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Results from first 15 images from Images\_cropped\_T5

--- File Name --- , A, B, C, Dirt

Images\_cropped\_T5\im\_mix\_of\_thre\_00.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_01.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_02.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_03.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_04.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_05.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_06.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_07.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_08.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_09.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_10.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_11.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_12.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_13.jpg , 11, 6, 9, 0,

Images\_cropped\_T5\im\_mix\_of\_thre\_14.jpg , 11, 6, 9, 0,

***Conclusion:***

This assignment gave us the structure of a classifier, without the image cleaning and feature extraction functionalities. In order to do this, I first read through the code to get some general understanding of how the classifier was being built. The first thing is that the training files are being taken in to be cleaned. This section was taken from lecture code, where we have to use a cumulative sum to create the cumulative histogram, then taking the top 94% of the values to get the brightest pixels. Then I had to use a little bit of morphology to more accurately get the right pixels in the image.

We then had to extract the features from the cleaned image. While this was also given to us, there were some slight issues with the code. Upon going through the code, I realized that the mistake was with the table to matrix conversion. To solve this problem, all I had to do was index using curly braces instead of parenthesis. I also had to mess with a good bound for the size of dirt in the image. Ultimately, I chose 2500 after a little testing. Once this classifier was able to be run, I came across more issues with trying to run the program on different directories. In the code, we had to find a file pattern to know what files we should use to test the classifier on. This took far too long to figure out in hindsight, but I am glad that I took the time to figure it out.

Overall, this assignment was not objectively complicated, it took more time to find why issues were happening with the code, then the fixes came by pretty quickly. For example, my first issue came with the fact that I had my matlab files in the wrong directory, but since the error message was vague (*local\_variable* was not able to be found *line 103*), I did not realize this until the thought to move my files clicked in my head. This messed with me, as that variable was being created about 5 lines above it. Next, when rewatching the lecture to get more help with the noise cleaning, there was an arbitrary variable in the code that I had no idea what to do with at the time, as it was a crucial part of the code. After calling it quits for the day, I approached the problem with a clear head the next day. The variable was meant to be the top X percentile number, and it is mostly arbitrary. Afterwards, there were issues with extracting the features. The table was not being turned into a matrix correctly, after a few quick Google searches, I learned that you can easily turn a table into a matrix with curly braces. Finally there was the issue of files just not being run on the classifier. This issue came with the file pattern. Quite literally just changing file pattern to just have an asterisk instead of trying to generify everything.