

COMP6721 Applied Artificial Intelligence Project Proposal

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A. Introduction

In this project, we use three different models to classify images of five different venues: decision tree supervised, decision tree semi-supervised and CNN supervised.

B. Dataset Selection:

In this project, we use 2,960 colorful images categorized into five datasets: bar, beach, store, restaurant, and subway. We have eliminated parts of the datasets for having specific classes and also combined datasets from different sources together. We sourced these five datasets from two websites: image.cv [4] and mit.edu [5].

Below are some examples from these datasets.



Figure 1. From the subway class



Figure 2. From the Bookstore class



Figure 3. From the Beach class

C. The five selected venues:

1. Book stores: This class contains 746 images, each one have a dimension of 256x256 and from the website [3]
2. bar: This class contains 604 images, with different dimensions. The original database contains 67 Indoor categories and there are at least 100 images per category. We only extracted 604 images from the indoor bar category [1].
3. Subway: This class contains 539 images, each one having a dimension of 256x256, and from the website [7]
4. Restaurants: This class contains 449 images, each one having a dimension of 256x256, and from the website [6]
5. Beach: This class contains 622 images, each one have a dimension of 256x256, and from the website [2].

D. Dataset description

D.1. Identifying Class Imbalance :

To identify the classes imbalance, we plot the number of images assigned to each class in a bar chart, shown in figure 4.



Figure 4. Identifying Class Imbalance

Plotting Image Size: The 'classbar' contains the images of different dimensions. Figure 5 visualises the different raw image sizes available for this class. The dataset of other classes have the same dimension i.e. 256x256 pixels. Figure 6 shows one such class.

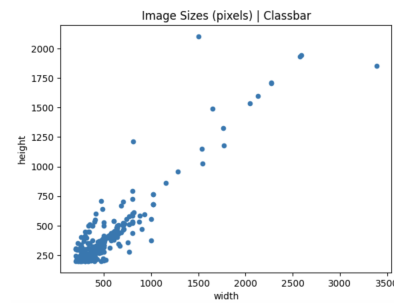


Figure 5. pixel classbar

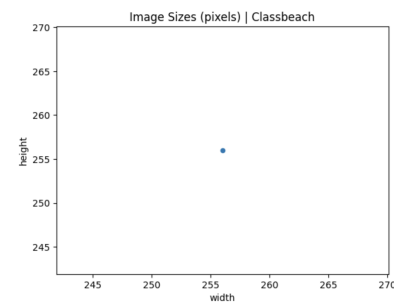


Figure 6. pixel classbeach

References

- [1] bar. <https://web.mit.edu/torralba/www/indoor.html>.
- [2] beach. <https://images.cv/dataset/beach-image-classification-dataset>.

108 [3] bookstore. [https://images.cv/download/](https://images.cv/download/bookstore/746)
109 bookstore/746.
110 [4] images.cv. <https://images.cv/>.
111 [5] MIT. [https://web.mit.edu/torralba/www/](https://web.mit.edu/torralba/www/indoor.html)
112 indoor.html.
113 [6] restaurant. [https://images.cv/download/](https://images.cv/download/restaurant/1811)
114 restaurant/1811.
115 [7] subway. [https://images.cv/download/subway/](https://images.cv/download/subway/539)
116 539.

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