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Image Recognition using AWS

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Overview

- Introduction
- Literature Review

Introduction

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Primary Objective

- This project aims at building an elastic web application that can automatically scale-out and scale-in and are on-demand and cost-effectively by using cloud resources.

- The resources used were from Amazon Web Services a IaaS provider.

WHY AWS?

AWS as an IaaS provider offers a variety of compute, storage and message services. The image recognition application is exposed as a REST Service for the clients to access.

HOW?

- The application takes the images and returns the predicted output by the deep learning model by using the AWS resources.
- The tasks involve designing the architecture, implementing REST and Web Services.
- A load balancer that scales in and scales out EC2 instances at App Tier according to the demand of the user.

Literature Review

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Paper 1

B. B. A. da Costa and P. S. Pisa, "Cloud Strategies for Image Recognition," *2020 4th Conference on Cloud and Internet of Things (CIoT)*, Niteroi, Brazil, 2020, pp. 57-58,

doi: 10.1109/CIoT50422.2020.9244200.

- This paper discusses the various approaches and techniques used in image recognition. It also compares the out-of-the-box services with the framework service from Amazon Web Services (AWS).

Paper 2

V. Sharma, "Object Detection and Recognition using Amazon Rekognition with Boto3," 2022 6th International Conference on Trends in Electronics and Informatics (ICOEI), Tirunelveli, India, 2022, pp. 727-732, doi: 10.1109/ICOEI53556.2022.9776884.

- The paper incorporates different viewpoints that have been utilized by various analysts for object spotting and recognition using AWS, Amazon Rekognition which is easy to integrate into other services like Lambda

Paper 3

R. Suguna, M. S. Devi, A. Kushwaha and P. Gupta, "An Efficient Real time Product Recommendation using Facial Sentiment Analysis," 2019 IEEE International Conference on Electrical, Computer and Communication Technologies (ICECCT), Coimbatore, India, 2019, pp. 1-6, doi: 10.1109/ICECCT.2019.8869300.

- This paper explains the necessary steps to utilize the service to build an application for a retail store **using Amazon Rekognition which uses a simple, easy-to-use API that can quickly analyze any image file that's stored in Amazon S3.**

Other Papers

★ G. Rafael, H. Kusuma and Tasripan, "The Utilization of Cloud Computing for Facial Expression Recognition using Amazon Web Services," 2020 International Conference on Computer Engineering, Network, and Intelligent Multimedia (CENIM), Surabaya, Indonesia, 2020, pp. 366-370, doi: 10.1109/CENIM51130.2020.9297974.

★ M. L. N, A. E. Rao and M. P. Kalyan, "Real-Time Object Detection with Tensorflow Model Using Edge Computing Architecture," 2022 8th International Conference on Smart Structures and Systems (ICSSS), Chennai, India, 2022, pp. 01-04, doi: 10.1109/ICSSS54381.2022.9782169.

QUESTIONS?

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