9/7/2020-

Contacted Will Nash off the *Quantity beats quality for semantic segmentation of corrosion in images* paper that he wrote. Emailed: [will.nash@monash.edu](mailto:will.nash@monash.edu) PhD student at Monash University paper link <https://arxiv.org/pdf/1807.03138.pdf>

Started File for images of rust on pipes still need more images and to organize them.

Questions: Is the rust on the inside of pipes different from the rust we find on exposed metal or even on the outside of a pipeline? Answer: Its actually pretty similar besides some distortion

Rust classification color issue. Look into how one paper dealt with color? Answer: Not a Problem

Some pipes have rust all over how will we find the features that we need to recognize? Answer: multi class classifiers wont be a problem and we can do severity detection.

Will we want to learn to differentiate the differences between different rust severities. Answer: yes

9/9/2020-

Will Nash will send me an update if he gets permission to publish his corrosion dataset.

Started outline of program to scrape google for 2 class images.

<https://medium.com/@intprogrammer/how-to-scrape-google-for-images-to-train-your-machine-learning-classifiers-on-565076972ce>

9/14/2020-

Got the web scrape to work on the words rust and corrosion in English a couple of days ago.

Program for detecting duplicate/similar images is working sort of as of today. I might try to redo this program and get it to work better.

9/15/2020-

Gave up on image hashing program in python and downloaded some software to find duplicate images.

Starting machine learning powered sorting program in python today. This will be a 2 class classifier that will help sort the rust from the nonrust images.

9/18/2020-

Working on using fastai and pytorch to build 2 type classifier. Having a lot of trouble with fastai

10/27/2020-

I have scrapped fastai and built a classifier from scratch in pytorch. It works! However, I am struggling with accuracy. I want to get access to more GPU computing power. I am preforming the final download of all images today so the image database will be complete after this morning.

Challenge, Goal, My plan, Results

10/14/2020-

In the last month I have got everything and more working. Today I am going to balance the rust dataset and see if I can train a somewhat accurate image classifier. I also want to see if I can implement a confusion matrix into the PyTorch model trainer.