

Week 8 Research

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Does color affect Image Classification?

Minh Bui paper

- “Experimental results showed that classification with grayscale images resulted in higher accuracy than with RGB images across the different types of classifiers”
- “using a smaller number of highly edgy features can provide comparable recognition accuracy at a reduced computational cost”
- More efficient?

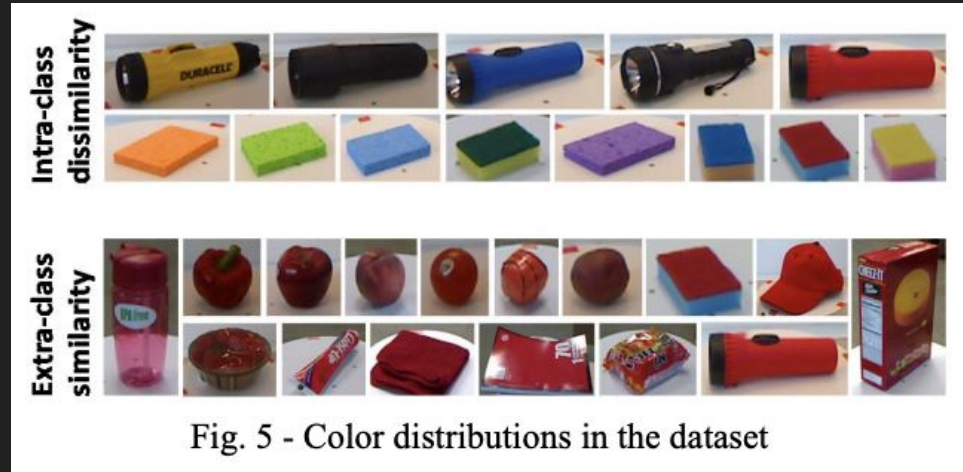
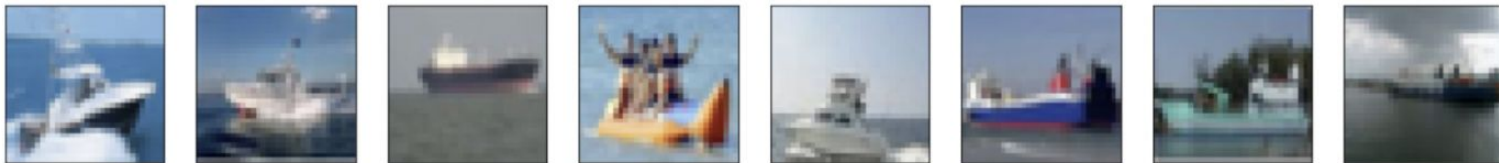


Fig. 5 - Color distributions in the dataset

Read here: <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7562656>

Intra-class similarity



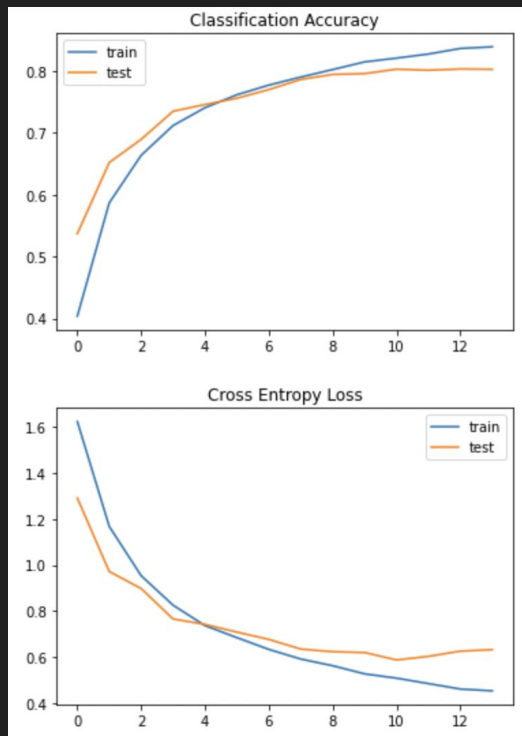
CIFAR-10 Class 9 | Ship



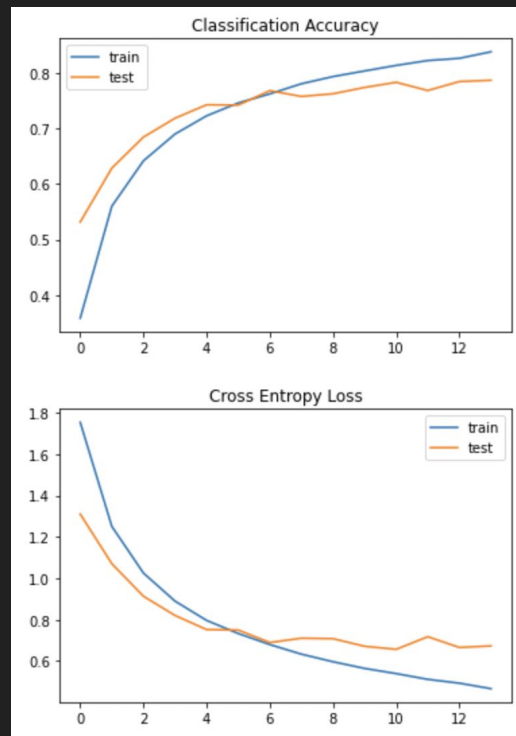
CIFAR-10 Class 5 | Deer

Results

RGB (80.3%)



Greyscale (78.7%)



Next week's Action Items

- Publish Part I
 - Upload experiments to GitHub
- Work on Part II
 - Add filter to testing set, but not training set (?)
 - Add edge detection filter (Gaussian)
 - Extra-class similarity - plane vs ship
 - Shapley Values
 - Shifting images