Haitham Samir 900172026
Youmna Sabek 900160339

# GPU Computing: Assignment 4

*GPU used: GTX 1060 Max-Q, CUDA compute capability: 6.1 Pascal*

## Task (1)

For a tile size 8x8:

```
Microsoft Visual Studio Debug Console
please enter the image path
C:\Users\haith\OneDrive\Documents\flower.jpg
The program supports eight operations, please enter the code of the required operation:
 1-Blur
 2-Emboss
 3-Outline
 4-Sharpen
 5-Sobel left
 6-Sobel right
 7-Sobel top
 8-Sobel bottom
5
TILE WIDTH USED FOR KERNEL = 8
Device and Host produce similar results
speedup/slow down achieved with memory overhead = time used by host (0.1080)/ time used by device (0.2560) = 0.4219
speedup/slow down achieved without memory overhead = time used by host (0.1080)/ time used by kernel (0.0286) = 3.7739
The following calculations exclude the device memory overhead...
the host was capable of running 0.4096 GFLOPS, while the device was capable of 1.5458 GFLOPS
GPU utilization as calculated by number of active threads/SM = 3.1250 %

C:\Users\haith\source\repos\HW4\x64\Debug\HW4.exe (process 17332) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Operation chosen: sobel left

Image before:

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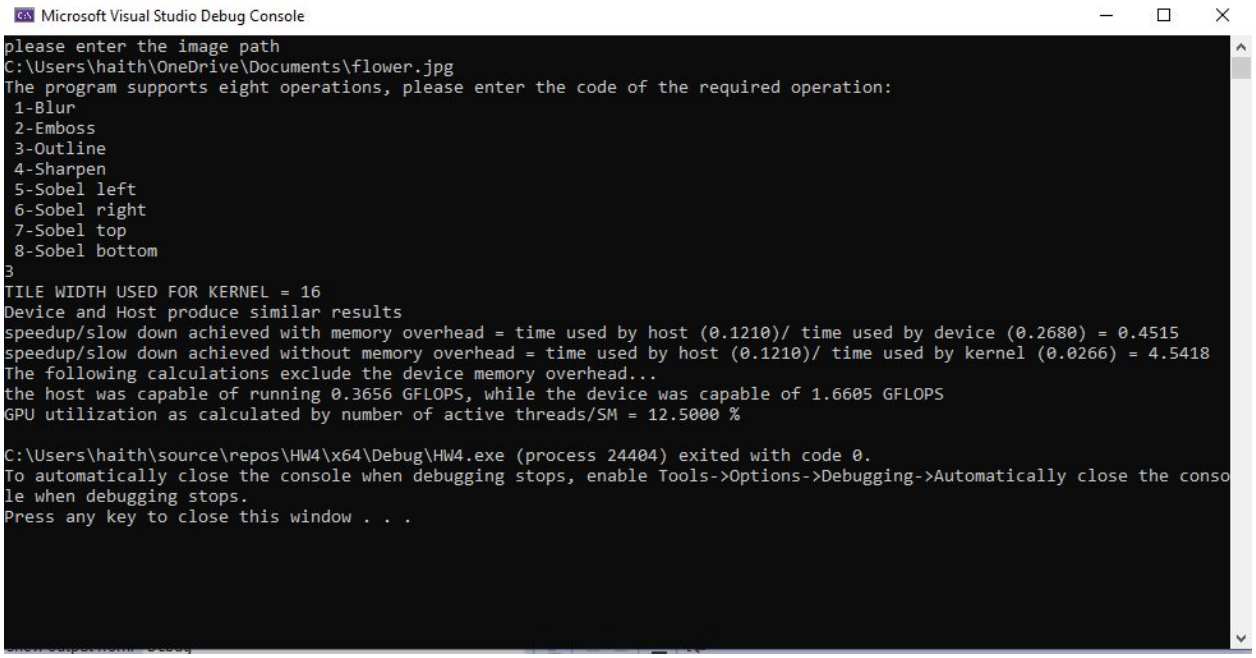
Image after:

Both the device and the host produced the same output images as expected.

## Task (2)

For a tile size of 16x16



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Operation chosen: outline

Image before:

Image after:

Both the device and the host produced the same output images as expected.

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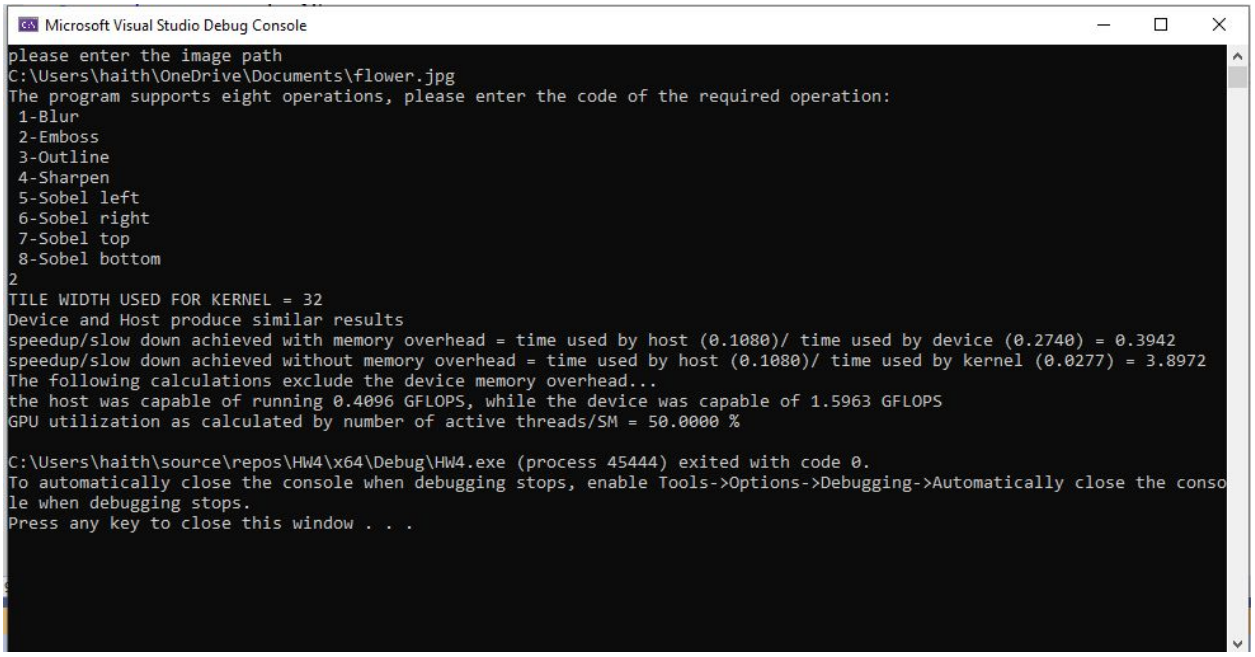
# For a tile size of 32x32




Operation chosen: emboss

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Image before:

Image after:

Both the device and the host produced the same output images as expected.