Comp Photography (Spring 2015) Final Project

YongHui Cho
ycho46@gatech.edu

Capture & Convert

My project captures image via webcam and then converts it to a cartoonized image.

The Goal of Your Project

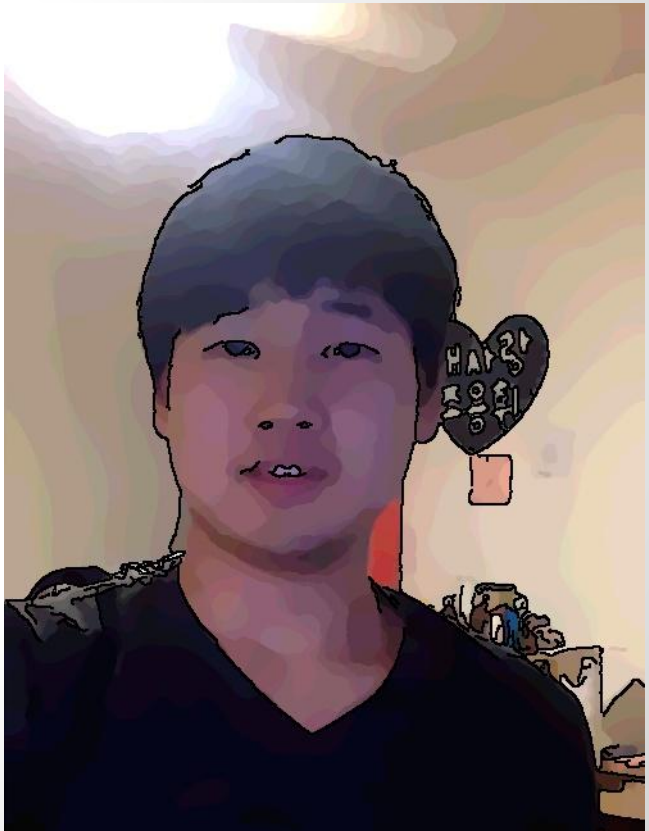
Main goal: Capture user's image from webcam and resize into a portrait image relative to face's position and create a portrait cartoonized image.

Motivation: I was motivated by Photobooth in Macs how they convert images from webcams. Also, while researching about OpenCV and some tutorial site I found a cool feature that I wanted to try to implement.

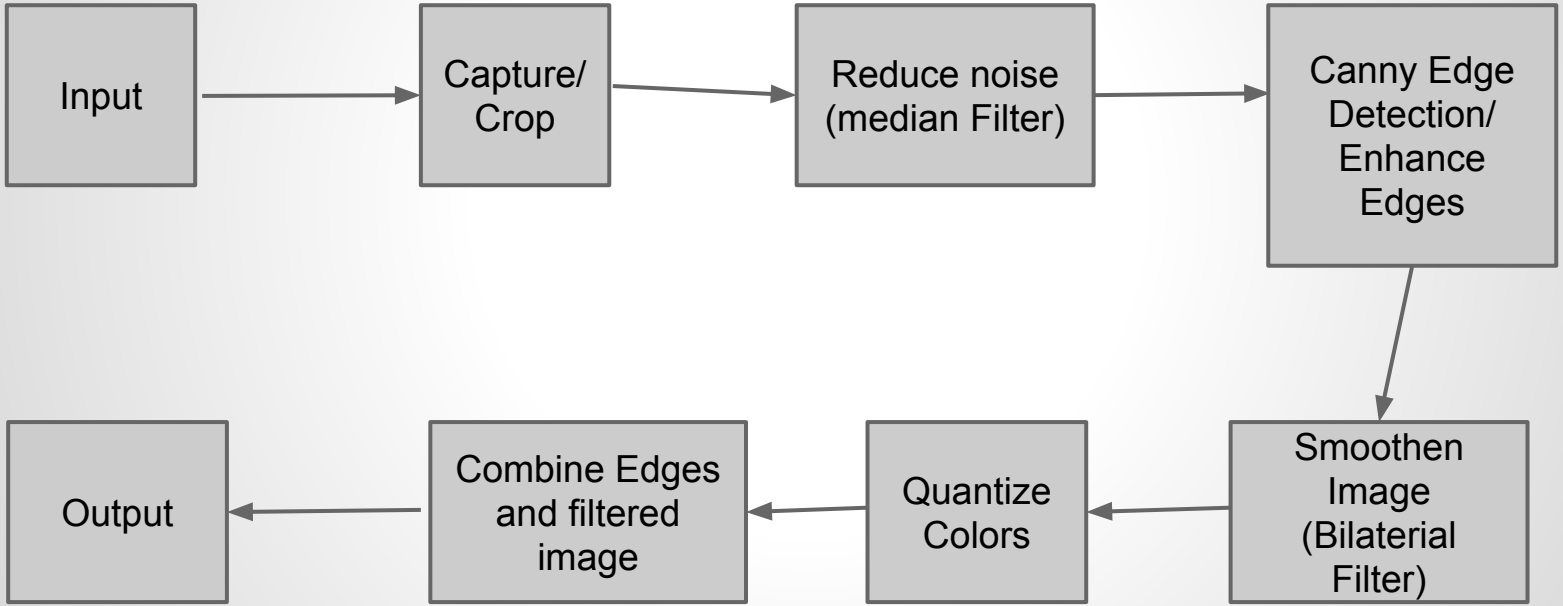
Showcase what you did. This could be many images, but this single slide should be a good pictorial of your work

Input

Output



Showcase your pipeline



What is the best way to see your project?

- Below is the link to my repository on Github.
- The instructions are on the readme and some example images are included in the example's directory.

- Link: https://github.com/ycho46/CS4475/tree/master/Final%20Project

What worked

- As far as cartoonizing the image, I think it was successful in finding the right parameters for the computation. For example, the number of time that I had to run my bilateral filter with the filter parameters, and getting the edges of the image to get the contour lines, and the quantization of the image.
- For the webcam part, running the webcam through python was exciting, and using a .xml file from the tutorial I was able to set a threshold for face detection and it worked great. Also, after the capture the cropping works well.

What did not work? Why?

- My initial planning where I wanted to create a caricature didn’ t work out pretty well. Morphing the image was creating boring outcomes which did not come out as pleasant as I thought it was. Also another reason I did not include the image warping was that it did not have the caricature feel that I wanted it to have for most of the images. I think this is because caricature relies on exaggerating certain features of the face, but I can’t make my program to detect each feature in the face and exaggerate it part by part.

Even more, as needed

What I would do differently?

I would make a GUI for everyone to easily try using my program. Also make more functions that create different images.

References / Pointers

Face Recognition - https://realpython.com/blog/python/face-recognition-with-python/

Paper on Toonifying applications - https://stacks.stanford.edu/file/druid:yt916dh6570/Dade_Toonify.pdf

Image Filtering - http://opencvpython.blogspot.com/2012/06/smoothing-techniques-in-opencv.html

Edge Detection - http://opencv-python-tutroals.readthedocs.org/en/latest/py_tutorials/py_imgproc/py_canny/py_canny.html

Credits/Thanks

I thank prof. Essa for consulting me with the idea and teaching me the some of the techniques and concepts that I used in creating this project