Report Labwork 4

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Threads

- Firstly, I calculate the size of pixels.
- Secondly, I allocate the input memory and the ouput memory of CUDA with *cudaMalloc()* function.
- Thirdly, I copy CUDA Memory from CPU to GPU with *cudaMemcpy()* function in *cudaMemcpyHostToDevice* mode.
- Fourthly, I set the block size *blockSize* to 64 and calculate number of block equal to

$$blockSize = pixelCount/(blockSize * 3)$$

  .
- Fifthly, I init the *rgb2grayCUDA¡¡¡numBlock, blockSize¿¿¿()* with the input memory and the output memory.
- Sixthly, I copy the ouput image with *cudaMemcpy()* function in *cudaMemcpyDeviceToHost* mode.
- Finally, I clear the memory with *cudaFree()* function.
- The result:

```
USTH ICT Master 2018, Advanced Programming for HPC.
Warming up...
Starting labwork 3
labwork 3 ellapsed 10.7ms
```

Figure 1: Labwork output image