

LAB 1 REPORT – Aaron Bruner

```
aaron@Aarons-PC:/mnt/d/GitHub/ECE-4310/Lab 1$ diff separableFilter.ppm slidingWindow.ppm
aaron@Aarons-PC:/mnt/d/GitHub/ECE-4310/Lab 1$ diff convolution.ppm separableFilter.ppm
aaron@Aarons-PC:/mnt/d/GitHub/ECE-4310/Lab 1$ diff convolution.ppm slidingWindow.ppm
```

Running the Linux diff command will show the difference between two files. The diff command returns to the terminal any differences. Given that we run the diff command on our images and see nothing means that they are the same.

Performing 2D Convolution

Time Spend for 10 iterations:

```
[#1](1662510453 754118800) | [#2](1662510453 804263200) | [#3](1662510453 854918800) |
[#4](1662510453 904750200) | [#5](1662510453 954803100) | [#6](1662510454 4788600) |
[#7](1662510454 54018800) | [#8](1662510454 103169100) | [#9](1662510454 152479400) |
[#10](1662510454 201503300) |
```

Average time spent performing 2D Convolution : **50139880 ns**

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Performing Separable Filter

Time Spend for 10 iterations:

```
[#1](1662510454 216309900) | [#2](1662510454 224322400) | [#3](1662510454 232254000) |
[#4](1662510454 240263800) | [#5](1662510454 248178600) | [#6](1662510454 256282300) |
[#7](1662510454 264217400) | [#8](1662510454 272297300) | [#9](1662510454 280213200) |
[#10](1662510454 288255100) |
```

Average time spent performing Separable Filter : **8102850 ns**

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Performing Sliding Window Filter

Time Spend for 10 iterations:

```
[#1](1662510454 303300600) | [#2](1662510454 306634600) | [#3](1662510454 309970200) |
[#4](1662510454 313297200) | [#5](1662510454 317241500) | [#6](1662510454 320666300) |
[#7](1662510454 323962700) | [#8](1662510454 327249000) | [#9](1662510454 330533900) |
[#10](1662510454 334411800) |
```

Average time spent performing Sliding Window Filter : **3583750 ns**

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As we look at the red values between running the three different filters, we can see that going from 2D Convolution to separable is a time decrease and even better going to sliding window.