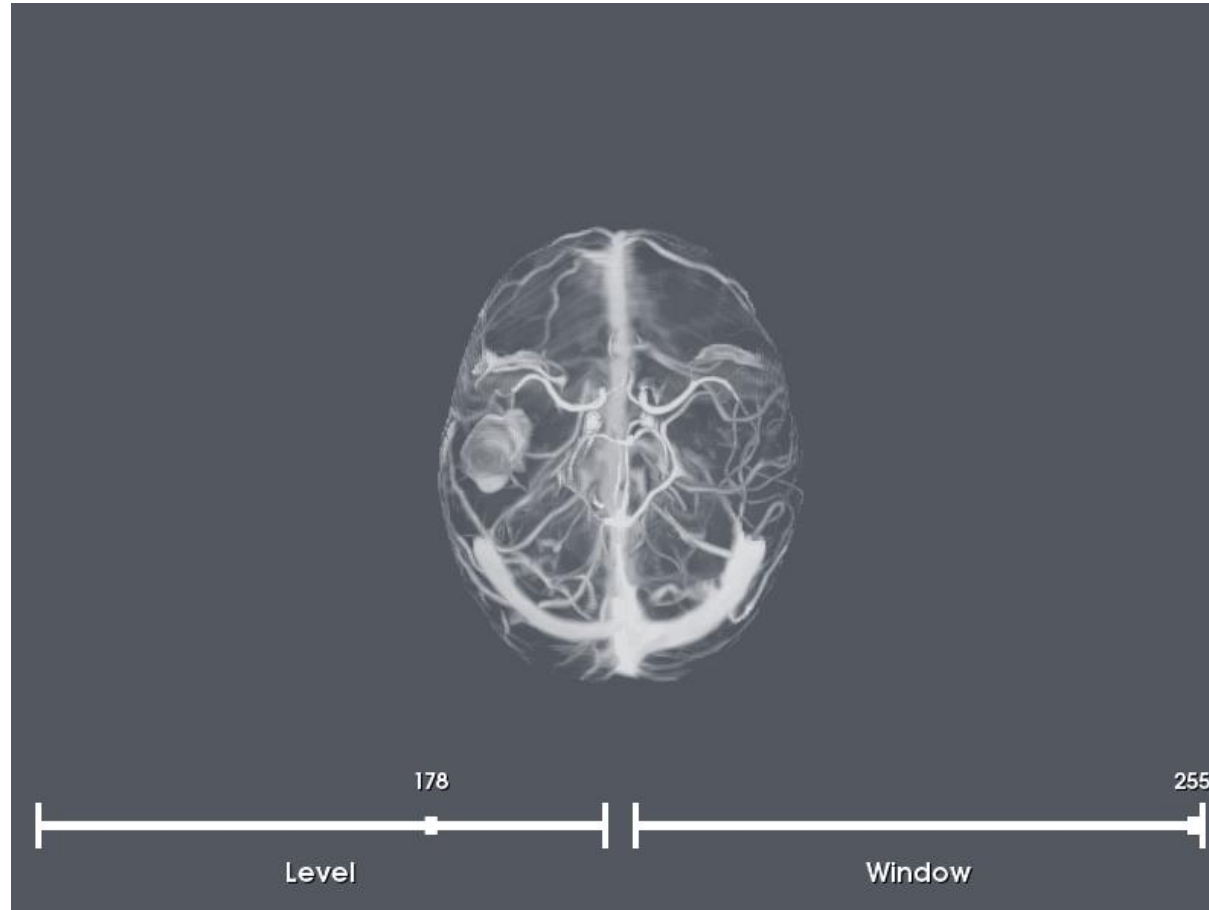


Two models for pushing tumor growth

Ivar Thokle Hovden

Actual data



T1-w post
contrast ~3 years
Glioblastoma

Maximum
Intensity
Projection
(MIP)

(SAILOR)

Actual data



178

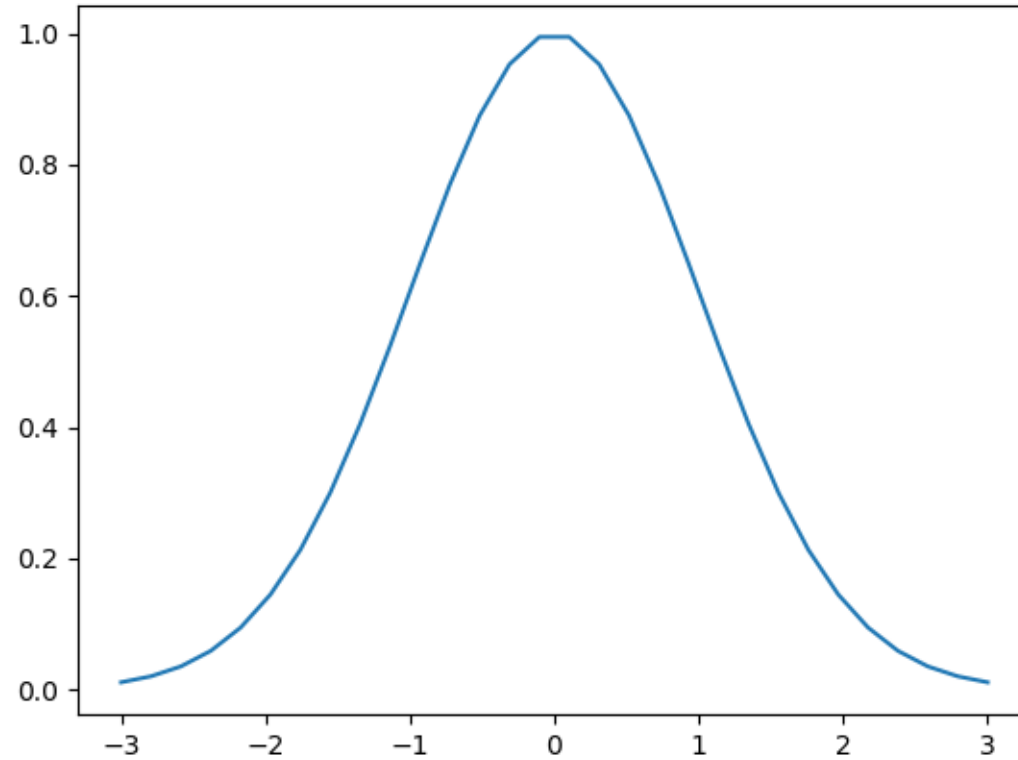
255

Level

Window

Prerequisites

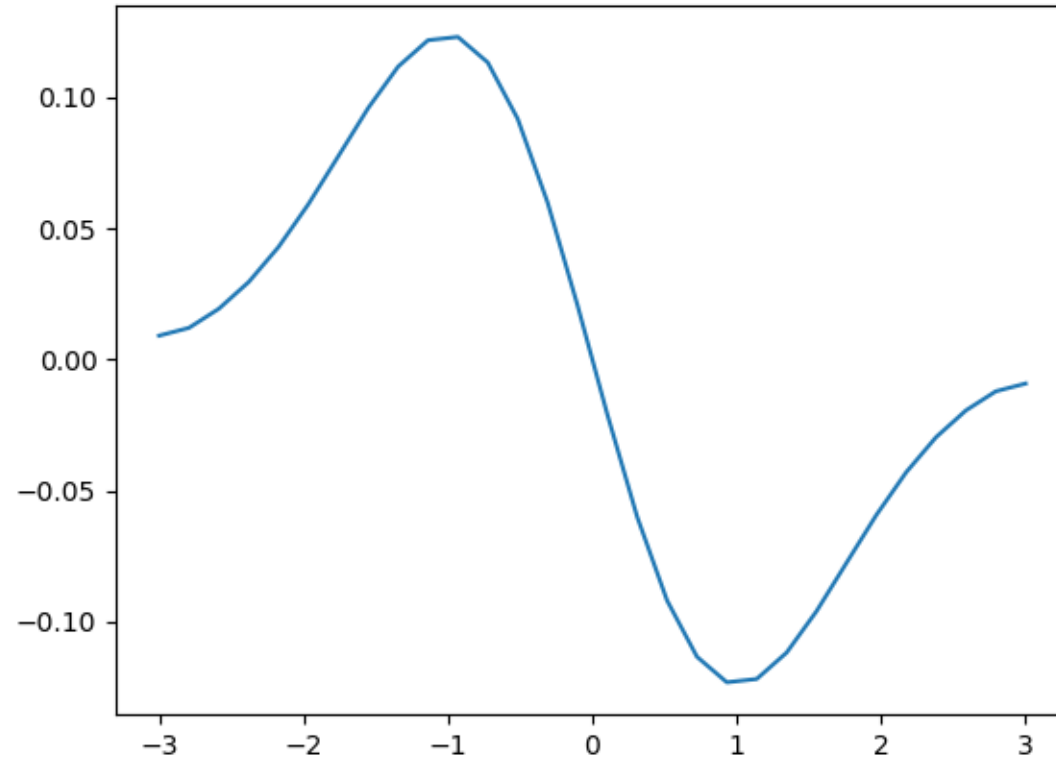
Normal distribution
(Gaussian)



