EyeCalc is an application that provides a dataflow programming environment for learning about and prototyping image processing algorithms. EyeCalc provides various operators, each of which represent a function, that can be combined in various ways to produce image process algorithms. This survey steps you through the process of creating a simple green screen algorithm and is intended to measure the usability of the application. After performing each task below use the Likert scale to indicate how difficult (lower) or easy (higher) the task was. If you have any issues or suggestions, please place them in the comments section after each task. After the tasks are completed there is another short survey on the last page about your overall experience with EyeCalc.

**1. Add two “Image” operators, two “Color” operators, and an “In Range (Colors)” operator to the workspace.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**2. Load Foreground.jpg (in the folder with executable) into an “Image” operator and set all the color values of one of the “Color” operators to 255.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**3. Connect the “Image” operator to the “In Range (Colors)” operator, connect the two “Color” operators to the “In Range” operator (connect the one with the 255 color values to the input labeled “Higher”), and connect the output of the “In Range (Colors)” operator to the other “Image” operator.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**4. Adjust the color values of the “Color” operator connected to “Lower” so that the person is white and the background is black.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**5. Add the “Multiply” operator from the OpenCV module and input the original image and the black and white image. The operator should be in an error state, check the error message.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**6. Disconnect both images from the “Multiply” operator and use “Convert” operators to convert both images to RGB with a depth of Float. Connect the converted images to the “Multiply” operator.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**7. Copy and paste the two “Convert” and “Multiply” operators below the existing operators.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments: this could be more clear about copying both convert operators

**8. Use a “Not” operator to invert the output of the “In Range (Colors)” operator and load in Background.jpg (in the folder with executable) into a new “Image” operator. Connect both to the pasted “Convert” operators.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments: Connect both converts into the multiply

**9. Use “Add Images” to add the results of the two “Multiply” operators and connect the output to a new “Image” operator.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**10. Save the resulting image.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**11. Insert “Macro Input” operators between each of the source images and assign them reasonable names. Replace the “Image” operator showing the result of the algorithm with a “Macro Output” operator.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**12. Save the workspace as a macro (save it in the default location given) and create a new workspace.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

**13. Add the new macro and the two source images to the workspace. Connect the images to the macro and connect the output to another image operator.**

Overall, how difficult was this task?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Very Difficult |  |  |  |  |  | Very Easy |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Comments:

Based on your experience with EyeCalc, rate the following statements. If you are not sure how to respond, mark “3”.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly  Disagree |  |  |  | Strongly  Agree |
| 1. I think that I would like to use this system frequently. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I found the system unnecessarily complex. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I thought the system was easy to use. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I think that I would need the support of a technical person to be able to use this system. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I found the various functions in this system were well integrated. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I thought there was too much inconsistency in this system. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I would imagine that most people would learn to use this system very quickly. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I found the system very cumbersome to use. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I felt very confident using the system. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |
| 1. I needed to learn a lot of things before I could get going with this system. | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  |

11. Overall, I would rate the user-friendliness of this product as:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Worst Imaginable | Awful | Poor | OK | Good | Excellent | Best Imaginable |

Comments: