PRACTICES IN ADVANCED MACHINE LEARNING
PROPOSAL FOR MACHINE LEARNING PROJECT - CAMELLIA
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PROJECT MEMBER'S INFORMATION

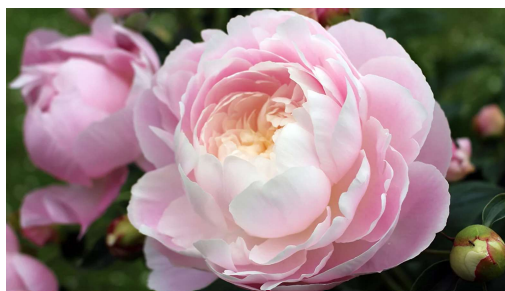One member team : M2017569 키타미 (Data collector, coder, model trainer)

Github account: https://github.com/kitachan

Project URL: https://github.com/kitachan/camellia

OVERVIEW

Utilizing Keras, the aim is to create an image classifier based on a Convolutional Neural Network that can distinguish between a "Camellia" (Camellia sasanqua) flower and other flowers that are similar in visual aspects. (Fig 1)

Fig 1.   Camellia flower   Visually similar Peony flower

The Motivation

The Camellia flower is usually mistaken for other flowers by the human eye. As the differences between many of the flowers are quite subtle and can be easily overlooked, the idea was to utilize an AI model that can be trained with visual data which would then be able to classify which flowers are Camellia and which flowers are not.

PROPOSAL

This proposal serves to implement an image classifier using Convolutional Neural Networks and classify whether the image input belongs in the class of "Camellia" or "Similar Flowers". The image classifier model will then be trained on a multiple number of images of "Camellia" flowers and flowers similar in appearance to it to predict which class the image belongs to.

Technical/Project Approach

This project would be conducted in four steps:

- Acquisition of data (Images and datasets).
- Building the CNN in Keras.
- Training and retraining the CNN with the Data.
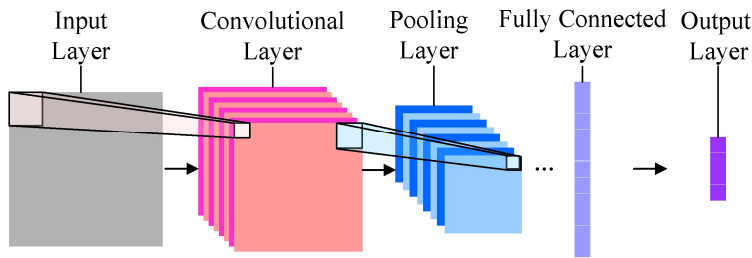- Results and conclusion.

Fig 2. Convolutional Neural Network Diagram

Resources

- Google Images for batch downloads of "Camellia" and other flower images.
- Google plug-in called "Fatkun Batch Download Image" for batch download management.
- Keras deep learning library in python.
- Jupyter Notebook and github for coding and uploads to the project folders.

Timeline for Execution

Key project dates are outlined below. Dates are best-guess estimates and are subject to change until a fixed deadline is announced.

Description	Start Date	End Date	Duration
Data collection	2018/05/18	2018/05/20	3 days
Batch Download	2018/05/20	2018/05/20	1 day
Coding	2018/05/20	2018/05/26	7 days
<Phase 1 Complete>			
Training	2018/05/26	2018/05/30	5 days

Results	2018/05/30	2018/05/30	1 day
<Project End>	2018/05/31		17 days total

EXPECTED RESULTS

It is expected that the training model should be able to identify a "Camellia" flower from other visually similar images with high accuracy.
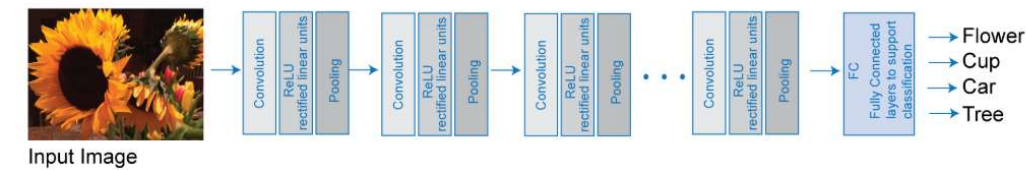
[Credit: MATHWORKS – Convolutional Neural Networks.]

REFERENCES

Keras documentation [1]