CS-5630 / CS-6630 Homework 5
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Task 2a: Design
The designs are attached at the end.

Design One:

The first design has a rectangle under the rendered object to show the transfer function. The transfer function shows the colors chosen by the user. It also has 5 colors disks where the user can hover the mouse to preview a new color or click to replace the actual color defined for the range. The range is manipulated using a range element. As the color disk, it updates the transfer function and the rendered object in real time. The range selector has a histogram under it to better guide the user on how to pick the colors.

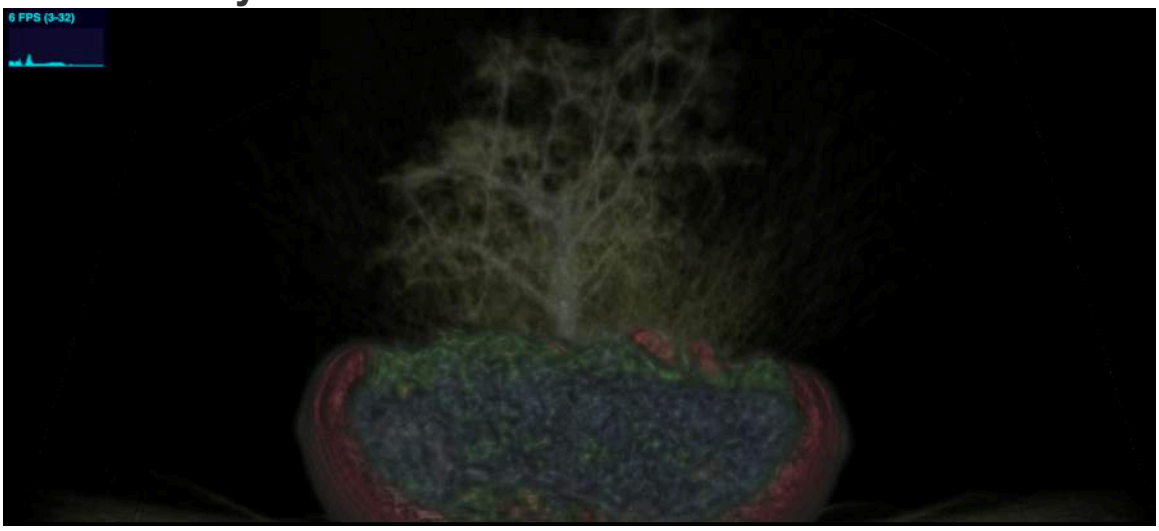
Design Two:

The second design uses a brush idea. It shows a histogram and allows the user to create multiple brushes on top of it. Each histogram has a color attributed to it. By clicking on the brush, the RBGA menu appears to the user as a tooltip and allows the user to change the color. You can remove the brush by clicking on the [X] by it. The design has also a clear button that remove all brushes and a slider that zooms the histogram using a power scale.

Design Three:

The third design has 3 sliders that allow the user to manipulate RGB individually. It also has some fields where the user can set the range on the transfer function for the selected RGB. There is a list with all entries. There is also a clear button that clears the list.

Task 3: Analysis



It is possible to see the roots for the Bonsai. It is also possible to see that there are stones on the bottom of the pot and on the surface of the ground. The Bonsai has many levels of details. It is possible to see a lot of different items by manipulating the range selector.

