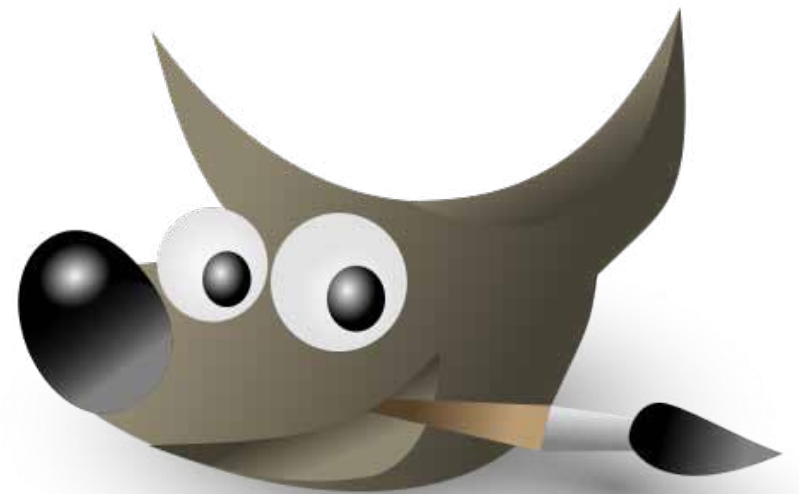


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Introduction

GIMP is an open source software for high-end image processing. For the image editing there are four different selection tools available. They are neither combinable nor is the selection editable. Every tool has its qualities, and there is a need to improve them make one well working tool out of them.

Assignment

The assignment is to develop an easy, fast and intuitive way to create a tool that can select by color, shape and content. The tool should combine fast and individual ways to work with efficient editing and shall be included fluently into the workflow of GIMP.

Expert's evaluation

In GIMP are four selection tools available. Some of them have functions in common, differing only in the dimension of the selection.

The „Magic Wand“ is used mainly for sharp edges or selections with high contrast to the surrounding picture. It selects a color range for continuous pixels. This tool is perfect for selecting solid colors but not for mixed colors. It can be configured to define how much contrast has to be selected.

A very similar tool is „Selection by color“. It selects the color by a reference of the color which the user clicked. The selection includes all the pixels in the whole image.

The „Intelligent Scissors“ works a bit different. The user can create anchor points that stick to the edge in a smart way and try to get as best possible the shape of the object. The tool selects a certain amount of the image based on contrast of pixels. The main problem is that the user can not modify the created line through one point to another and this might cause problems on what it's the main selection goal for the user.

The tool that makes most sense is the „Foreground Selection Tool“. Here the user decides what area is inside and which one has to be left out from the selection. That works quite good. One disadvantage is - it is the same problem with the other three tools - that the user cannot control the lines between the anchor points or change the selection in an easy and efficient way.

Functionality list for a selection tool

Color

- select a color or a range of continuous colors in certain area
- selection of color in the whole image

Shape

- make multiple selections
- differentiate between edges (by contrast)
- points of reference defined by the user/the tool
- create anchor points
- stick to the edge in a smart way

Content

- user decides what area has to be left out from the selection
- possibility of determining what is inside the selection
- possibility of controlling the lines between the anchor points
- create freehand selection

Functionality for the selection:

edit, scale, rotate, delete, move, combine, divide, exclude, intersect, arrange, make mask from selection, edit handles.

Functionality for anchor points/strokes:

edit, add, delete, move.

Options

- merge sample
- feather edges
- whole image
- anti-aliasing
- tolerance
- inside/outside

Brainstorming

The brainstorming was very important for finding the functionalities for our selection tool. For standards we defined the following aspects to be included:

- flexibility
- ease of use/joy of use
- efficiency
- power of combination

After evaluating our results we shaped our concept.

