

DocEye

Face and Signature Detection Model

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1. Introduction

DocEye is a project that leverages a Convolutional Neural Network (CNN) deep learning model to detect faces and signatures from uploaded images. Deployed using FastAPI, a high-performance web framework, the project provides an efficient solution for document processing. By utilising CNN algorithms, the model accurately identifies faces and signatures, enabling automated document verification. FastAPI ensures seamless integration and scalability of the project as an API, facilitating easy image uploads and extraction of relevant information. With its modern technology stack, DocEye streamlines the identification process and enhances productivity in document-related tasks.



2. Project Overview

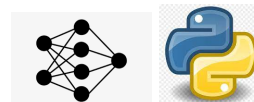
The DocEye project focuses on automating the identification of faces and signatures in uploaded images to streamline document processing and verification. With the implementation of a Convolutional Neural Network (CNN) deep learning model, the project aims to achieve precise detection and extraction of pertinent information from the images. By leveraging the capabilities of the CNN model, DocEye seeks to optimise the accuracy and efficiency of the identification process, enabling seamless integration into document workflows. The ultimate goal is to enhance productivity and accuracy in document-related tasks, resulting in improved document processing and verification outcomes.

3. Technology Stack

The following technologies have been used in the implementation of the DocEye project:
Deep Learning Model: Convolutional Neural Network (CNN) - CNNs have proven to be highly effective in image recognition and feature extraction tasks.

Python - A popular programming language known for its simplicity and extensive libraries for machine learning and image processing.

FastAPI - A modern web framework used for building high-performance APIs with Python.



 FastAPI

4. System Workflow

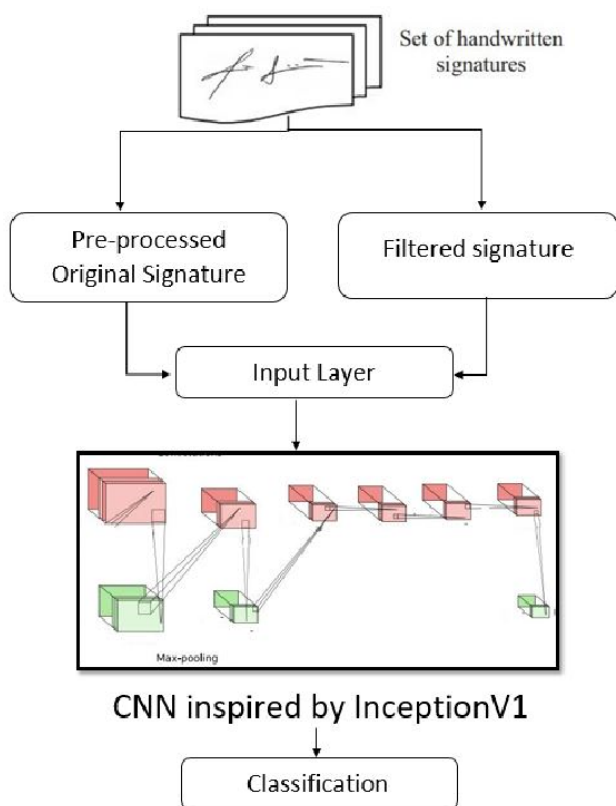
The workflow of the DocEye system can be summarised in the following steps:

User uploads an image containing documents (e.g., a scanned document, photograph, etc.). The uploaded image is processed by the deep learning model.

The deep learning model analyses the image using CNN-based algorithms to identify faces and signatures.

Detected faces and signatures are extracted from the image.

The extracted information is returned to the user in a structured format.

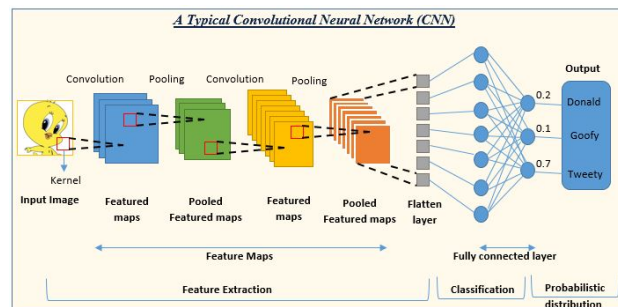


5. Deep Learning Model: CNN

Convolutional Neural Networks (CNNs) are a type of deep learning model specifically designed for image recognition and processing tasks. CNNs consist of multiple convolutional layers followed by fully connected layers. The model is trained on a large dataset of images to learn patterns and features that help in accurate classification and detection.

