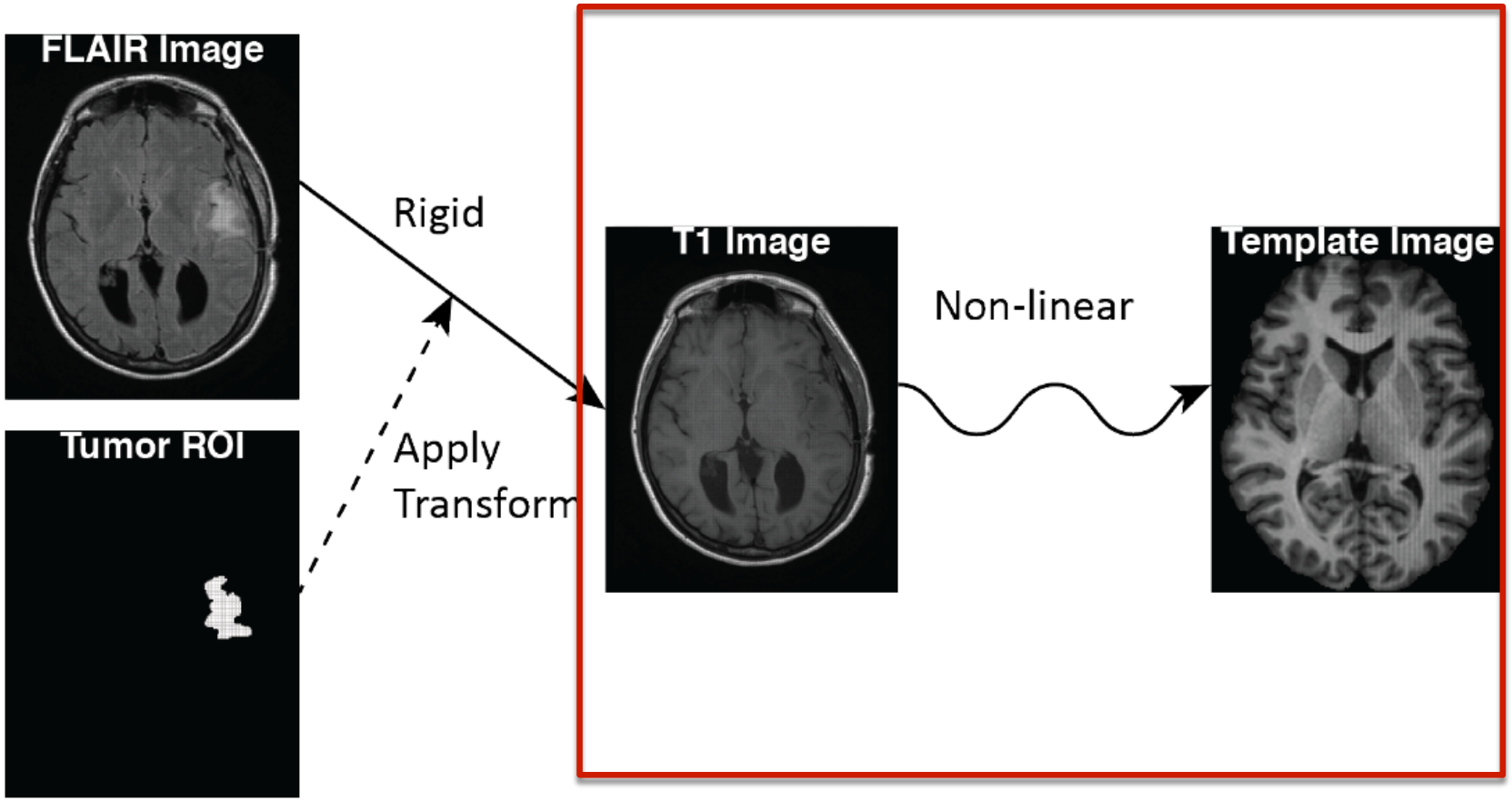
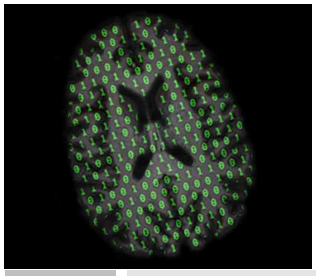


THEME 4 / LECTURE 7: LINEAR REGISTRATION OF T1 TO TEMPLATE



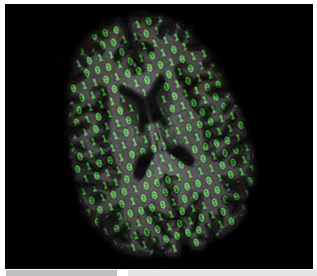
Linear Registration of T1 to Template





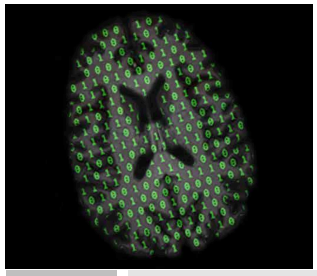
Skull Stripping and Inhomogeneity Correction

```
n4_t1 = bias_correct(t1, correction = "N4")

brain = fslbet_robust(img = n4_t1,
                      correct = FALSE, verbose = FALSE)
```



