Assignment1 Report

Hongchao Fang

Introduction

In this assignment, I implemented two codes to display images and video frames based on OpenCV and C++. For the imgDisplay.exe, the program reads an image file and displays it in a window. After that, the window will remain open until the user presses “q” from the keyboard. For the vidDisplay.exe, the program will obtain access of camera and open a video channel with a window. Then the program will start the loop of capturing new frames and displaying them. Same as the imgDisplay.exe, the window will remain open until the user presses “q” from the keyboard.

In the video display program, some filters are also added to transform video frames. I mainly built seven filters: cvtColor, greyscale, blur, magnitude, blurQuantiz, cartoon, and reverseColor. In addition, I also added the function to save the processed frames when users press “s” from the keyboard. Based on the above APIs, users can choose different kinds of filters to display video in multiple styles and save the frames on their local machine

Results

To be specifical, here are the results for all filters:

A frame from original video

A frame from the greyscale live video,

A frame from the alternative greyscale live video

A frame from the Gaussian blurred video

A frame from the gradient magnitude video

A frame from the blurs and quantizes video

A frame from the cartoon video

A frame from the color reversed video

Conclusion

In this assignment, I learned to build a light C++ and opencv coding environment based on VS Code, Mingw, and Cmake. Also, I have a deeper understanding of basic image processing methods. In the end, I also get familiar with many basic libs of opencv.