

COMP 4471 Project Proposal

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Background

Mobile Suit Gundam, a robotic weapon from Japanese anime series released in April, 1979. As more and more Gundam animation is rolling out, it is very hard for people to recognise all the models of “Mobile Suit” in the whole Gundam world. Applying classifiers to identify the types of the “mobile suit” would help people have more understanding of Gundam animation. For example, “Powered Gm” looks similar to “GM”, for non-Gundam fans, could not distinguish them easily.



Dataset Source

As there are no dataset of Gundam available online, it is decided to collect the image of Gundam online. In order to increase the sample size, some data augmentation skills would be applied to the images.

Training Approach

In order to solve the problem, there are two different approaches. The first one is to train our own model. With extracting the feature from images, such as the color histogram, object context, etc. The second one is transfer learning. There are many image classification models on the Internet, fine tune the layers of these models and see how they perform. Some pre-trained models from CIFAR-100 and ImageNet should be able to provide some inspiring ideas about image classification problems.



Result Evaluation and Analysis

For the result evaluation, confusion matrix will be used for checking whether the classification is correct. It is a combination of actual and predicted classes. The overlapped grid of the matrix is representing how the model understands the classes. This is a good way to study which classes are easily confused. Class prediction error is another analysis that extends the confusion matrix. It visualizes the misclassified class as a stacked bar. Each bar is a composite of predicted classes.