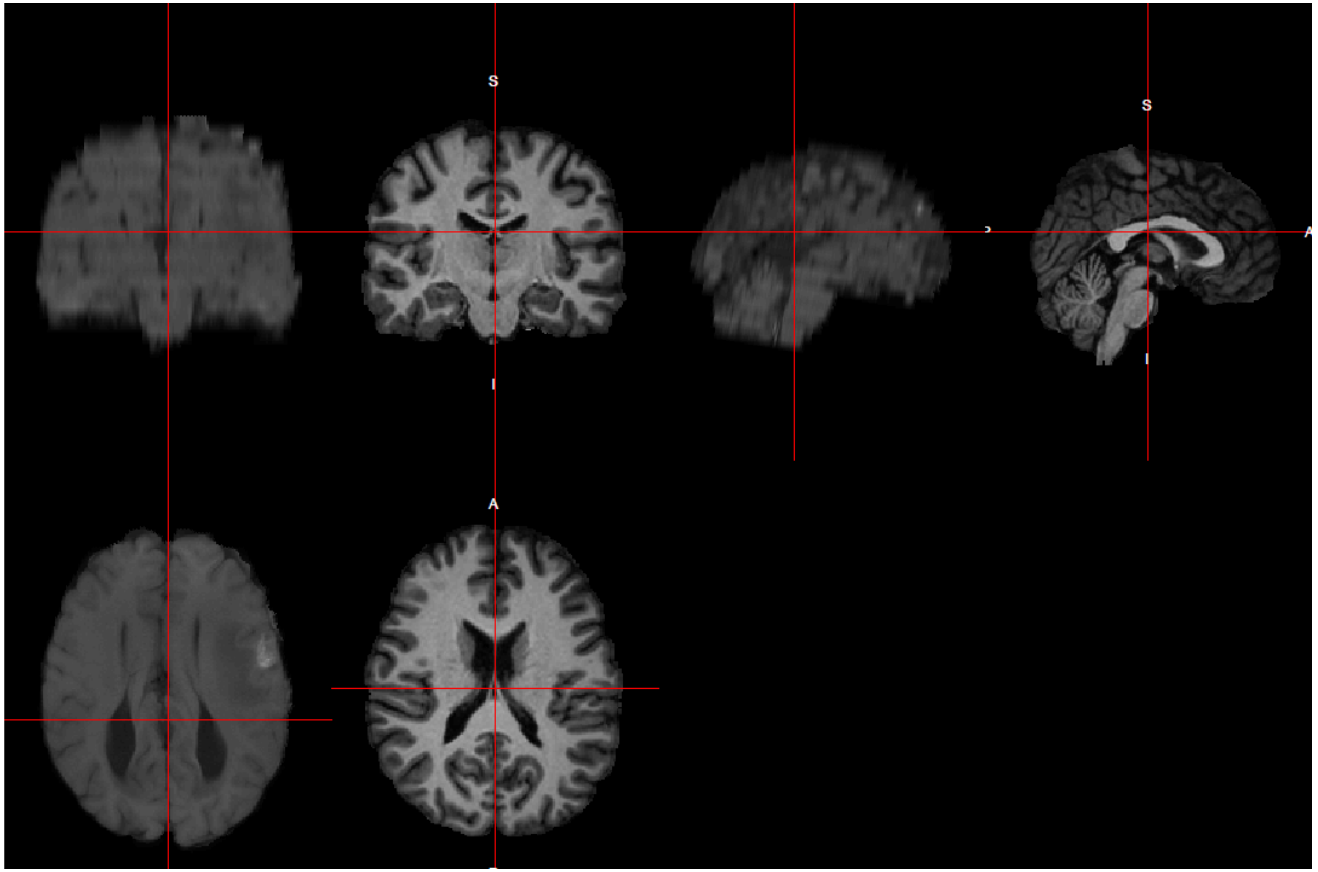
Affine Registration of T1 to the Eve Atlas

