
Algorithm 1 Brain Surgery Navigation System

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1: Import necessary libraries
2: Initialize the program
3: function INITIALIZE
4:   LOADSTLFILE("head.stl")
5:   INITIALIZENDIPOLARISCAMERA
6:   INITIALIZEGRAPHICSWINDOW
7: end function
8: Define special points on the head
9: headSpecialPoints  $\leftarrow$  []
10: function SETHEADSPECIALPOINTS
11:   for  $i = 1$  to 3 do
12:     point  $\leftarrow$  GETUSERSELECTEDPOINT
13:     PUSH(headSpecialPoints, point)
14:   end for
15: end function
16: Adjust head size based on special points
17: function ADJUSTHEADSIZE
18:   scaleFactor  $\leftarrow$  CALCULATESCALEFACTOR(headSpecialPoints)
19:   SCALEHEAD(scaleFactor)
20: end function
21: Main loop
22: function MAINLOOP
23:   while true do
24:     devicePosition  $\leftarrow$  GETDEVICEPOSITIONFROMNDIPOLARIS
25:     targetPoint  $\leftarrow$  GETTARGETPOINT
26:     distance  $\leftarrow$  CALCULATEDISTANCE(devicePosition, targetPoint)
27:     alignment  $\leftarrow$  CALCULATEALIGNMENT(devicePosition, targetPoint)
28:     DISPLAYDEVICEPOSITION(devicePosition)
29:     DISPLAYDISTANCEANDALIGNMENT(distance, alignment)
30:     RENDERGRAPHICS
31:   end while
32: end function
33: Entry point
34: function MAIN
35:   INITIALIZE
36:   SETHEADSPECIALPOINTS
37:   ADJUSTHEADSIZE
38:   MAINLOOP
39: end function
40: Run the program
41: MAIN
```