1D

Prerequisites

Derivative of
normal distribution

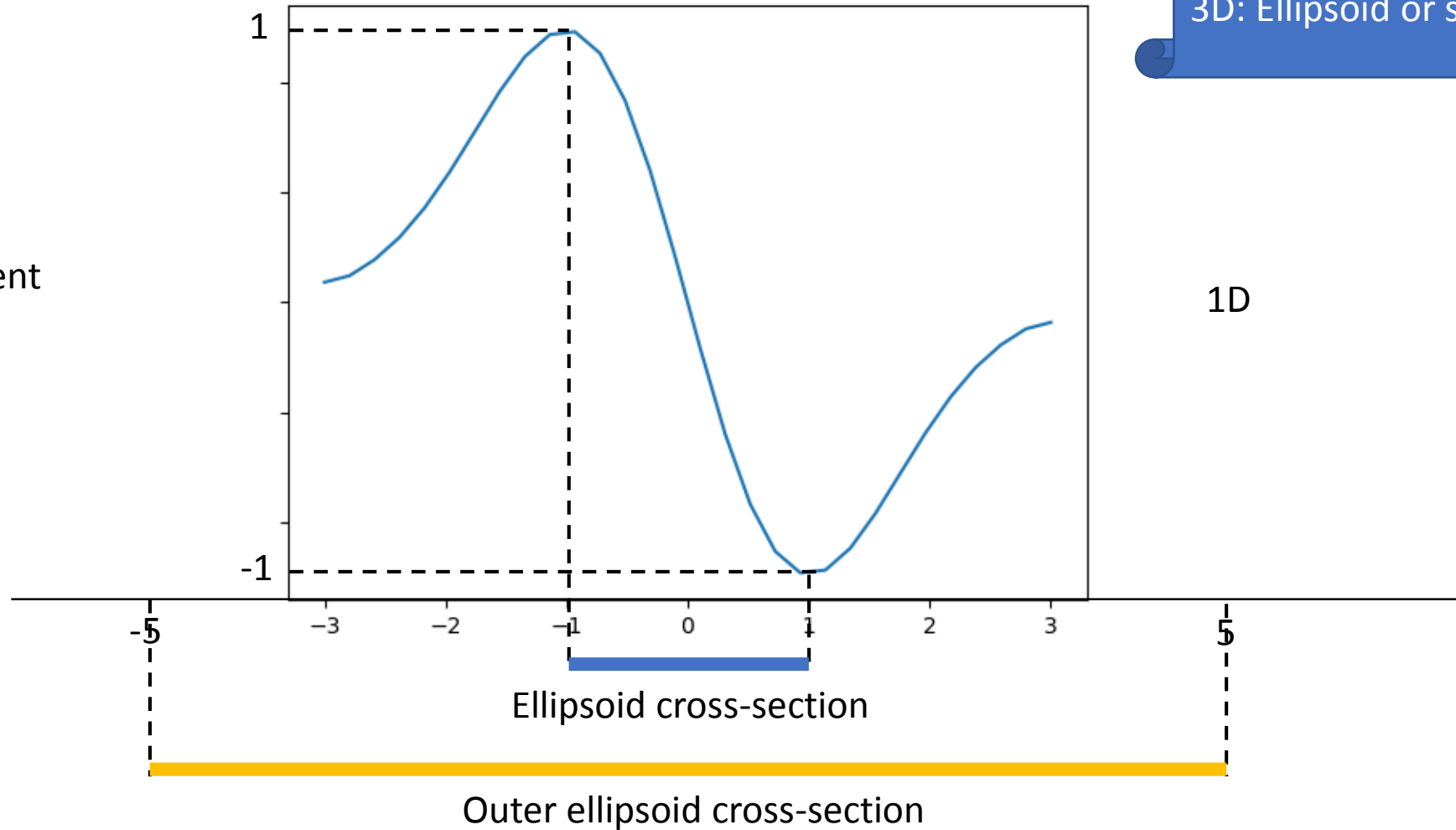


1D

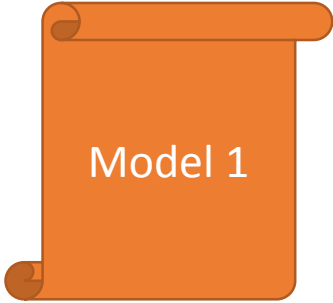
Prerequisites

Cross-section how-to:
1D: Line
2D: Ellipsis or circle
3D: Ellipsoid or sphere

Displacement
model

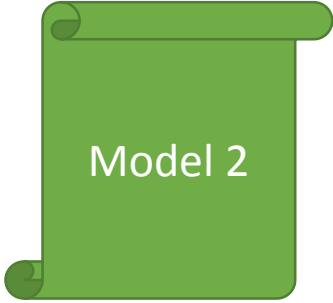


Two models

An orange scroll icon with a rolled-up top edge and a small circular fastener at the bottom left corner. The text "Model 1" is written in white on the scroll.

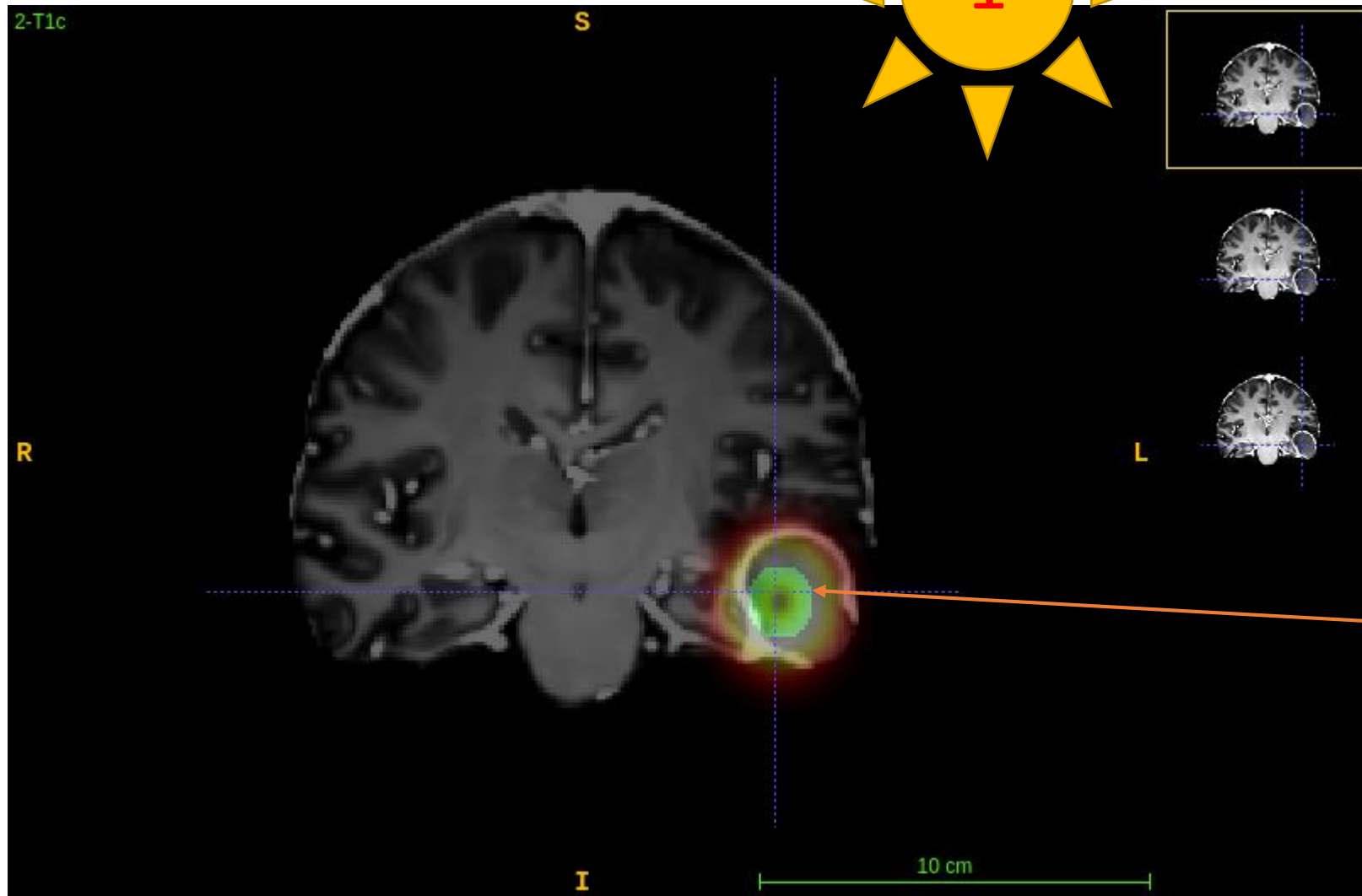
Model 1

Explosive radial displacements from gradients of a 3D Gaussian with width, height and depth based on the bounding box of the tumor mask

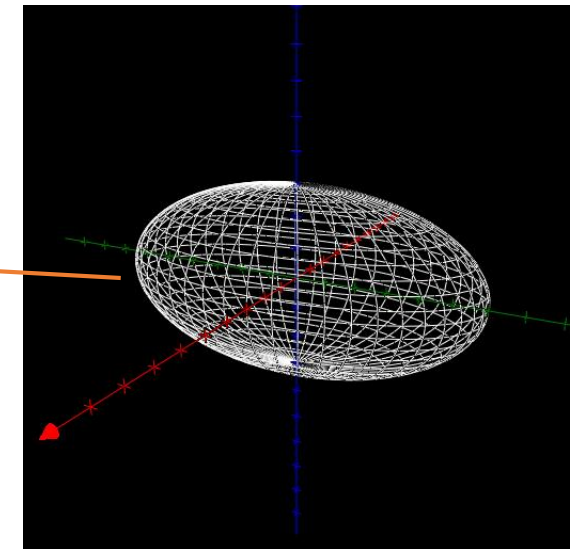
A green scroll icon with a rolled-up top edge and a small circular fastener at the bottom left corner. The text "Model 2" is written in white on the scroll.