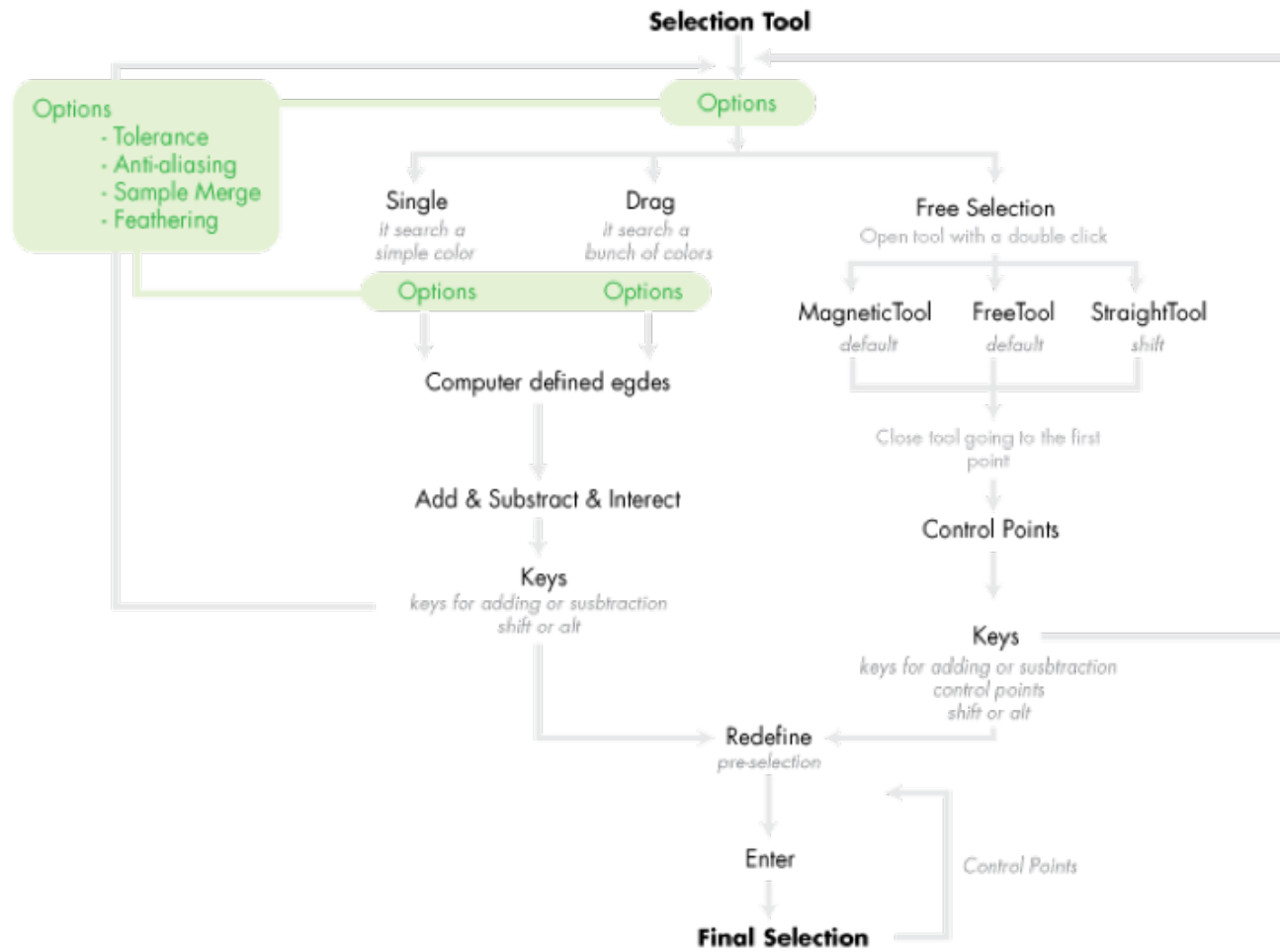
Concept

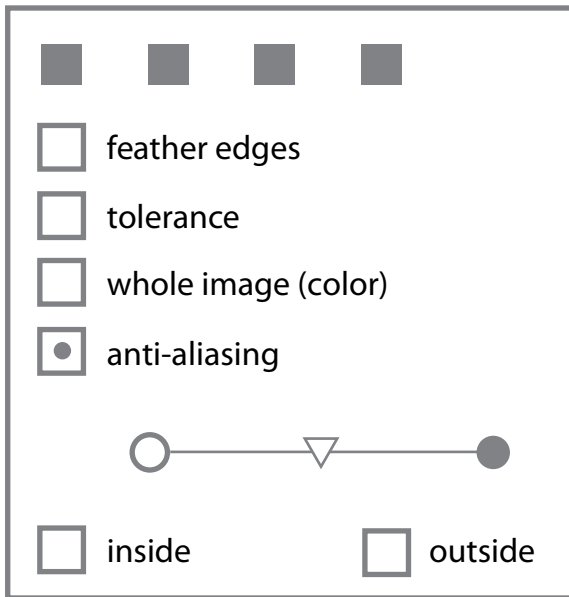
GIMP is a program for image processing. A usable selection tool is a must for such a program. After evaluating the existing tools and creating one single tool out of many ideas in the brainstorming, we came to the following result.