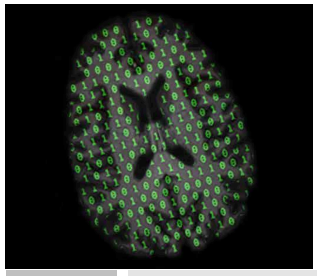
```
template.file = file.path(neurodir,
"Template","JHU_MNI_SS_T1_brain.nii.gz")
aff_t1_outfile = file.path(mridir,"T1_AffinetoEve.nii.gz")
aff_roi_outfile = file.path(mridir,
"ROI_regToT1_AffinetoEve.nii.gz")

aff_brain = ants_regwrite(filename = brain,
                          outfile = aff_t1_outfile,
                          other.files = reg_roi,
                          other.outfiles = aff_roi_outfile,
                          template.file = template.file,
                          typeofTransform = "Affine",
                          verbose = FALSE)

aff_roi = readNIfTI(aff_roi_outfile, reorient = FALSE)
```



Affine T1 Registration to Template Results

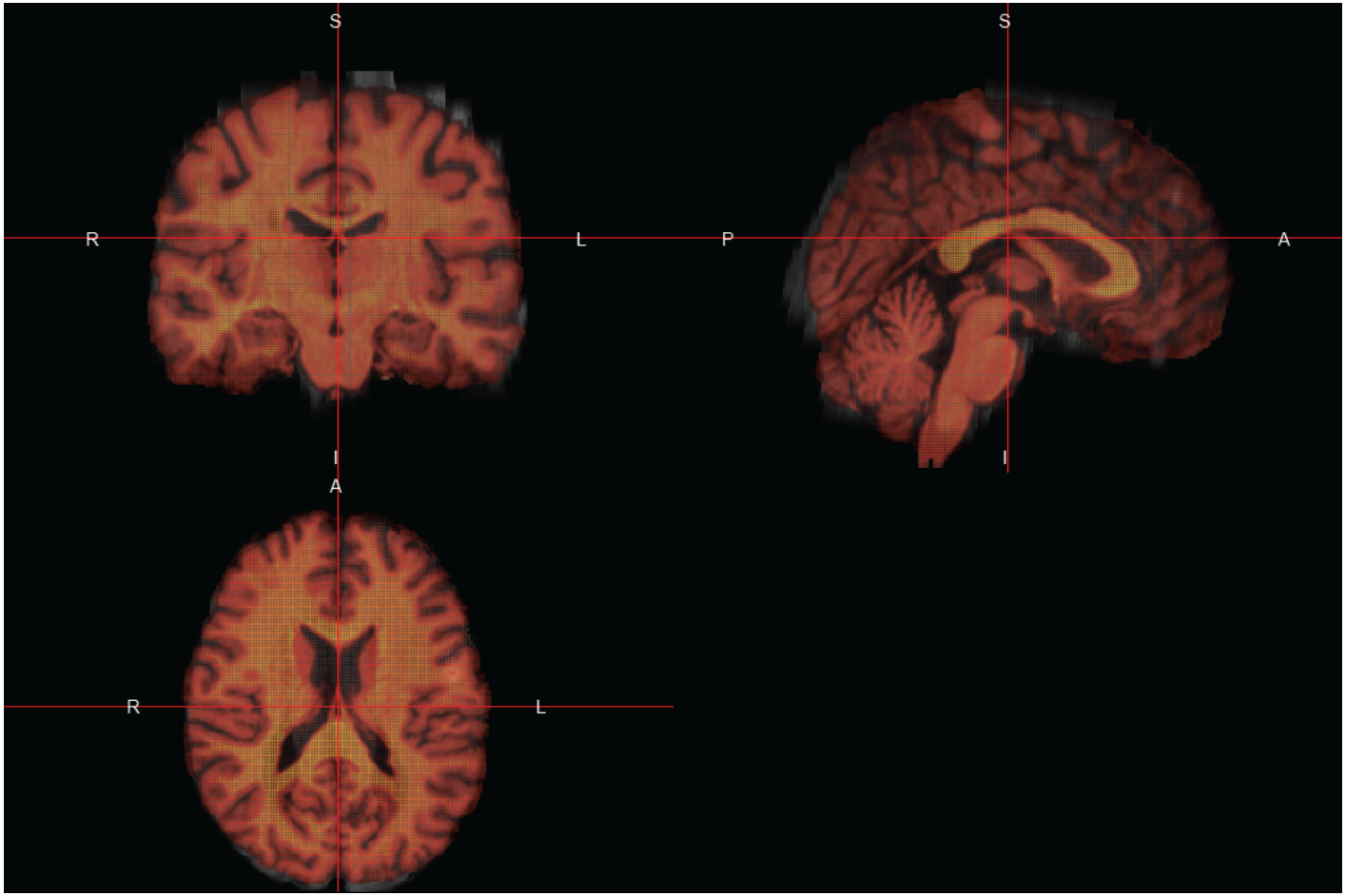
```
template = readNIfTI(template.file, reorient= FALSE)
double_ortho(aff_brain, template)
```