Model 2

Explosive radial displacements from gradients of a 3D Gaussian with width, height and depth based on the bounding box of the tumor mask. Each voxel displacement on a radial axis is then scaled based on a fraction of the total distance to the skull (end of the brain mask)

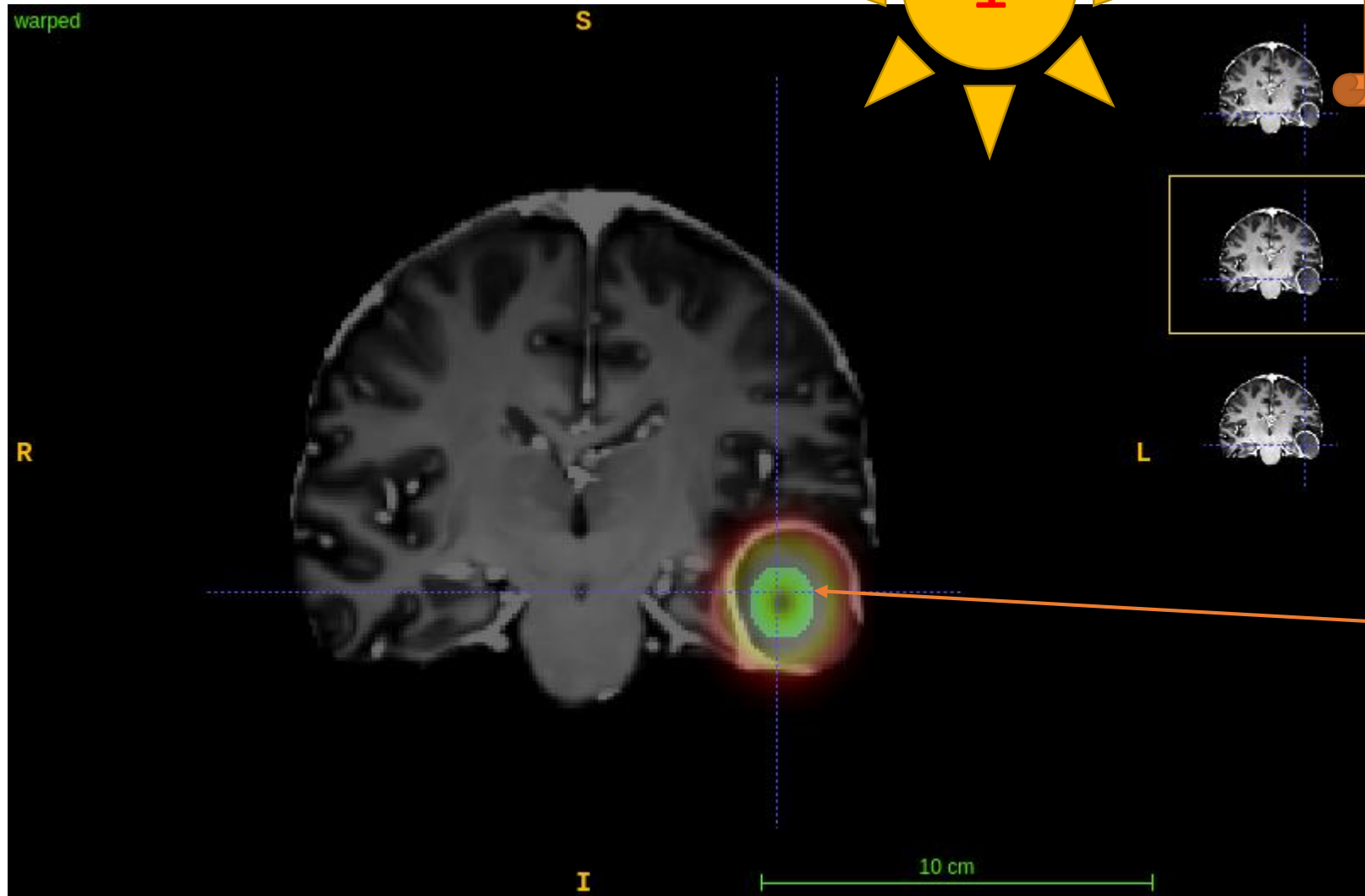


Ellipsoid

