OpenCL exercise 5: Volume rendering

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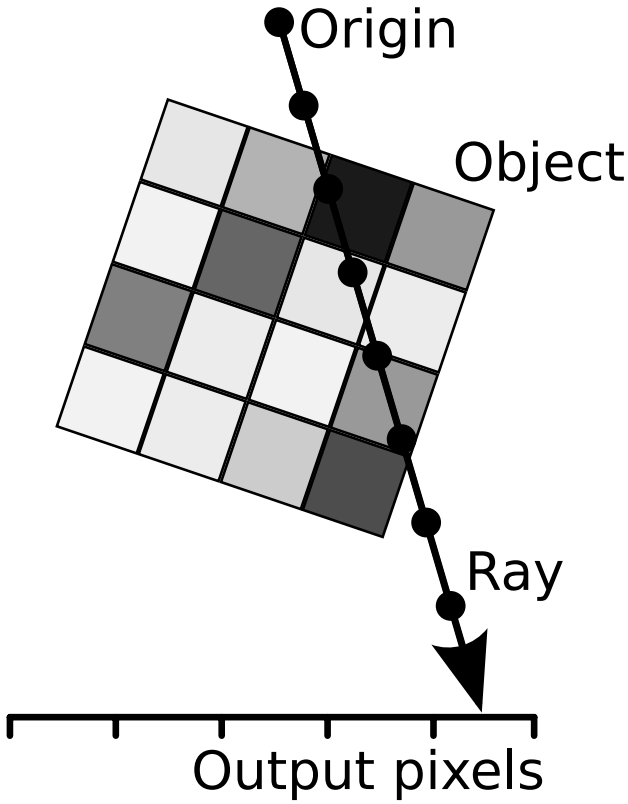
Volume rendering



- Ray goes from origin to the output pixels
- Values of object (= input data) along the ray are summed up
- If value is not taken in the middle of a pixel, trilinear interpolation is used (bilinear in 2D-case)
- Sum of the values is value for output pixel
- Values outside the input object = 0

Task

- GPU implementation of 3D volume rendering
  - Use 3D image object for input data
- Profiling code which prints the CPU time / GPU time / memory transfer and speedups.
  - For memory transfer: Only time for transfering output data
- Try code with large data set

Task (Optional)

- Use half-precision for input data
- Use OpenCL-OpenGL-bridge