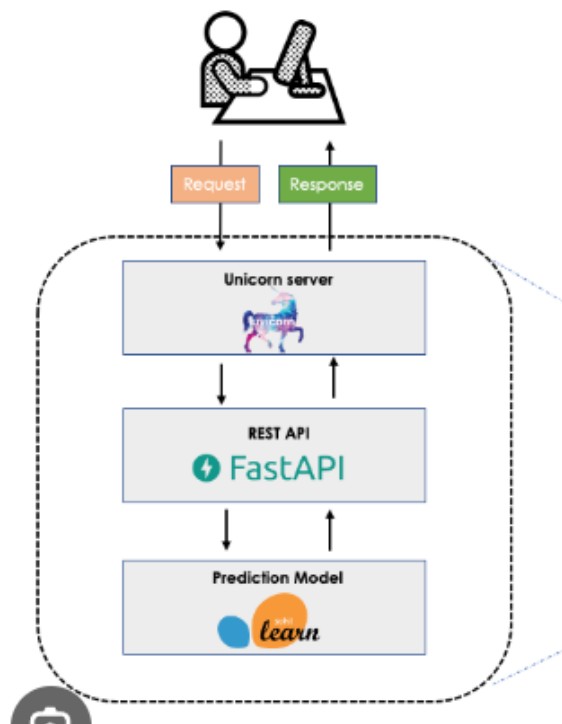
In the DocEye project, the CNN-based deep learning model has been trained on a diverse dataset containing images of faces and

signatures. The model has learned to recognize key facial features and signature patterns, enabling it to identify and extract relevant information from uploaded images.



6. Deployment using FastAPI

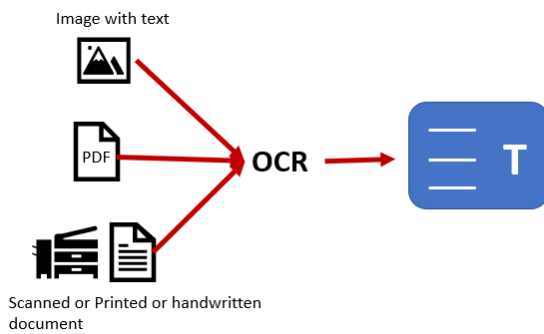
FastAPI has been utilised to deploy the DocEye project as an API. FastAPI is a high-performance web framework that leverages Python type annotations to provide auto-generated documentation and validation, making it easy to build and deploy robust APIs. FastAPI also offers scalability, asynchronous capabilities, and compatibility with various deployment options.



By using FastAPI, the DocEye project provides a user-friendly interface for uploading images and retrieving detected faces and signatures. The API endpoints handle the processing of the uploaded images, invoking the deep learning model for face and signature identification, and returning the extracted information to the user.

7. Future Enhancements

The DocEye project can be further enhanced and expanded in several ways:



Integration with OCR (Optical Character Recognition) technology to extract textual information from documents.

Implementing additional features such as document classification or verification based on recognized faces and signatures.

Improving the accuracy and performance of the deep learning model through ongoing training and optimization.

Building a user interface (UI) to provide a more interactive experience for users.

8. Conclusion

The DocEye project successfully utilises a deep learning model, specifically a CNN, to identify faces and signatures from uploaded images. The deployment using FastAPI enables seamless integration with other systems and provides an efficient and scalable solution for document processing and verification.

The project holds potential for future enhancements and integration with other technologies to further automate document-related tasks. By leveraging deep learning and web technologies, the DocEye system contributes to streamlining document processing workflows and improving overall efficiency.

Github: <https://github.com/istebsharul/DocEye>

Video: <https://shorturl.at/sxAEZ>

*** The End ***