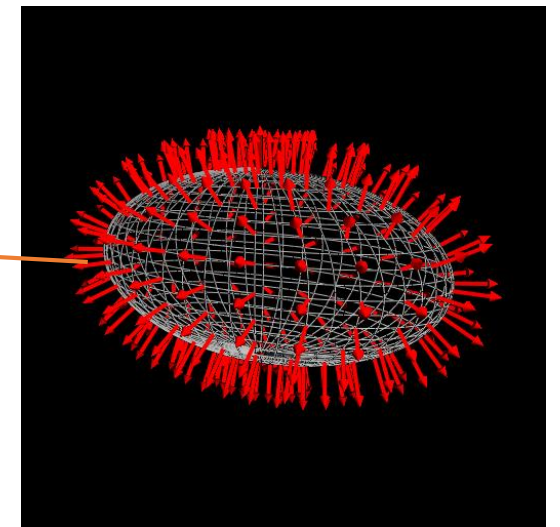




Model 1
applied



Ellipsoid and
gradients

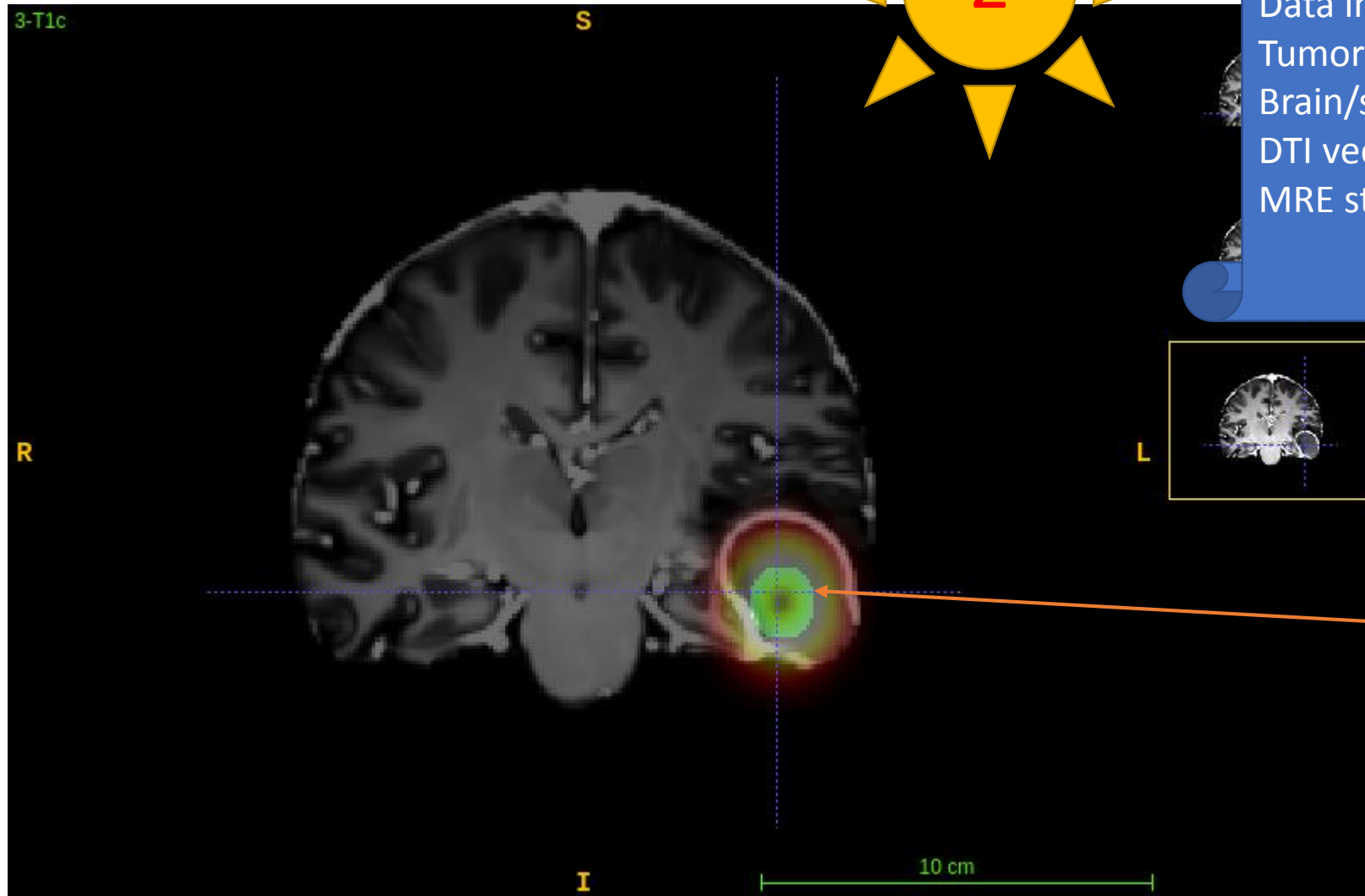




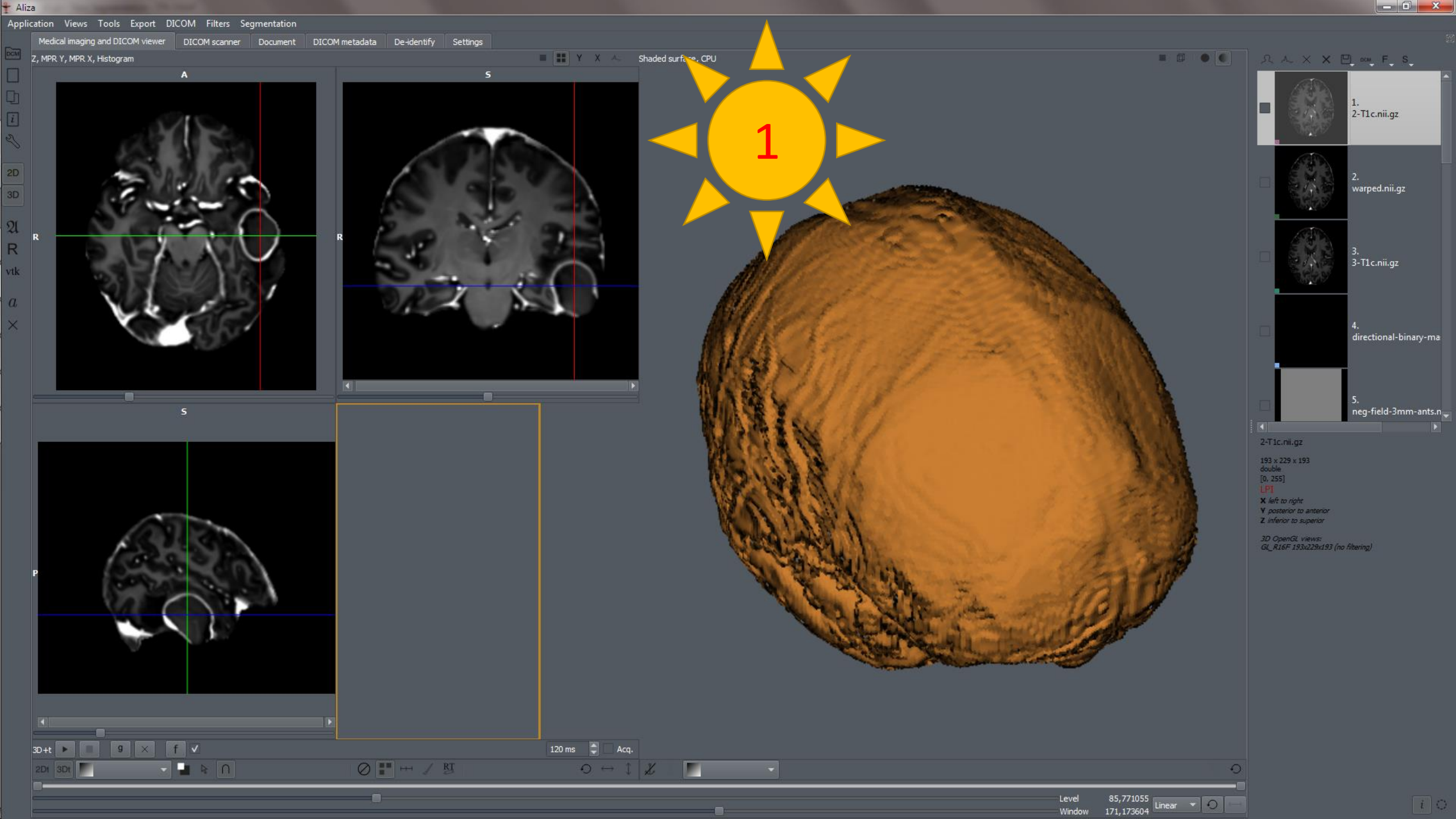
Ground
truth

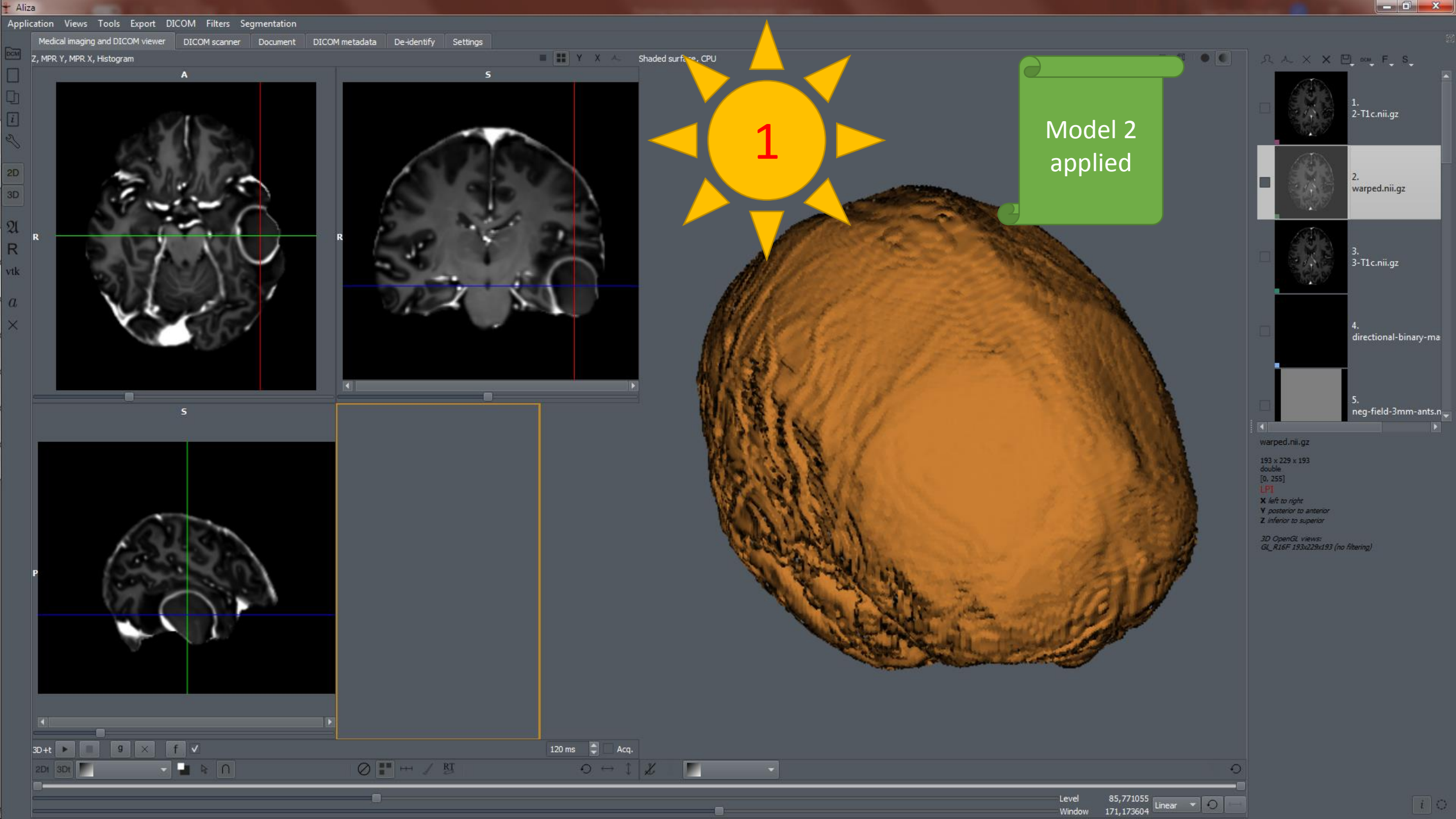
Model improvements:
Data intensive Model?
Tumor mask eigenvectors (RANO v. 2)
Brain/skull mask
DTI vectors
MRE stiffness

