SUMMER PROJECT

HTTPS://GITHUB.COM/ACM40960/PROJECT-SEBASTIAN-BINU

CONTENT

THE PLAN

Mission

- Given an image from a pre-specified list of images we would be able to give identify it.
- If the input is not in the pre-specified list we return the value as others.

- A model able to identify images and classify them.
- Using recent advances in image processing and improving the model.

Vision

HISTORY

01

1950S-1960S:

The field of computer vision and pattern recognition began with the development of simple image processing techniques, such as edge detection and template matching.

02

1970S-1980S:

David Marr introduced the idea of using different levels of abstraction in image processing, known as the Marr's theory of vision, which influenced subsequent research in the field.

03

1990S-2000S:

Support Vector Machines (SVMs) emerged as a popular technique for image classification and object recognition, utilizing mathematical concepts for effective pattern separation.

04

2010S-PRESENT:

Deep learning, especially CNNs, has become the dominant approach in image recognition. CNN architectures like VGGNet, GoogLeNet, and ResNet achieved remarkable accuracy in large-scale image recognition

AI IMAGE RECOGNITION STRATEGY

- DATA COLLECTION
- PREPROCESSING
- CHOOSING A RECOGNITION MODEL
- MODEL TRAINING
- MODEL EVALUATION
- PREDICTION
- ITERATIVE IMPROVEMENT

DETAILED STRATEGY

Data Preparation

- Gather a dataset of labeled images. Ensure that each image in the dataset is associated with the correct label.
- Preprocess the images, which may involve resizing, normalizing pixel values, or applying other techniques to improve the quality of the images.

Model Training

- Choose a pre-trained model or design your own neural network architecture using libraries like TensorFlow, Keras, or PyTorch.

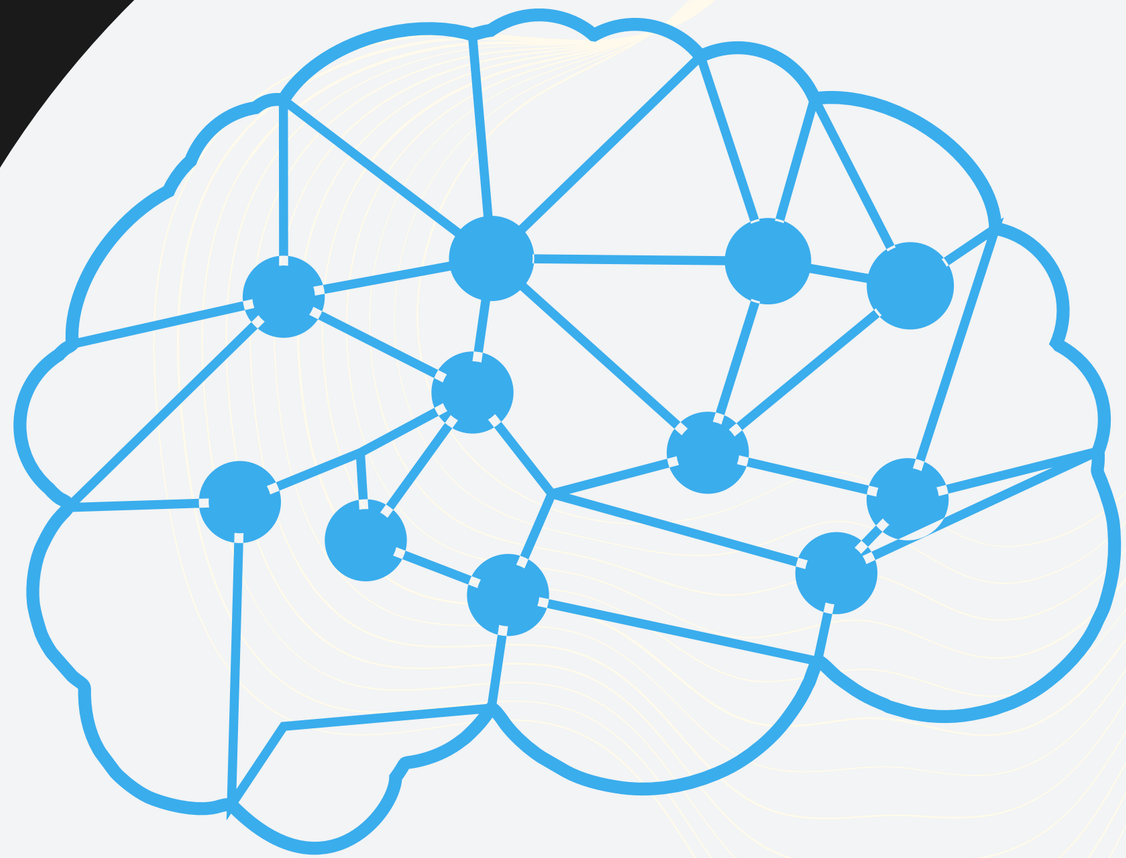
Prediction and Evaluation

- Load the trained model.
- Preprocess new, unlabeled images following the same preprocessing steps used during training.
- Evaluate the model's predictions against ground truth labels to measure its accuracy or other relevant metrics.

MOTIVATION

Image recognition is widely used in every corner of internet. The simple CAPTCHA that is used to detect humans and bots is usually based on image recognition.

My Motivation to choose image recognition as a project is because it gives me a chance to put to practice my skills in AI.



REFERENCES

- *AlexNet: "ImageNet Classification with Deep Convolutional Neural Networks" by Alex Krizhevsky, Ilya Sutskever, and Geoffrey E. Hinton.*
- *"Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville.*