

Comp Photography (Fall 2015) Final Project

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<https://cs6475.wordpress.com/2015-fall/>

Fun with Image Style Effects

Create a mosaic picture from an album of photography, convert an image to a cartoonized image, and convert an image to cluster circle image.
All image style effect created for fun!

The Goal of Your Project

The goal of the project is to reproduce image style effects as could be generated by professional software such as Adobe Photoshop. The project will be use Python and OpenCV library.

I have always wondered how Adobe Photoshop could do some of the amazing images effects. Now, After I take this class. I have a better understand what it does and how that can be obtained outside of Adobe Photoshop.

Image Style Effects in Python

The image style effects recreated are:

1. Mosaic: Convert an image to a mosaic
2. Cartoonized: Change an image to a cartoon
3. Circles: Convert an image to a cluster of circles, with the radius determined by pixel brightness

Image Effects Showcase 1- Mosaic

Input



Output



Image Effects Showcase 2- Cartoonized

Input(top) / output (bottom)



Image Effects Showcase 3- Circles

Input



Output as black&white

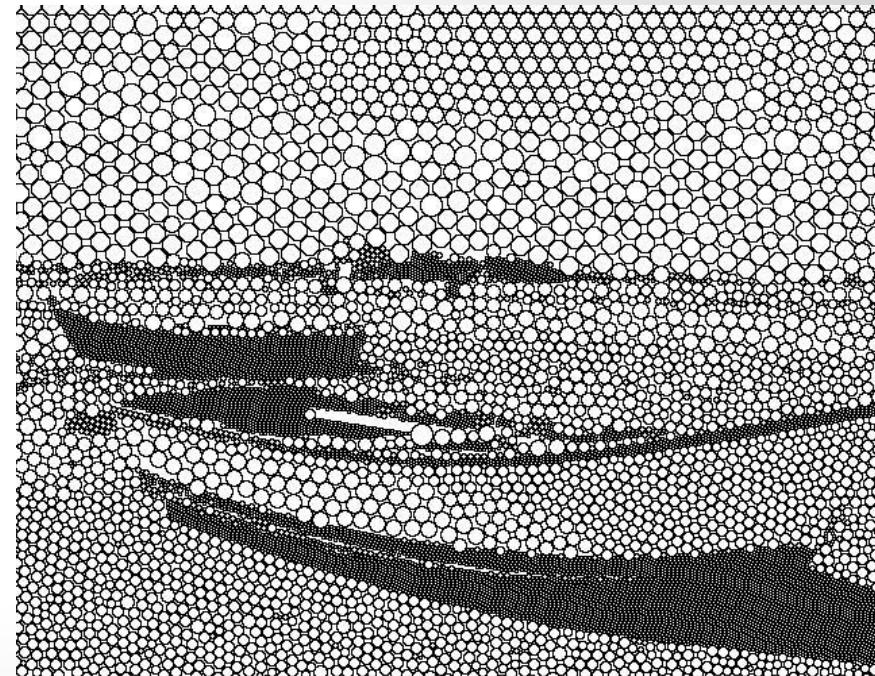


Image Effects Showcase 3a- Circles

Input



Output circles colors background



Image Effects Showcase 3b- Circles

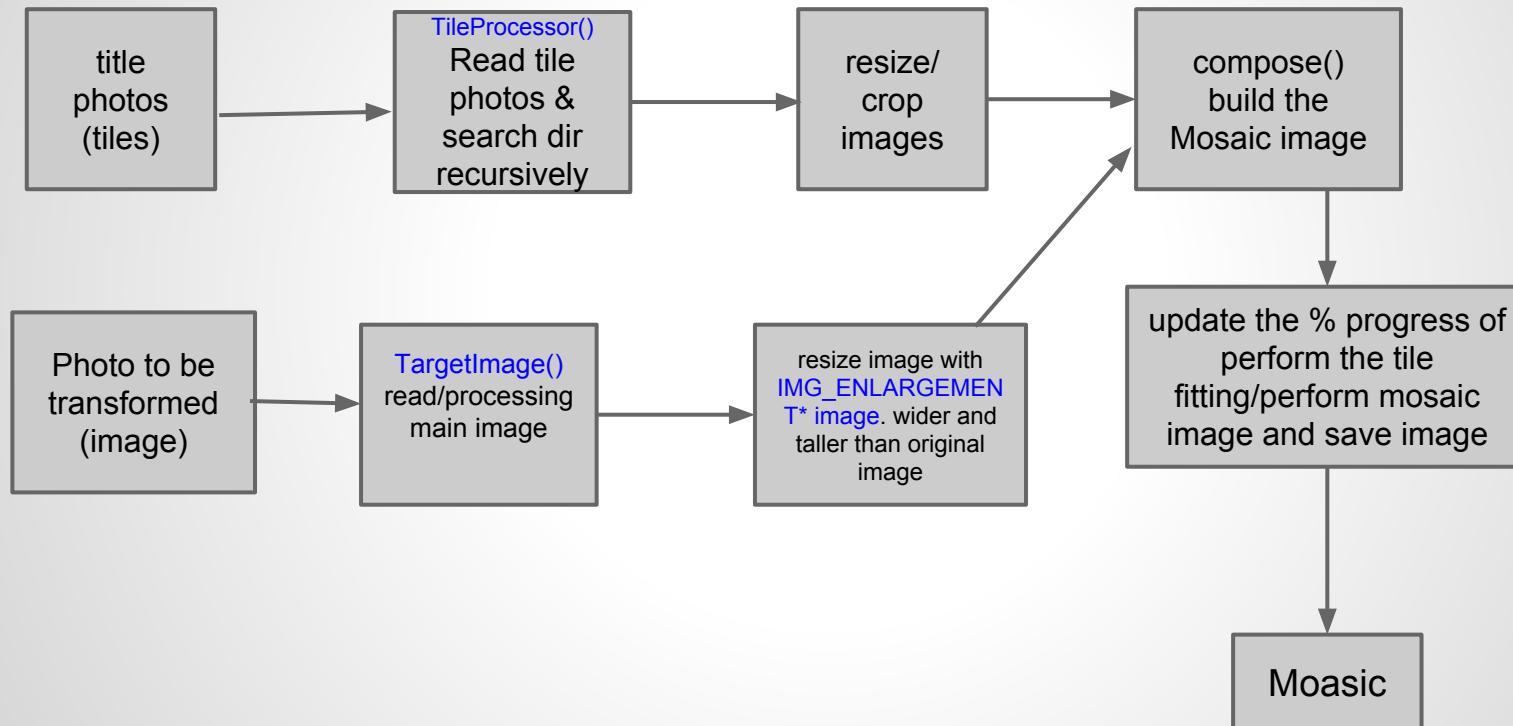
my avatar photo(my own picture) as input
image and use american flag as background



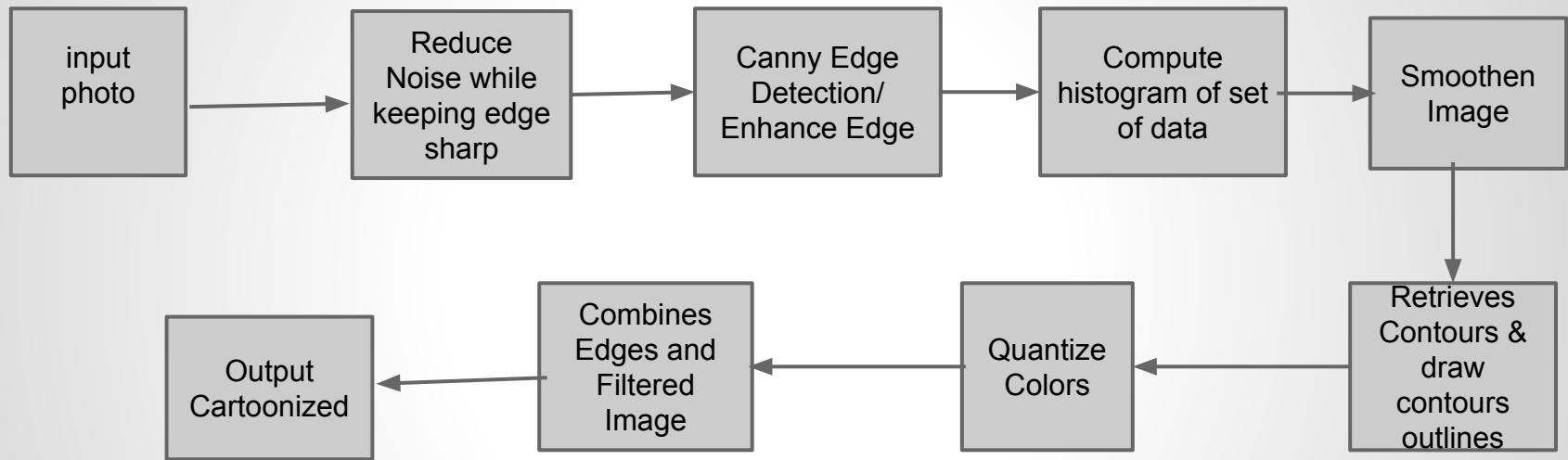
Output circles with american flag
background