Model 2



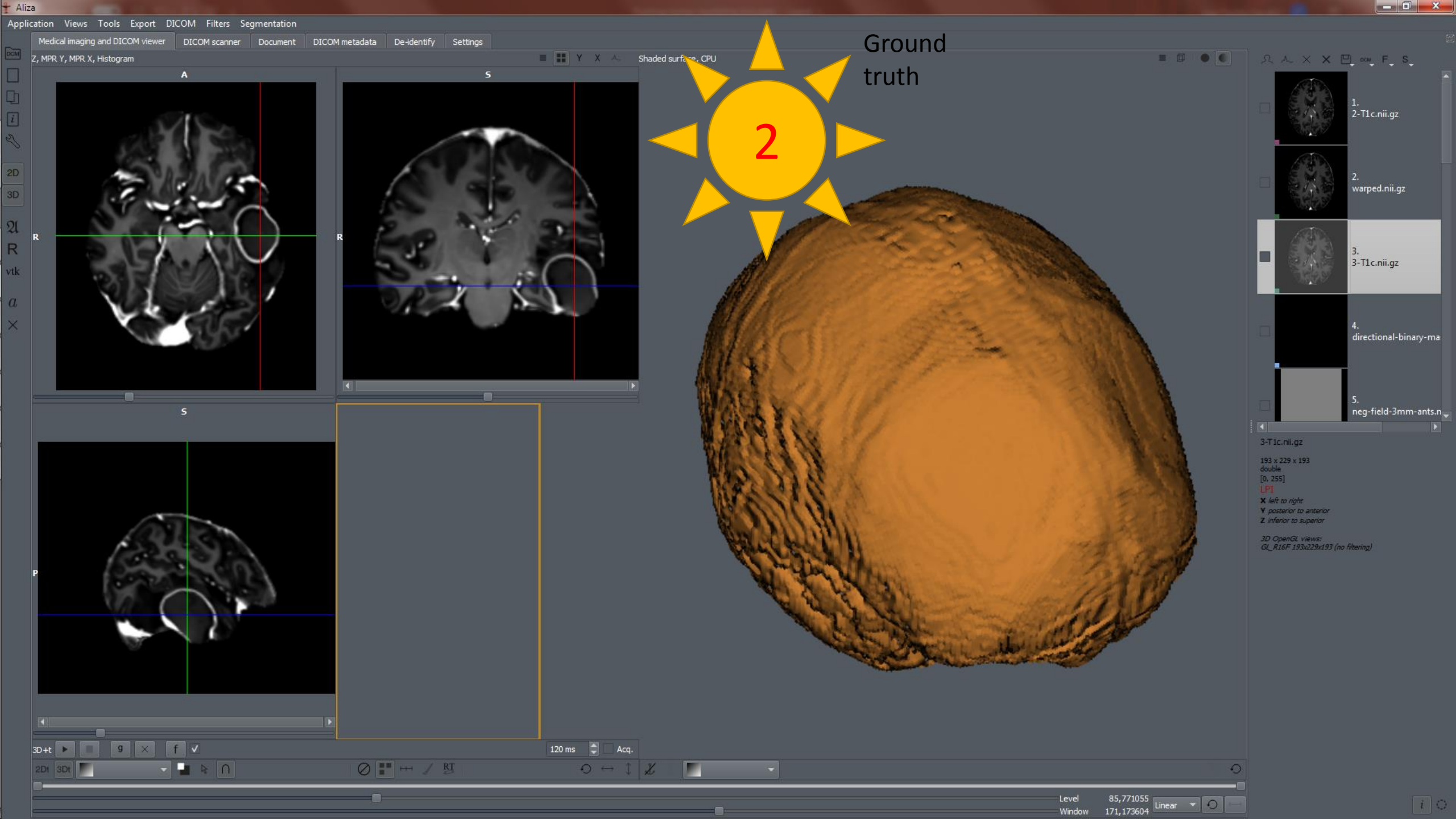
?