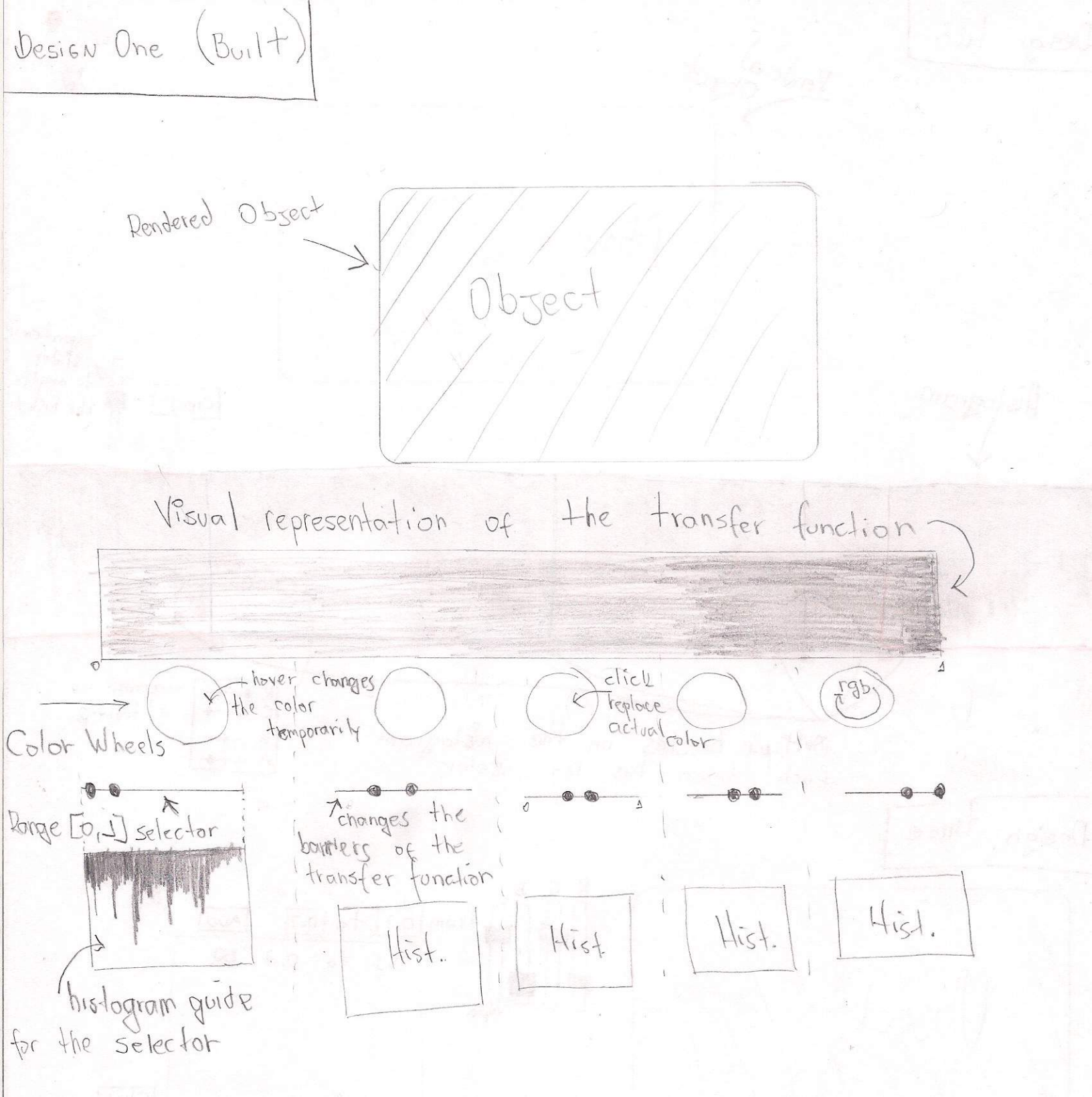
It is possible to see that the bones are hollow. Amazing!

I am not sure why but there is a circle involving the lobster in the teapot. Wait, why is there a lobster in a teapot?

Strengths
I believe my design is easy to use and has intuitive controls for the color. The range bar makes it easy to play with the histogram. I also think that it is very accurate to adjust the color levels. The range selector gives precision of which part of the histogram is being selected.

Weaknesses
As the selector gives you precision, it also gives a hard time to the user to properly move it in a slow step. Therefore, it is hard to get precision. Also, the design has a fixed number of disks and ranges. It would have been better if the user had the chance of giving the number itself (as on design 3).

Design One (Built)



Design two

Rendered Object

Object

Histogram

Clear

logarithmic slider to amplify the histogra

"Click"

R
G
B
A
← appears as a tooltip

Multiple brushes on the histogram
Each brush has it's color

Design Three

Object

R G B Alpha

from 0.2 to 0.7 ADD

0.1 to 0.2 X

Clear

entries