

Faculty of Computers and Artificial Intelligence

Computer Science Department

2021/2022

**CS 396 Selected Topics in CS-2**

**Research Project:**

Classification of Immunity Booster Medicinal Plants Using CNN: A Deep Learning Approach

Members:

|  |  |  |
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**Paper Details:**

NAME: Classification of Immunity Booster Medicinal Plants Using CNN: A Deep Learning Approach.

Authors: Md. Musa, Md. Shohel Arman, Md. Ekram Hossain, Ashraful Hossen Thusar, Nahid Kawsar Nisat, and Arni Islam.

University: Daffodil International University, Dhaka 1207, Bangladesh

Published: 23 October 2021

**Project Description:**

A lot of work is being done with medicinal plant images. In medical science plants has huge impact and it is considered as great asset. In 2016 D Venkatraman and mangayarkarasi N proposed an automated system based on vision approach which helps a common man on identifying the medicinal plants. Usually, plants are classified on leaves features like – shape, color and texture. Their classification was based on leaves texture. They used GLCM method for classifying the leaves and to find the dissimilarity between the leaves .

RAJANI S and VEENA M.N proposed an automatic identification and classification of medicinal plants. Create awareness and encourage people to know more about medicinal plant is their main goal of this automatic identification. Like many others they only used plant leaves images for the classification but they also used plant flowers, fruits and seeds images for their classification.

For this study we use convolutional neural network (CNN) for plant detection.

**Dataset**

# Name: A Database of Leaf Images: Practice towards Plant Conservation with Plant Pathology

Link: <https://data.mendeley.com/datasets/hb74ynkjcn/5>

## **Training (**4 directories):

* Alstonia Scholaris (100 image)
* Chinar (100 image)
* Mongo (100 image)
* Pongamia Pinnata (100 image)

## **Testing (**4 directories):

* Alstonia Scholaris (50 image)
* Chinar (50 image)
* Mongo (50 image)
* Pongamia Pinnata (50 image)

Published:19 Jan 2022

**Implementation Details:**

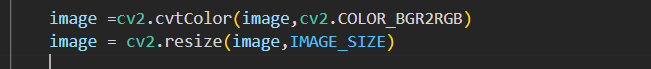
**All of this according to the paper:**

**About the Data:** before we start in the model we worked in the dataset after collected it which is the data preprocessing

Data preprocessing included these two parts:

Data preparation:

We worked in converted the type of image to RGB and changing the Size of image and flatten the image



Text

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Data Augmentation:

We work in rotate range and horizontal flip and height shift range

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**About the Model:**

This image will show the next step of the project which is assign or fitting the image dataset on the model.

Diagram

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Hyperparameters and Factors:

|  |  |
| --- | --- |
| Name | Value |
| filters | 32,64,128,256 |
| Kernel size | (3,3) |
| Activation function layer | ReLU  Softmax |
| Optimizer | Adam |
| Learning rate | 0.0003 |
| Dropout Rate | 0.25 , 0.5 |
| epochs | 35 |
| Batch size | 15 |
| Input shape | (128,128,3) |

Result:

Accuracy is 98%

ACCURACY CURVE:

Chart, scatter chart

Description automatically generated

LOSS CURVE**:**

**Chart, scatter chart

Description automatically generated**

CLASSIFICATION REBORT

Calendar

Description automatically generated

CONFUSION METRIX:

Graphical user interface, application

Description automatically generated