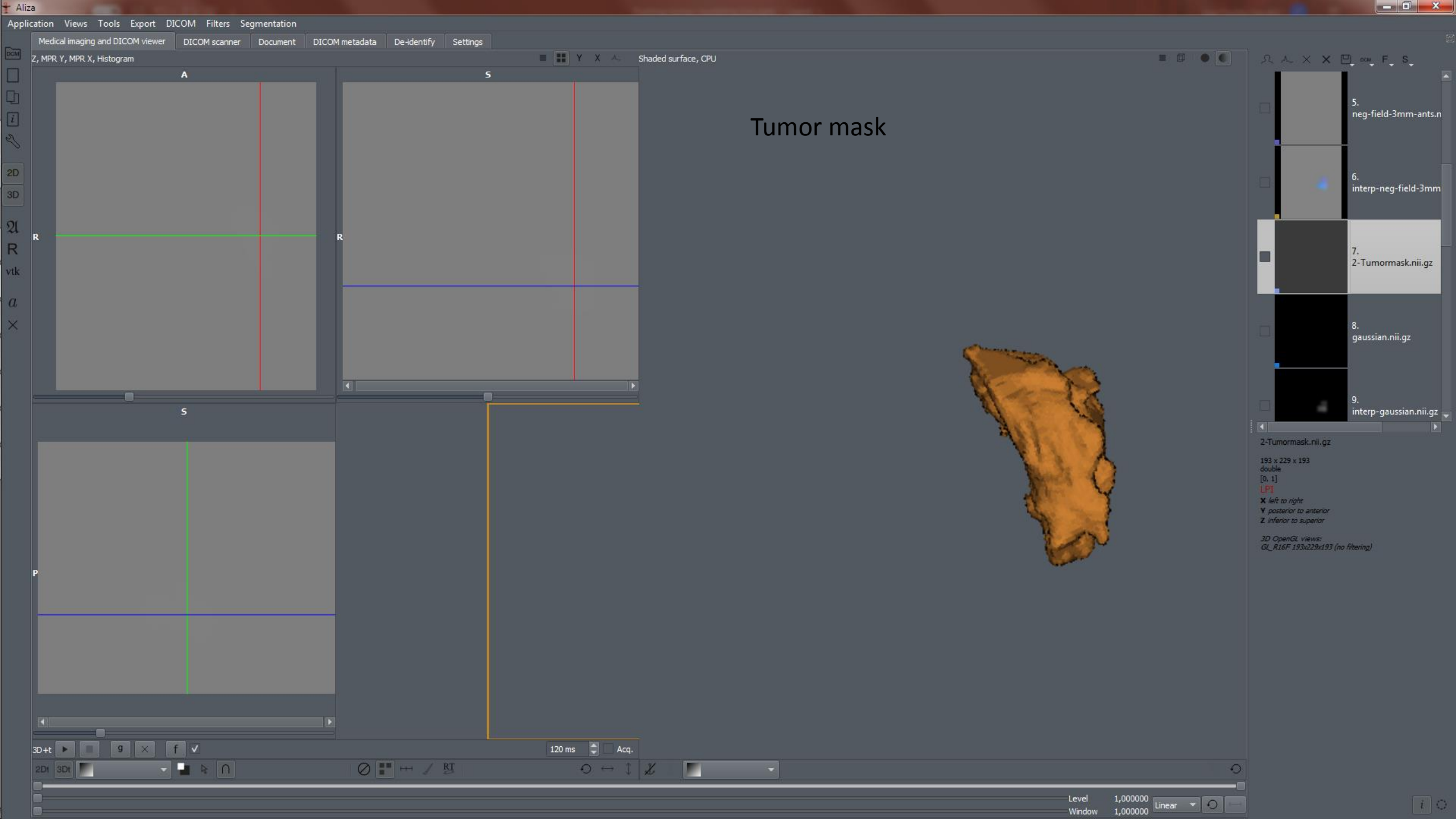


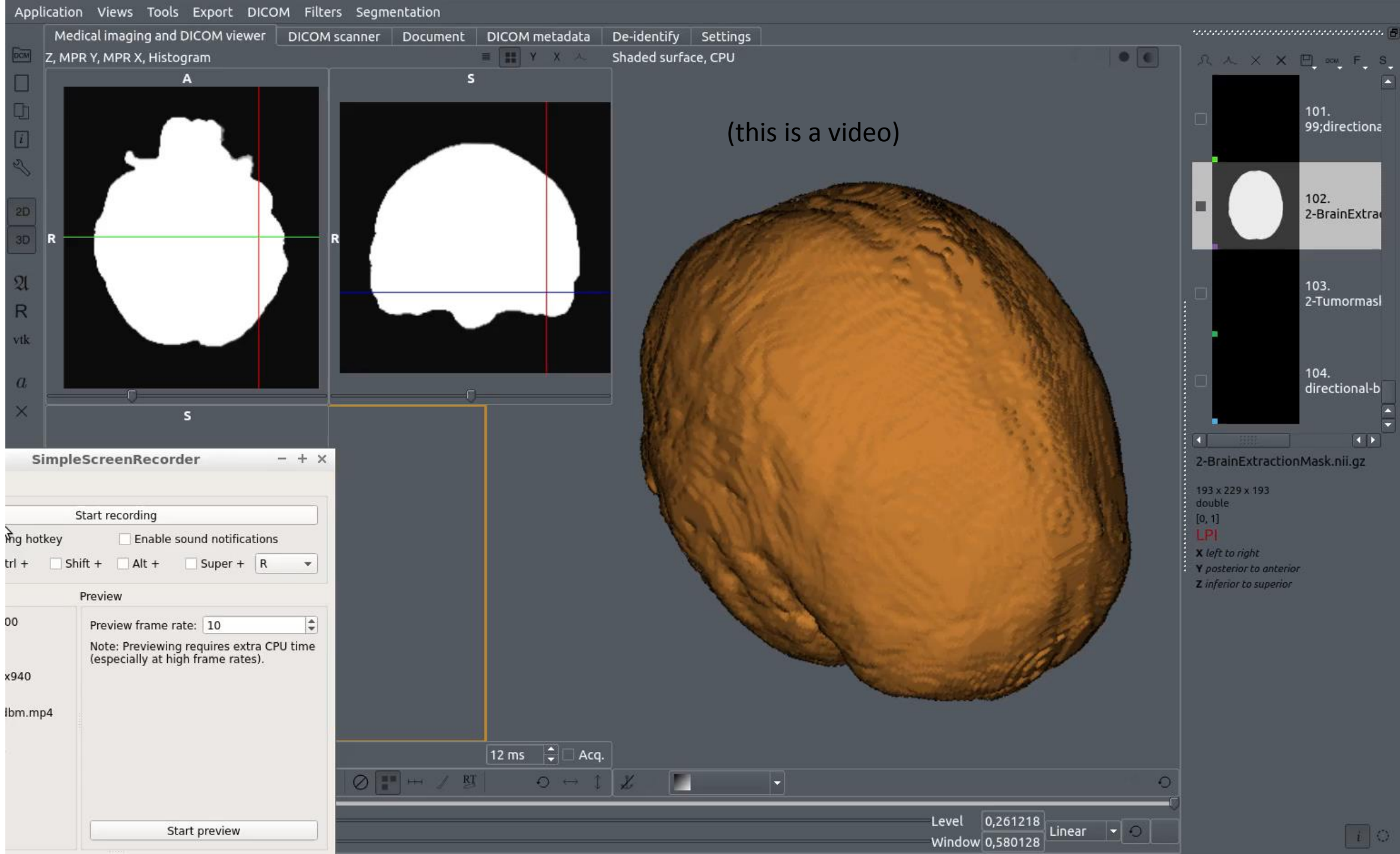


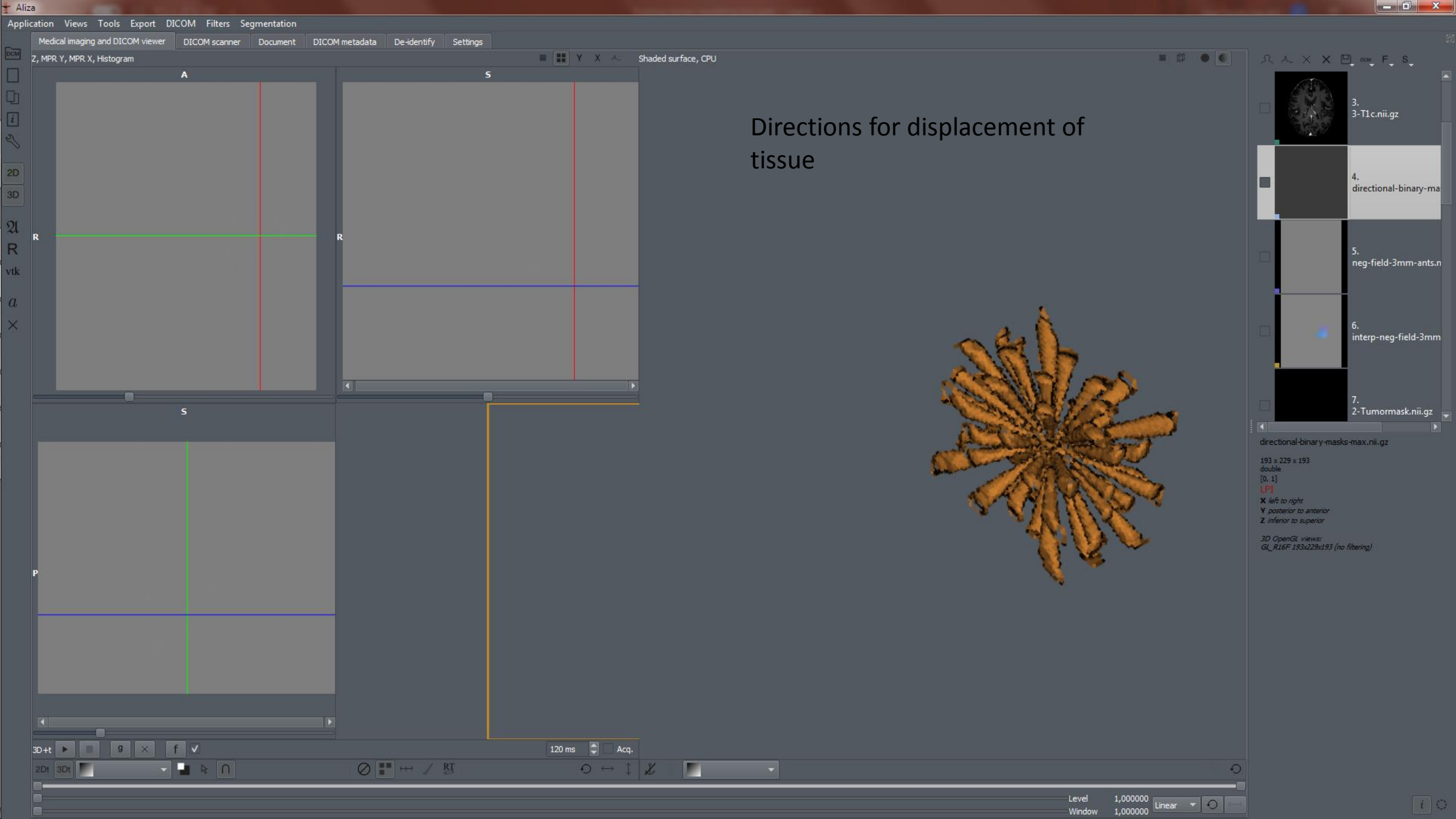
1

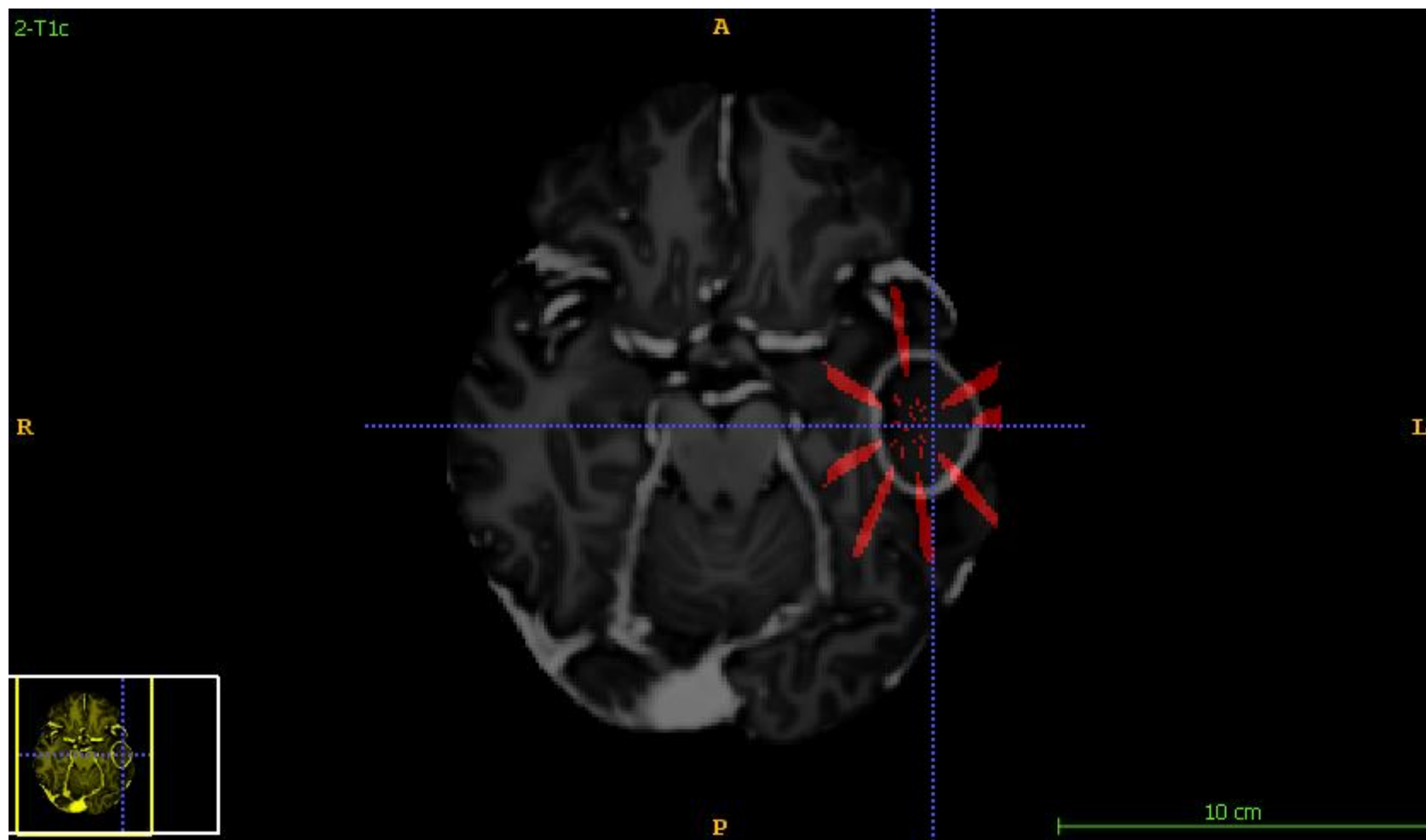
Model 2
applied



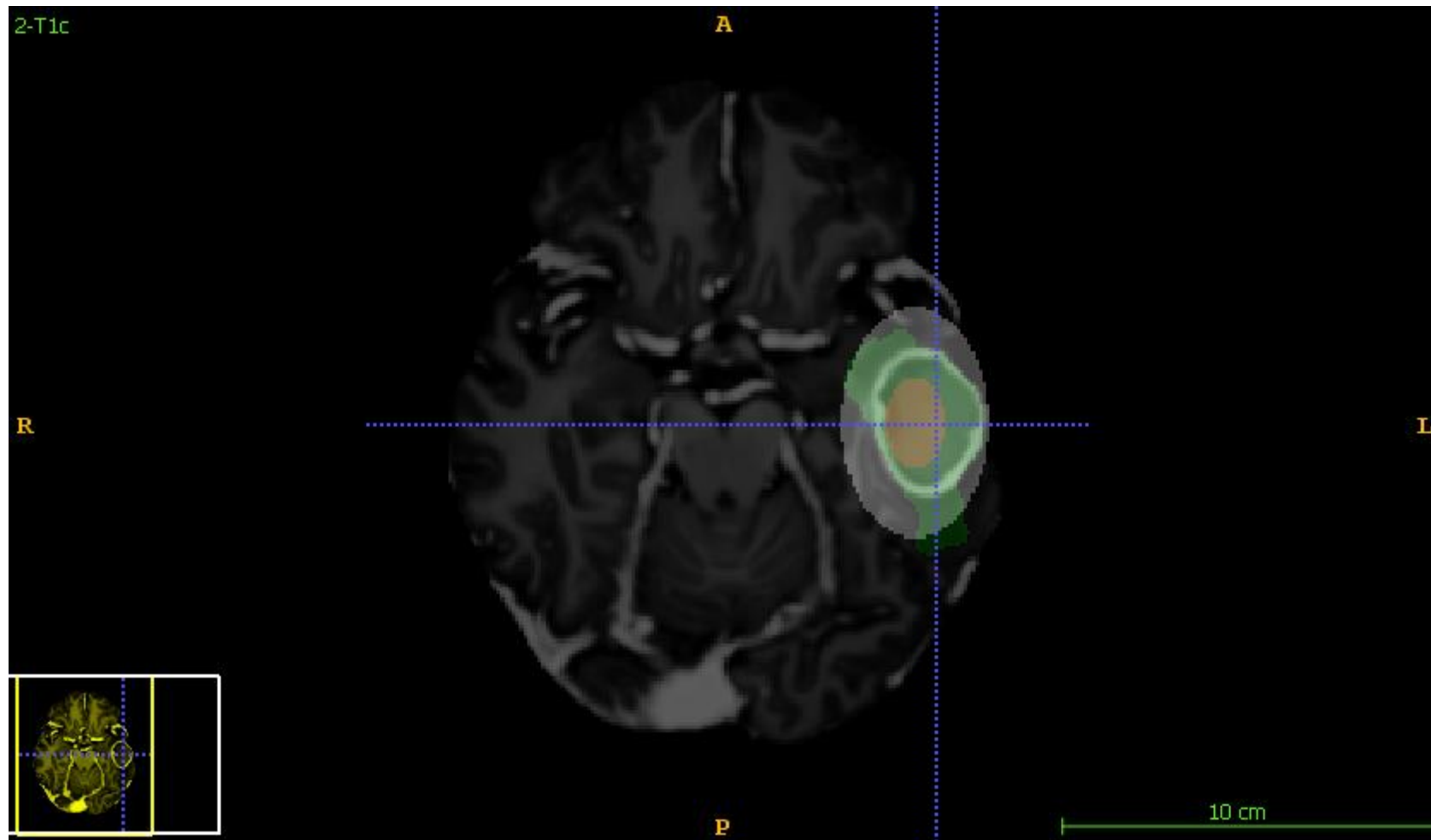




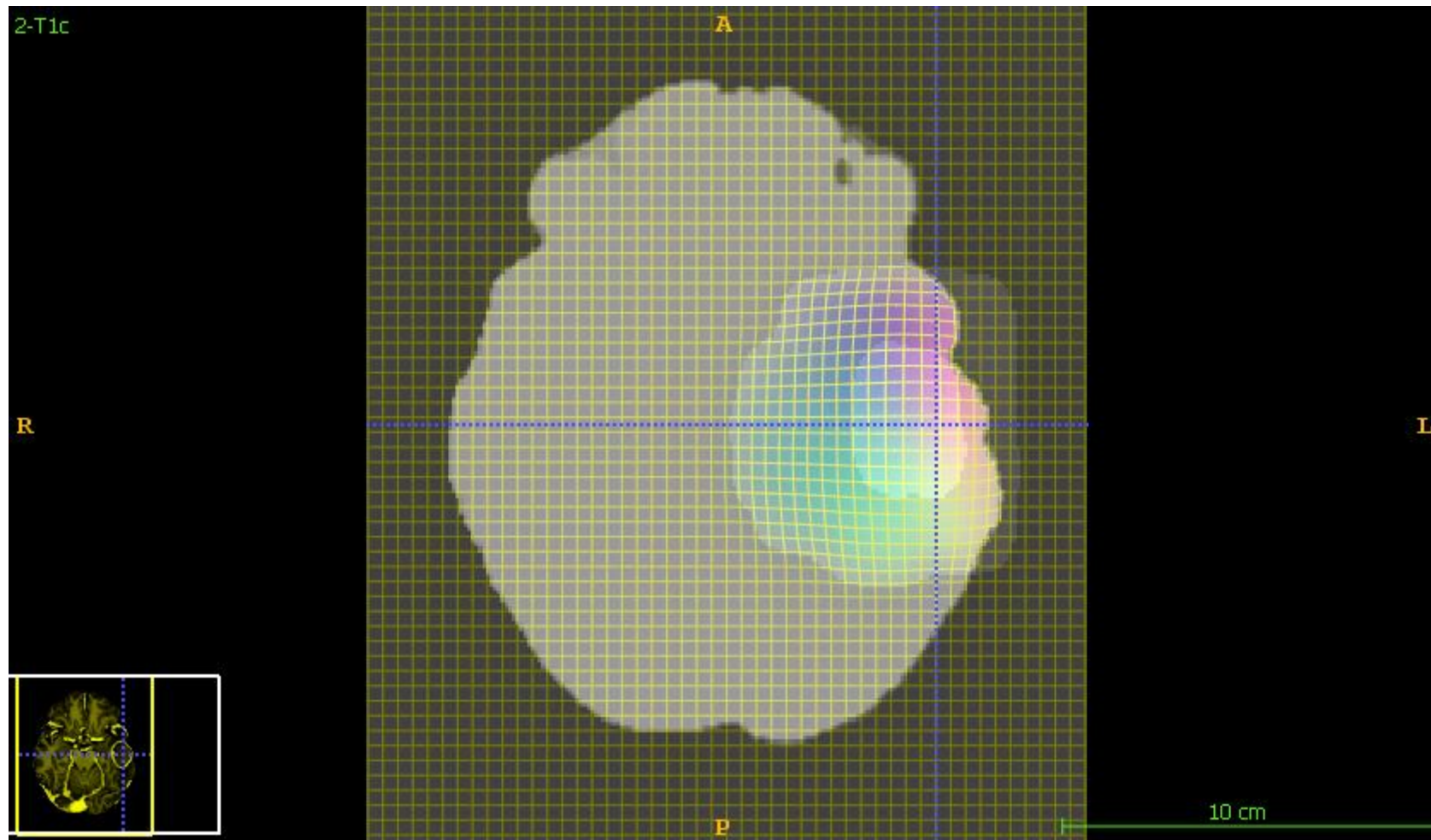


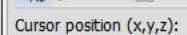


Tumor mask (green) and ellipsoid masks



Displacement grid and corresponding ellipsoid masks. Work in progress





41	115	61
----	-----	----

Intensity under cursor:

Layer	Intensity
2-T1c	25.79
warped	25.18
3-T2c	23.54
directional-binar...	0
neg-field-3mm-a...	2.57...
interp-neg-field...	1.22...

