IMAGE RECOGNITION WITH CLOUD VISUAL RECOGNITIONS

Phase 1:
Problem Definition and Design Thinking

In this part you will need to understand the problem statement and create a document on what have you understood and how will you proceed ahead with solving the problem. Please think on a design and present in form of a document.

Problem Definition :

The project involves creating an image recognition system using IBM Cloud Visual Recognition. The goal is to develop a platform where users can upload images, and the system accurately classifies and describes the image contents. This will enable users to craft engaging visual stories with the help of AI-generated captions, enhancing their connection with the audience through captivating visuals and compelling narratives.

Design Thinking:

1. *Image Recognition Setup: Set up the IBM Cloud Visual Recognition service and obtain the necessary API keys.*
2. *User Interface: Design a user-friendly interface for users to upload images and view the AI-generated captions.*
3. *Image Classification: Implement the image classification process using the IBM Cloud Visual Recognition API.*
4. *AI-Generated Captions: Integrate natural language generation to create captions for the recognized images.*
5. *User Engagement: Design features to allow users to explore, save, and share their AIenhanced images.*

Note:

File Naming Convention: ***CAD_Phase1.pdf***

https://github.com/users/JabaCHristena/emails/280617661/confirm_verification/44354293?via_launch_code_email=true

ABSTRACT :

The development of machine learning for decades, there are still many problems unsolved, such as image recognition and location detection, image classification, image generation, speech recognition, natural language processing and so on. In the field of deep learning research, the research on image classification has always been the most basic, traditional and urgent research direction. At the same time, computer intelligent

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image recognition technology is also conducive to gradually better respond to the development of international indicators, and promote the development and progress of various fields. Therefore, image processing technology based on machine learning has been widely used in feature image, classification, segmentation and recognition, and is a hot spot in various fields. However, due to the complexity of video images and the distribution of objects in different application backgrounds, the classification accuracy becomes important and difficult. In the paper transportation industry, image recognition technology is applied to license plate recognition to extract license plate from complex background, segment license plate characters and recognize characters, and construct a machine learning non license plate automatic generation algorithm, which may improve the efficiency of non license plate recognition. The diversity and high generation speed of license plate training sample set can achieve the purpose of effectively training strong classifier. By using genetic algorithm to optimize BP neural network to classify license plate information, the anti-interference ability and license plate recognition accuracy are improved to a certain extent.

INTRODUCTION:

Code reviews are policy in many software development organizations, and it is commonly believed that code reviews are an economical way to discover faults before a software product is deployed. Indeed, it is even suggested that code that has not been adequately reviewed has twice the faults of reviewed code. However, many software engineers are overwhelmed with work, so proper code reviews are often not done. The reviewability of software is affected by many factors such as documentation, logic, semantics, and syntax. Source code includes aspects that might even be considered aesthetic, and aesthetic aspects might turn tedious and possibly overwhelm the review process . In a paper by Yazdani and Manovich, non-photographic images, such as screenshots and images of text messages, were analysed and found they could be useful in predicting social trends . This paper aims to evaluate the possibility of using "screenshots" of source code with machine learning image recognition as part of the software code review process. Tools to reduce monotonous tasks related to reviews could be very valuable. This paper begins by discussing the readability aspects of code and estimates the impact style has on reviews. We then created images of poorly styled code and properly styled code and used machine learning to train an image recognizer to identify poorly formatted code and present positive results. Creating source code“screenshot images” for analysis could be part of automating code reviews. Using automation as part of the review process could make software engineers more efficient.

