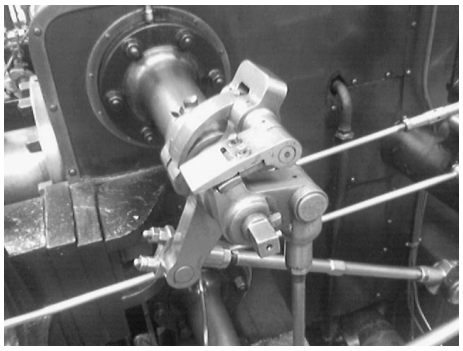
OpenCL exercise 3: Sobel Filter

In this exercise the Sobel Filter – used for edge detection in image processing – should be implemented on the GPU.
`http://en.wikipedia.org/wiki/Sobel_operator`



Original image

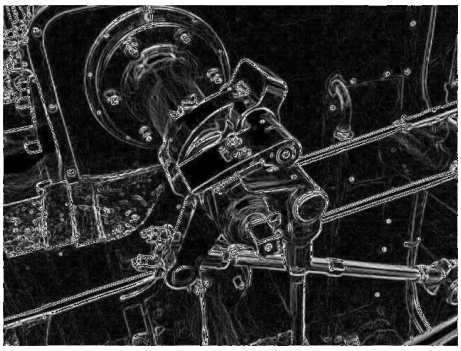


Image after sobel filter

1 Task 1

Implement the sobel filter on the GPU, similar to the CPU implementation (using global memory).
Write profiling code which prints the speedup (without and including the time for memory transfers) and the MPixel/s on CPU and GPU.

2 Task 2

Make a copy of the kernel created in Task 1 ("`sobelKernel2`") and modify it to make sure that the four corner pixels are only loaded once.
Compare the performance to Task 1.

3 Task 3

Make a copy of the kernel created in Task 2 ("`sobelKernel3`") and use an OpenCL image for the input data
Compare the performance to Task 1 and Task 2.