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Final Project Proposal

1 Abstract

We will implement a basic cross-platform parallelized video and image editor in C++ that will enable rotation, cropping, scaling, color-correction, and assorted other features such as edge detection, motion detection, blurring, and wavelet quantization compression.

2 Description

The project will be distributed as a stand-alone, cross-platform application built using Qt, notably the GUI framework. Editing functions will be implemented in C++, supported by parallelization with NVIDIA's CUDA. Decoding will support qcif and pgm files and encoding will output ppc (parallel picture codec) and pvc (parallel video codec) files encoded with Huffman, run-length, or arithmetic compression as well as motion estimation and frame difference. Both the encoder and decoder will be parallelized.

The application interface will contain a simple toolbar for performing each manipulation, with the possibility of a dialog box in which to specify different parameters. The main window will show the original image and the manipulated image side-by-side.

3 Timeline

Mar 24 Project Proposal

Mar 31 Application GUI

Apr 07 Encoding/Decoding

Apr 21 Parallelized Image Editing Features

Apr 28 Parallelized Video Editing Features

May 05 Project Presentation

May 12 Final Project Report