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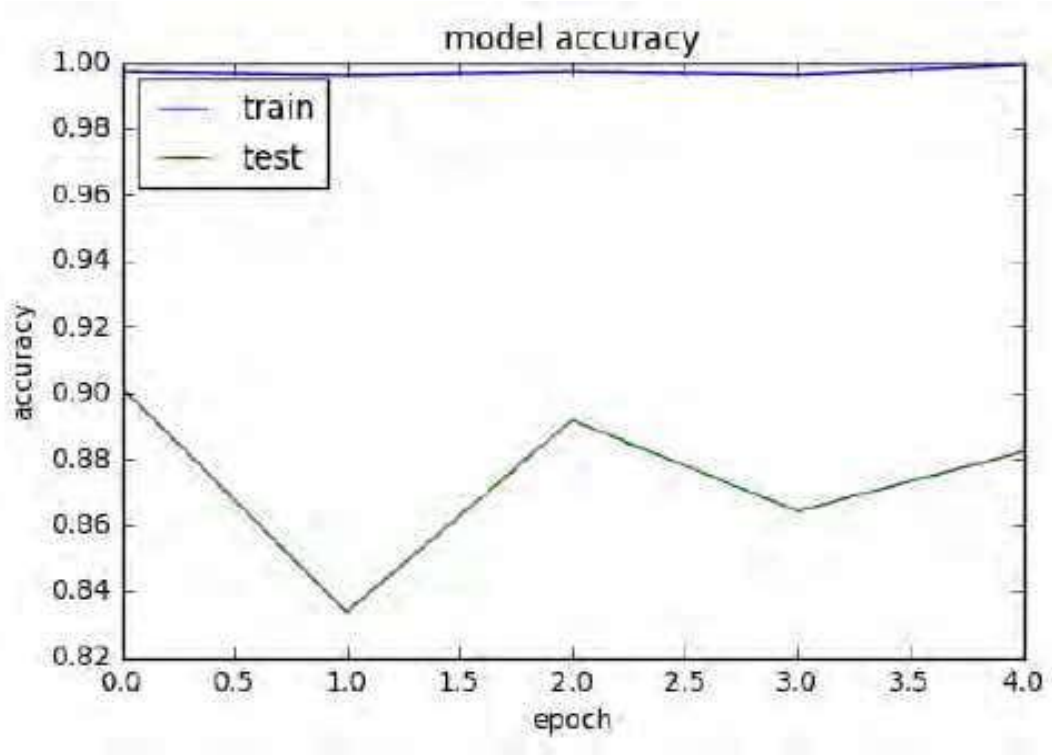
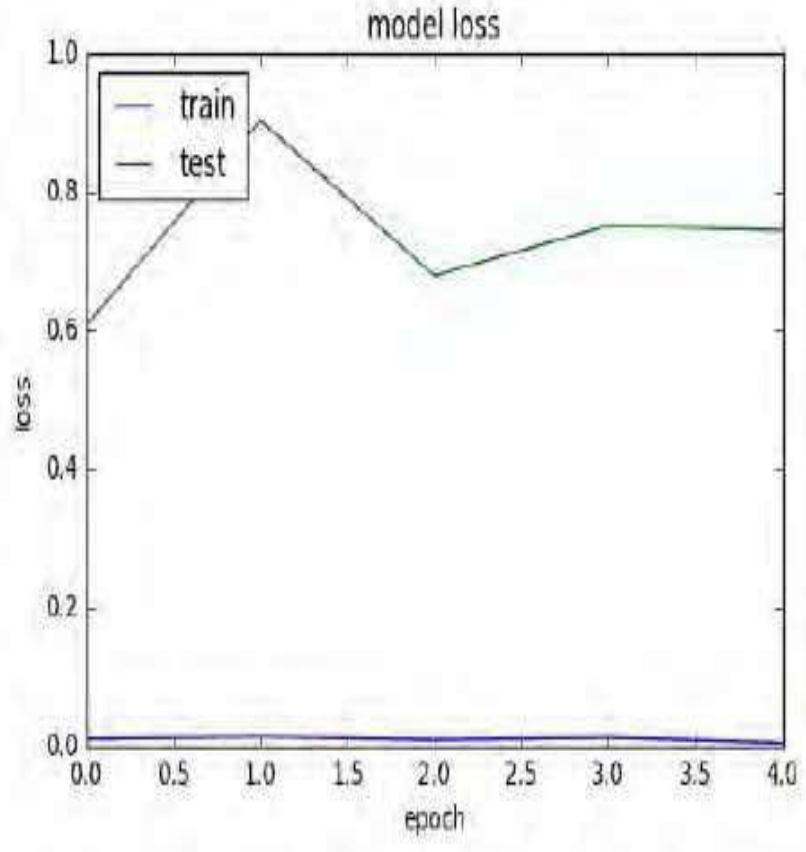
Result and data analysis *:*



Graph of our Model's Accuracy



Graph of our Model's Loss

$$\text{Accuracy} = \frac{\text{Total Recognized}}{\text{Total Input}}$$

We can reckon that, while we have been training our test data set, we could see the fluctuations of the total accuracy of our model to recongnize the precise object. At the end point when our procedure as completed, the accuracy gradually build up and end with 88% accuracy which is very good result in image recongnize field.

We could also determine net losse of our work to prectict actual accuracy and fineness of our model. At first, the percentage of losse good while we are training our model but later it as stated dicreaseing steadily and end at almost 77% which indicates that losse is less with mush very good consistency than the expected predection.

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CONCLUSION :

The testing of random images came out to be successful. The image dataset was pulled from google repository directly. The convolutional neural network is used in-hand with Keras for classification purpose. From the experiments we observe that the images are classified correctly even if the same images were scaled in different sizes or trimmed or rotated to get entirely new image for the input showing the effectiveness of deep-learning algorithm.

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