

Operating Systems Lab – CS 314

Lab 01 – Breaking Inhibitions

Group 35

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Time Variation Analysis in Image Processing Phases.

The analysis focuses on time variation across the phases of an image processing application designed to sharpen PPM format images. The application includes five phases: file reading, smoothing (S1), detail finding (S2), sharpening (S3), and file writing. Time measurements for each phase were taken using the C++ chrono library, with average times calculated from five executions per input image.

Variation in processing time is primarily due to differences in file size, with larger files requiring more time. Average times are summarized in the table below.

Detailed run times are documented in the “Results.txt file”.

SCRIPTS:

make build-sharpen: compiles cpp code

make run-sharpen INPUT=image name OUTPUT=new-image name: runs cpp code in INPUT and OUTPUT, we should ignore .ppm as it is given in the make file.

Note: All times are recorded in *seconds* and represent the average across *five* trials.

File	File_Size	File_read	S1_smoother	S2_find_details	S3_sharpen	File_write
1.ppm	238 KB	0.0138	0.021	0.009	0.007	0.0231
2.ppm	906 KB	0.0479	0.072	0.028	0.020	0.0683
3.ppm	1726 KB	0.0966	0.122	0.038	0.030	0.0825
4.ppm	3413 KB	0.1778	0.183	0.064	0.056	0.1246
5.ppm	4395 KB	0.2001	0.190	0.078	0.067	0.1395
6.ppm	9981 KB	0.4896	0.426	0.157	0.151	0.4579
7.ppm	27137 KB	1.2968	1.165	0.451	0.420	1.2522

"Processing Times for Image Operations" ::

