Is it Raining Cats or Dogs?

INTRODUCTION

Problem Statement

The ability to properly classify images of different species of animals, and subspecies beyond that, is a complex and delicate problem. The refinement and satisfactory solution to a problem such as this has wide application, such as predictive capabilities for agriculture and animal services.

Project Schedule

Week 1: Plan project, select data, submit proposal by April 6th.

Week 2: Download data, confirm Caffe environment functionality.

Week 3: Create Caffe files, experiment and select model, measure time and accuracy.

Week 4: Prepare for presentation and submission on April 29th.

METHODOLOGY

Data Set

The data set selected is "Cats and Dogs Breeds Classification Oxford Dataset" on Kaggle.com (dr. Avicenna, 2019). It is comprised of 37 categories of animals, with approximately 200 images per class for a total of 7,393 images. It is expected that this sizing will provide enough samples for each category to potentially identify unique feature maps for accurate classification purposes.

Model Design and Instrumentation

The model best suited to address this type of problem is a convolutional neural network (CNN). Customization may be introduced by attempting a variety of output layer transfer and optimization functions, but the basic structure of the CNN is expected to remain the same. The framework for implementing this network will be Caffe due to its' processing ability specific to this type of network.

Performance Measurements

The network will be judged based on time to run training and testing, and accuracy of the classification between species and subspecies.

REFERENCES

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