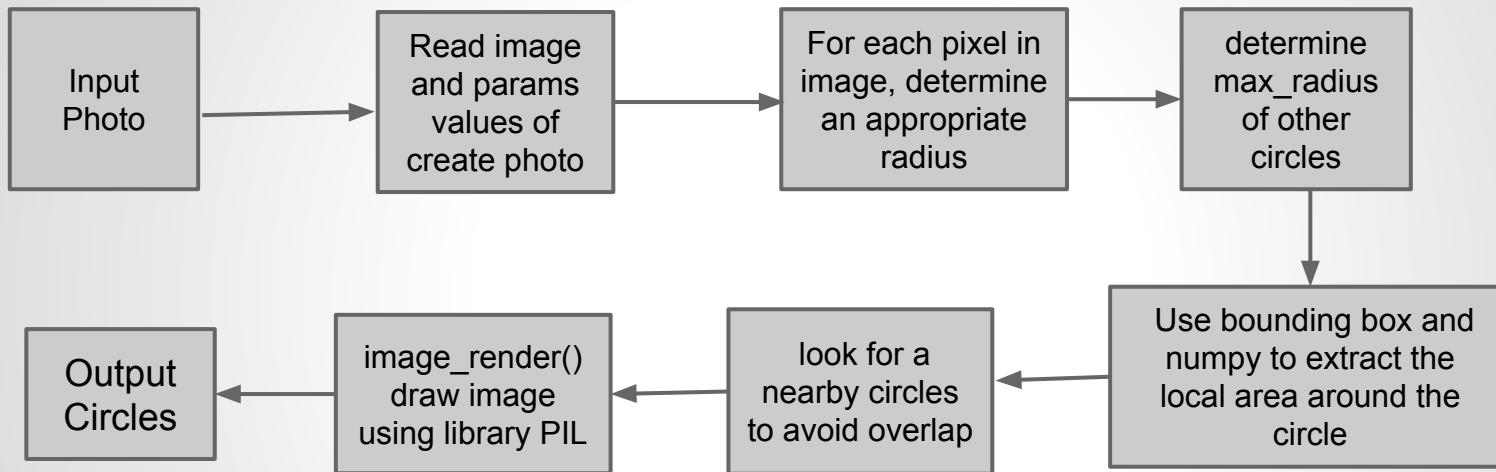
Showcase Mosaic pipeline



Showcase Cartoonized pipeline



Showcase Circle pipeline



What is the best way to see your project?

- Mosaic images link [https://drive.google.com/folderview?
id=0B1fxYJ1KRnK1S3RMaW1xMmJzVkU&usp=sharing](https://drive.google.com/folderview?id=0B1fxYJ1KRnK1S3RMaW1xMmJzVkU&usp=sharing)
- Cartoonized images link
[https://drive.google.com/folderview?
id=0B1fxYJ1KRnK1Yk5TQ1d3NXgzdWs&usp=sharing](https://drive.google.com/folderview?id=0B1fxYJ1KRnK1Yk5TQ1d3NXgzdWs&usp=sharing)
- Circle images link
[https://drive.google.com/folderview?
id=0B1fxYJ1KRnK1LVhUOVIVUnZxLUU&usp=sharing](https://drive.google.com/folderview?id=0B1fxYJ1KRnK1LVhUOVIVUnZxLUU&usp=sharing)
- Source codes link
https://github.com/tuongngoc/cs6475/tree/master/final_project

What worked

- All 3 (mosaic, cartoon, and circle) image style effects works! I think it was successful in finding the right parameters for the computation and final out images looks great.
- I focused on having fun and I did have fun on create those image of my own album photos

What did not work? Why?

- I would like to convert an image of my own profile picture into pencil draw photo look. In photoshop it called “change photo to a color pencil sketch”. My code did not work well, and the image didn’t come out good.
- I still debug the pencil draw code and I don’t have enough time to complete it. The image style effects: Mosaic, Cartoon, and Circles are took me more than 3 weeks already. I will definitely continue work on it after xmas break when I have more time.

What would I do next?

- I would like to build a web app, or iOS app, or an Android app to convert a photo to those image style effect. Create more fun for photo app!

References / Pointers

- Paper on Toonifying applications -

https://stacks.stanford.edu/file/druid:yt916dh6570/Dade_Toonify.pdf

- Edge Detection -

http://opencv-python-tutorials.readthedocs.org/en/latest/py_tutorials/py_imgproc/py_canny/py_canny.html

- K-Means

<http://stanford.edu/~cziech/cs221/handouts/kmeans.html>

Team

- I worked on this project alone.

Credits/Thanks

- Thanks Prof Irfan Essa and the TAs for making this an interesting class. This was a lot of fun!
- Thanks TAs for all their support and answer piazza on late night.
- Thanks all my classmates who ask and answer questions, and feedback.