Label under cursor:

0 Clear Label

Segmentation Labels

Active label:

Label 1

Paint over:

☒ All labels

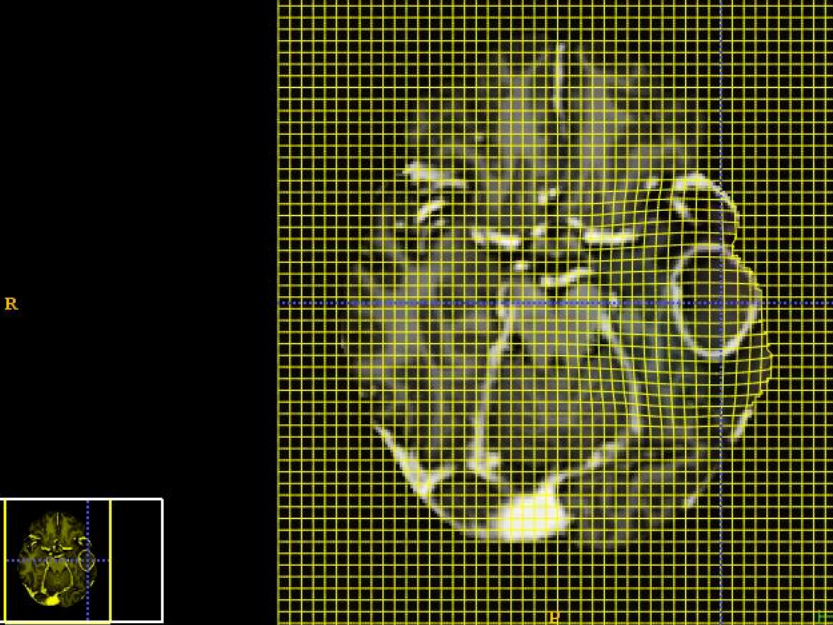
Overall label opacity:

50

3D Toolbar



2-T1c



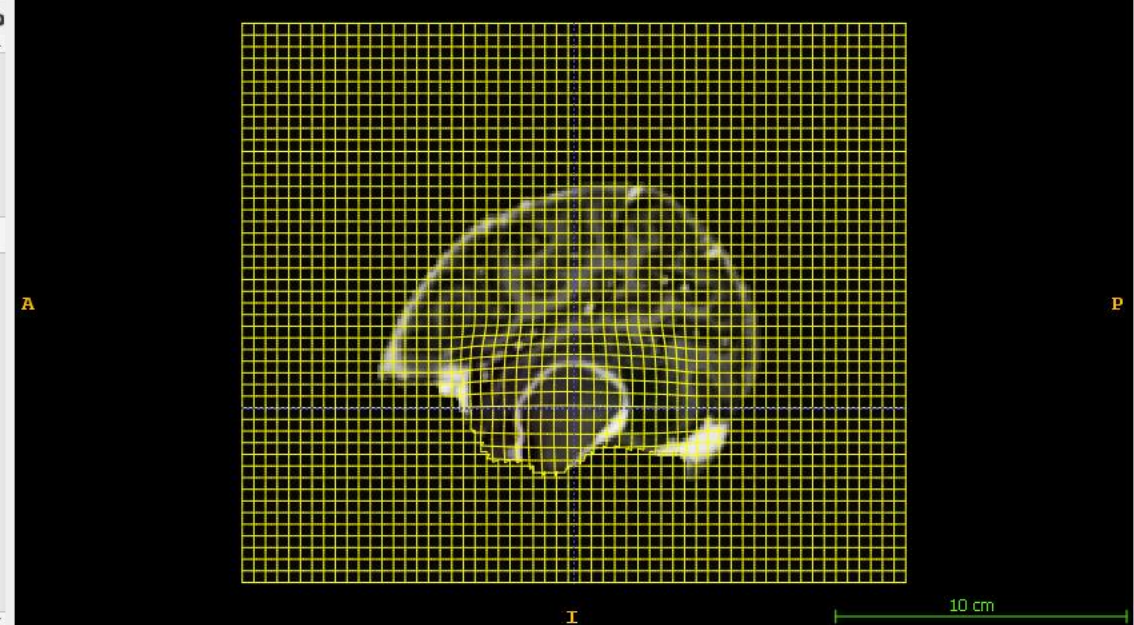
With
Model 2
shown as
grid

10 cm

zoom to fit

61 of 193

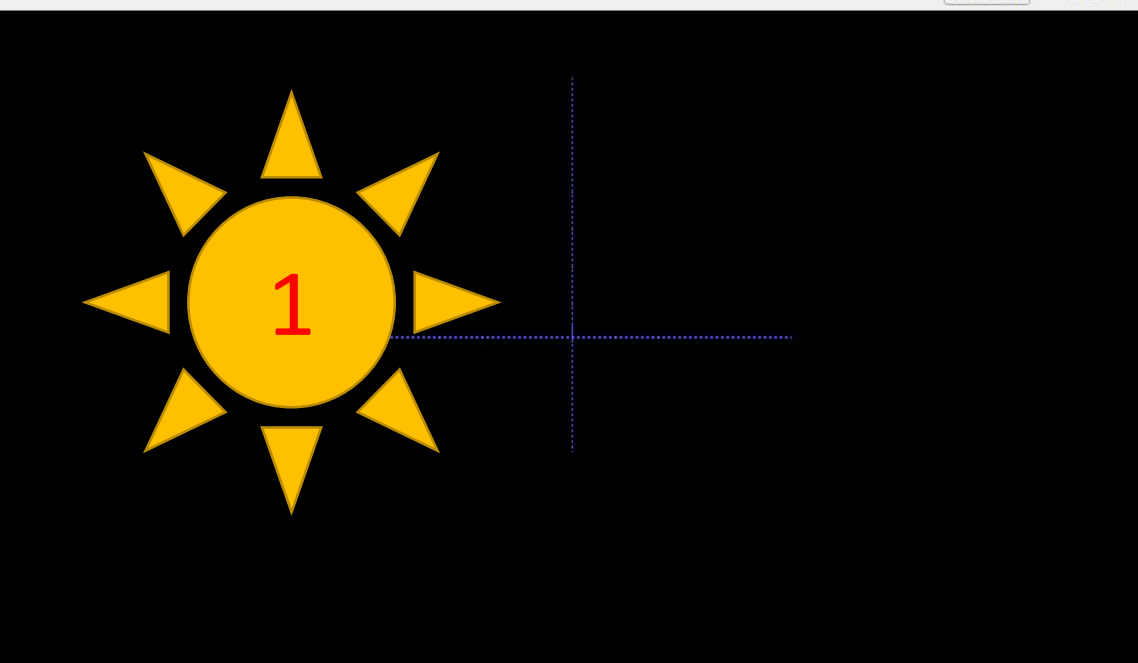
2-T1c



10 cm

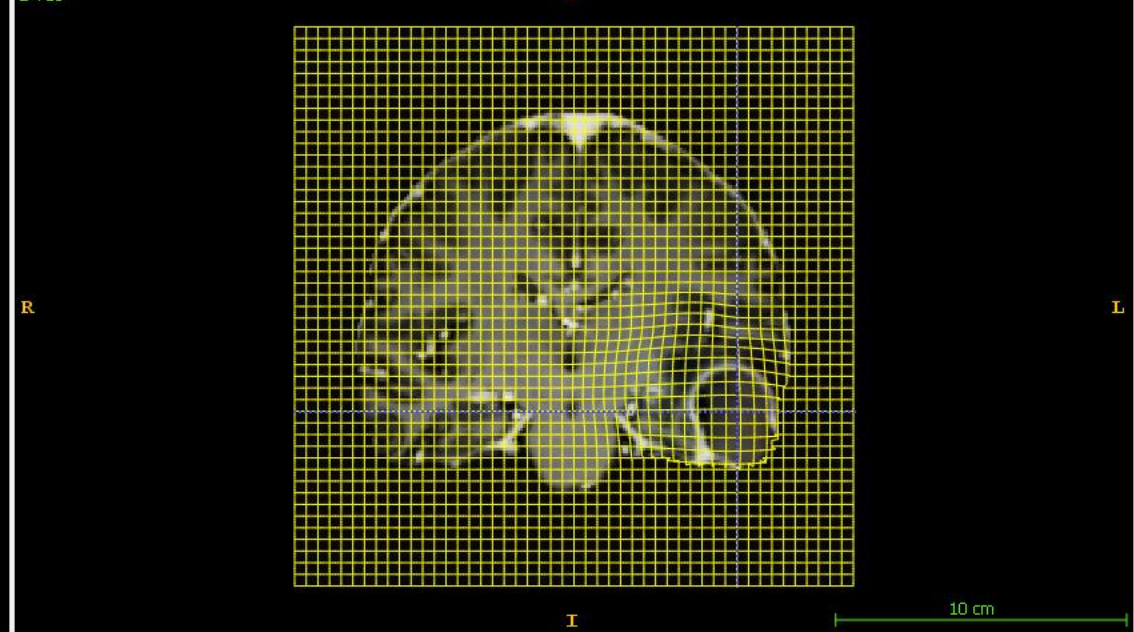
zoom to fit

41 of 193



update

2-T1c



10 cm

zoom to fit

115 of 229

