

Eye Blink Detection Using Deep Learning

In this presentation, we'll explore how deep learning is revolutionizing the way we detect eye blinks.

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Introduction to Eye Blink Detection

1 Definition

Eye blink detection is the process of identifying moments when a person opens or closes their eyes.

2 Importance

Eye blink detection is crucial in various fields, including psychology, medicine, and user experience design.

3 Methods

Eye blink detection can be done using various techniques, including electromyography, electro-oculography, and computer vision.

Problem Statement

- Eye blinks are a natural part of human behavior, but they can cause communication difficulties for individuals with motor disabilities or damage. Our project aims to detect eye blinks accurately using advanced technology and deep learning to improve communication and safety for all.
- Emphasize its ability to empower patients by allowing them to control household devices using their eye movements.



Applications of Eye Blink Detection

Medical Diagnostics

Eye blink detection is used to diagnose and monitor various neurological disorders, such as Parkinson's and Tourette's.

User Experience Design

Eye blink detection is used to improve user interfaces by understanding how users interact with software and hardware.

Market Research

Eye blink detection is used to study consumer behavior and emotional responses to products and marketing campaigns.

Overview of Deep Learning

Definition

Deep learning is a branch of machine learning that uses artificial neural networks to analyze and interpret complex data.

Applications

Deep learning is used in various fields, including image and speech recognition, natural language processing, and recommendation systems.

Advantages

Deep learning can learn and improve over time, making it ideal for handling large datasets and complex tasks.

Packages and Libraries Utilized in the Project

scipy

SciPy provides algorithms for optimization, integration, interpolation, eigenvalue problems, algebraic equations, differential equations, statistics

Dlib

it is a landmark facial detector with pre-trained model.

the dlib is used to estimate the location of 68 coordinates (x,y) that map the facial points on a person.

pyttsx3

pyttsx3 is a text-to-speech conversion library in Python. Unlike alternative libraries, it works offline, and is compatible with both Python 2 and 3.

imutils

A series of convenience functions to make basic image processing functions such as translation, rotation, resizing, skeletonization, displaying Matplotlib

Deep learning Learning Techniques for Image Recognition

1

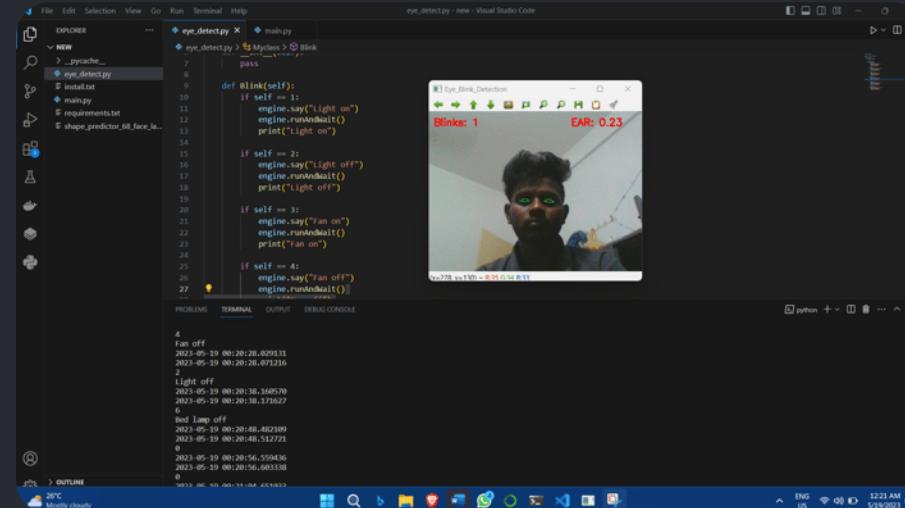
OpenCV(DNN)

Computer vision and deep learning software library containing many algorithms and functions.

it converts image into grey scale images to numpy

work flow :





Adopted technologies



python

to build the model i used
python



visual studio code

vs code IDE used to develop
the model



anaconda

used to create environment

Conclusion and Future Work

Conclusion

Deep learning has shown promising results in eye blink detection and has the potential to be applied in various fields.

Future Work

Future work involves improving model accuracy, creating real-time blink detection systems, and exploring applications in other fields.