The selection tool has to be one tool for three mayor types of selection:

1. color
2. shape
3. content

Here is the process of creating the selections:



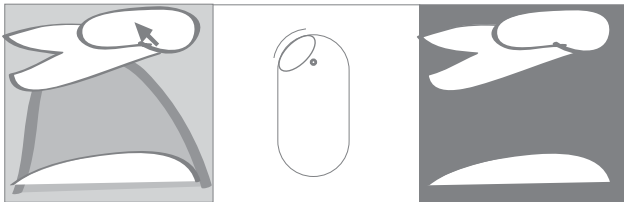
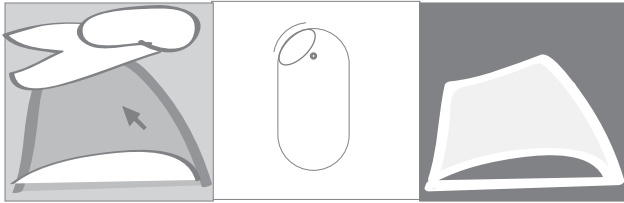


Scenarios

How to work with the selection tool:

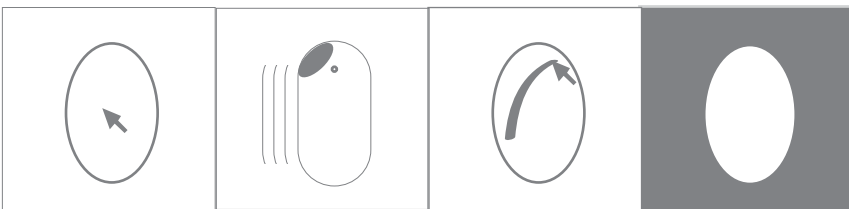
For every selection the user has the following options:

- merge sample
- feather edges
- anti-aliasing
- whole image (color)
- tolerance
- inside/outside (for selection of content)



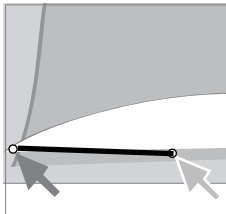
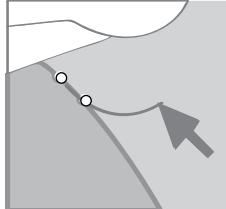
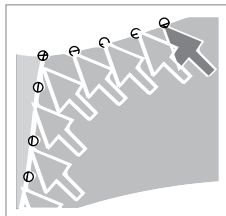
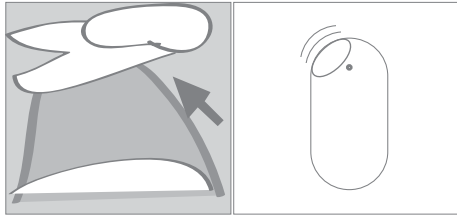
Select color:

1. choose the selection tool
2. click on the color
3. a selection of the color is made
4. In the options the user can define whether to select the color of a certain area or the same color all over the image.



Select content with „Drag“:

1. choose the selection tool
2. drag mouse over the area that has to be inside the selection
3. a selection of the content is made



Select shape with
„Free Selection“:

1. choose the selection tool
2. choose „Free Selection“ by double-clicking on the image
3. options to select the shape:
 - use „FreeTool“: user can draw strokes by hand (default)
 - use „MagneticTool“: user clicks to create anchor points, by pressing ctrl + shift the strokes are placed automatically at the pixels with most contrast between the anchor points.
 - use „StraightTool“: by pressing the shift key the strokes straightens

Apply the selection:

For applying the selection the user simply has to press the enter key.

Editing the selection:

After a selection is made, the user can choose whether he wants to apply the selection on the image or refine the selection. For refining the user can take all previously shown tools.

Conclusion

For us as users of image editing programs it was very interesting to get into the process of creating a useful tool for such a program. Although the work was from time to time very hard, we have learned a lot of interesting things during these three days. We would be very pleased if our tool suggestion can be used in any way for improving GIMP.