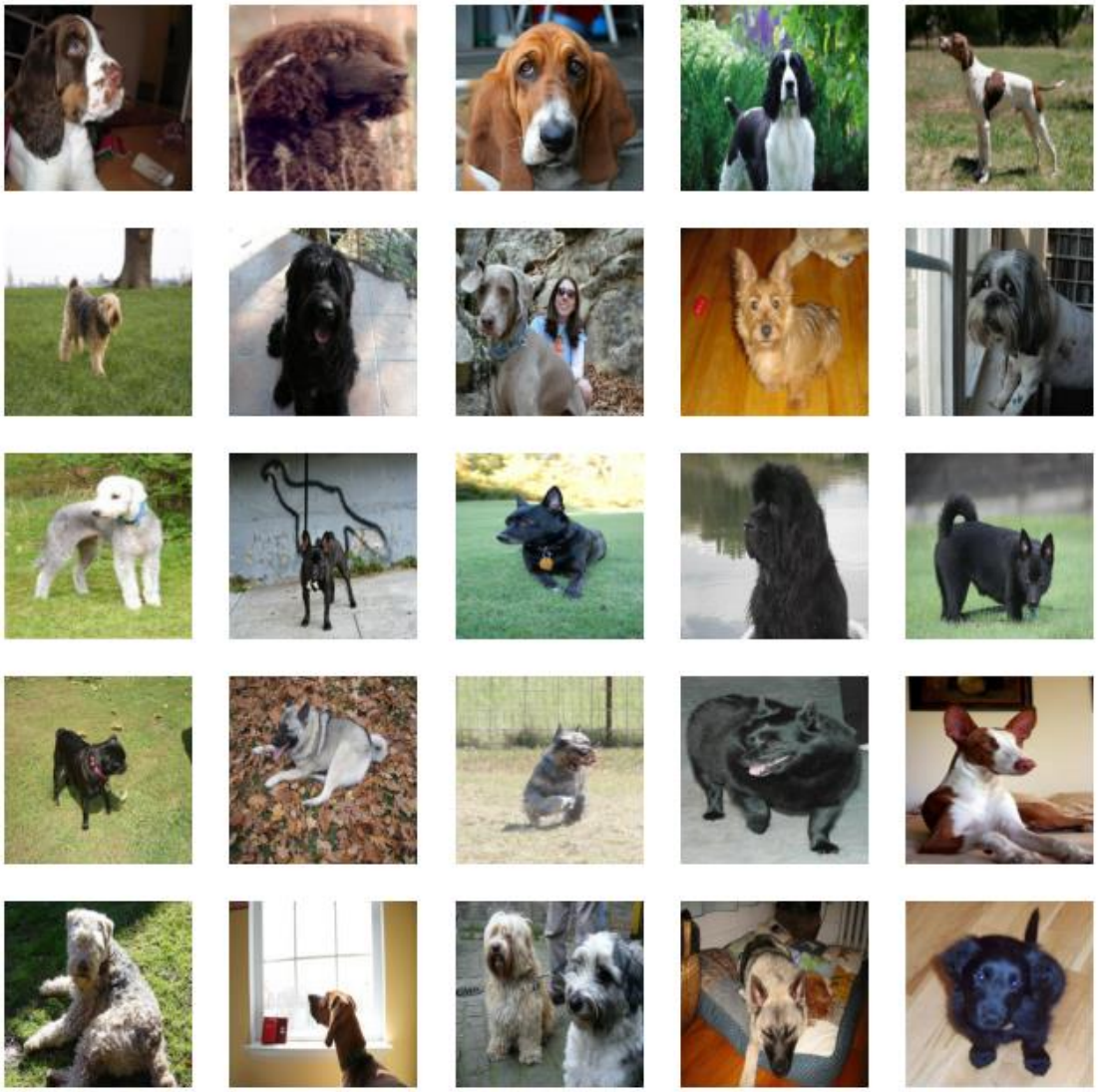
Deadlock

1. Objective: What should we do? 我们要做什么?



In recent years, there has been a high incidence of injuries caused by domesticated powerful dogs in China's cities. Incidents of stray dogs injuring people in neighborhoods have also occurred from time to time.

We would like to create an app that can be applied to mobile, where

a mobile phone can take a photo or upload a photo of a dog to give the breed of the dog and relevant information under that breed to facilitate staff screening.

1.1 Why should we do that? 我们为什么要做这个?

This is because most of the staff involved in community management are not professional law enforcement officers, and most of them are in the form of community workers or even volunteers. Most of them have a low level of education and many of them are even elderly volunteers. It is difficult for them to identify multiple dog breeds. If there is a mobile software that can take photos to identify dog breeds, it will be more helpful in managing urban domesticated dogs and stray dogs. This can also be used as a form of evidence to be retained in the subsequent administrative process.

2. Data: Where do we get the data? 我们的数据从哪里来?

Ref: http://vision.stanford.edu/aditya86/ImageNetDogs/

The Stanford Dogs dataset contains images of 120 breeds of dogs from around the world. This dataset has been built using images and annotation from ImageNet for the task of fine-grained image categorization.

3. Experience: Who should we learn from? 我们应该向谁学

习?

Ref: https://www.kaggle.com/code/thiennguyen15/predicting-dog-species-using-resnet50

https://www.kaggle.com/code/akshitsharma1/generative-adversarial-networks-gan-in-one-shot

https://link.springer.com/article/10.1007/s11633-020-1261-0

4. **Model: What model should we train? 我们应该选择哪种模型?**

- Typically Neural Network (Resnet, Generative Adversarial Networks , etc.)

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5. **Evaluation： Are our results good enough? 我们的结果够好吗?**

- Cross validation
- Confusion matrix
- F1-score
- ROC Curves
- Etc.

6. **Appearance：How does the GUI look like? 我们要如何展**

现结果?

- Mobile App (sign up & login, support camera to take images, archives, documents export/import, re-check reminder)
- Website (uploading images, similar functions like APP)

7. Problem: What's the pain point of the project? 项目的痛点在哪里?

- Data unbalanced
- OOD Detection
- Monte Carlo Dropout Uncertainty
- Etc.