Identifying Ocean Trash Using Convolutional Neural Networks or something

Project 5
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Motivation - Small

My dog nearly ate a half eaten cheese stick. That's not the worst that could have happened, but it's part of a larger problem.

Motivation - Large

There are how many animals out in the ocean. They aren't as fortunate to have someone looking out for them.

Context

70% of trash sinks, so satellite imagery is limited

Over 100K marine animals die annually to plastic waste

There are an estimated 5.25 trillion plastic pieces in the ocean. Yum

Process

Got data from https://conservancy.umn.edu/handle/11299/214366

There's a bunch of trash and organisms in that dataset with different cameras angles and distances.

Standardized image size and gray-scaled them.

Using convolutional neural networks to train, but a little stuck on validation.

So Far...

A little behind with my own neural network so far, very stuck because my validation test is underperforming HARD next to my test test.

Intend to compare multiple models and see how mine stacks up.

Visual → Just kidding. I don't have one right now.
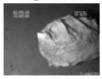
Metrics: val_accuracy: 69%, test_accuracy: 99%

Obligatory Visual

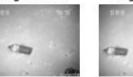Here are some of the misclassifications my model has done. Disappointing.