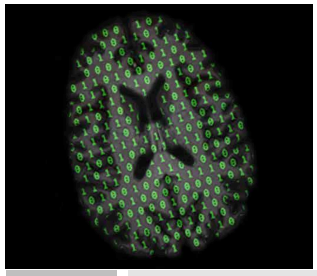




Affine T1 Registration to Template Results: Overlay

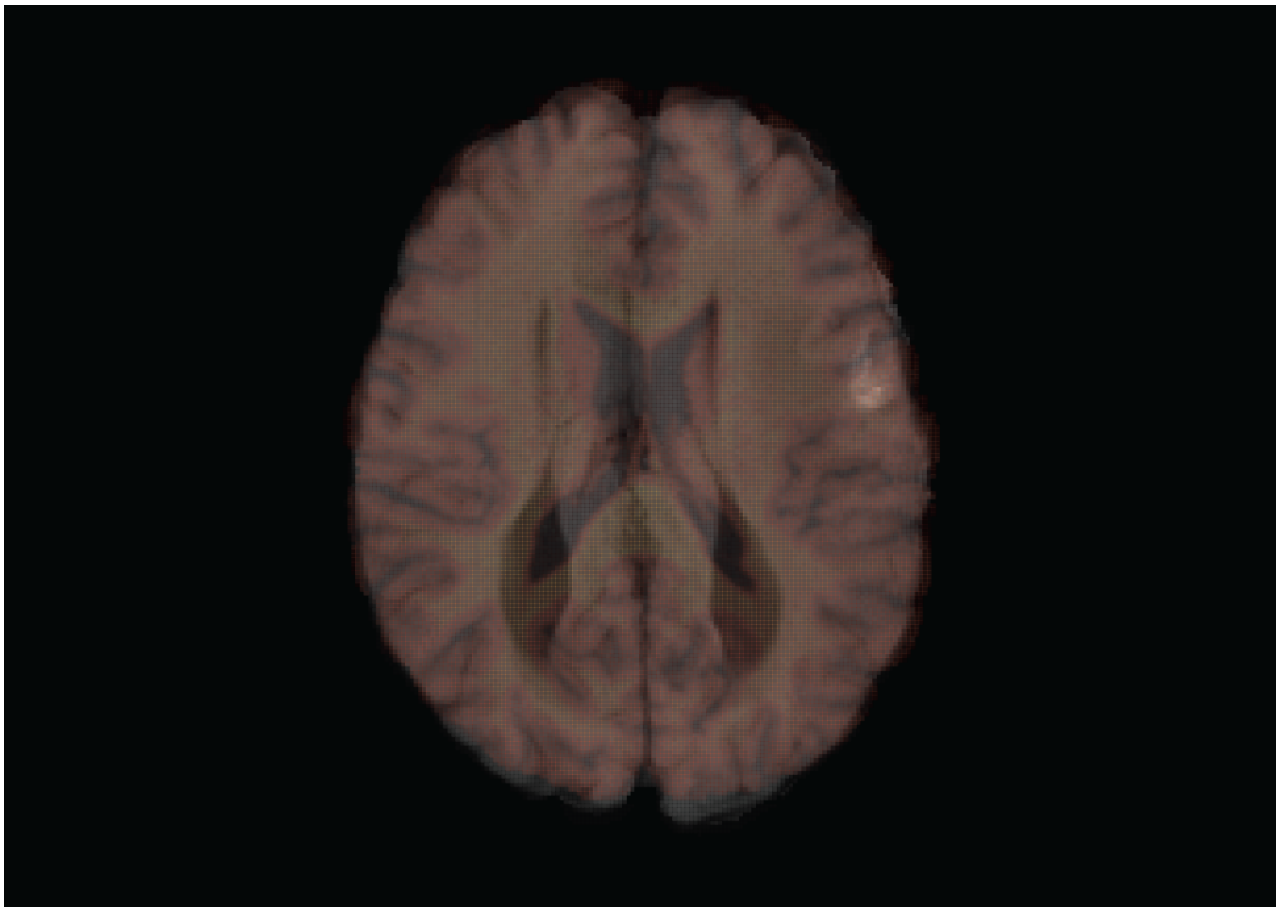
```
ortho2(aff_brain, template,col.y=alpha(hotmetal(),0.35))
```

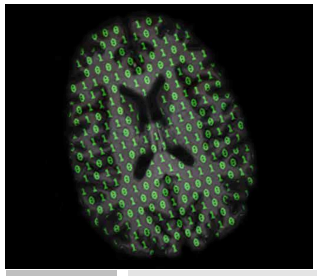




Affine T1 Registration to Template Results: Overlay One Slice

```
ortho2(aff_brain, template,z=ceiling(dim(template)[3]/2),
plot.type= "single",col.y=alpha(hotmetal(),0.35))
```





Affine T1 Registration to Template Results: ROI Overlay

```
ortho2(aff_brain, aff_roi,col.y=alpha(hotmetal(),0.35),
xyz=xyz(aff_roi))
```