ITAI-1378

**Team: VisionQuest**

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Amazon Rekognition Workshop Journal

On April 1, 2024, the Computer Vision class participated in an interactive workshop and presentation on Amazon Rekognition facilitated by Mr. Zohaib Khawaja.

Amazon Rekognition is a deep learning-based image and video analysis service provided by Amazon Web Services (AWS) that offers several key functionalities for analyzing and extracting insights from visual content.

We learned several key functions of the platform that included the following:

* **Object and Scene Detection:**

Rekognition can identify and label thousands of objects and scenes within images and videos. It can detect common objects, such as cars, people, animals, buildings, and more, as well as scenes like beaches, mountains, cities, etc.

* **Facial Analysis:**

Rekognition provides facial analysis capabilities, including facial recognition, detection, and analysis, and can detect faces within images and videos, extract facial attributes (such as age, gender, emotions, facial landmarks), in addition to performing face comparison to determine similarity between faces. However, according to Zohaib, it is not yet capable of identifying deep fake facial images that are currently problematic in many areas.

* **Facial Recognition:**

Rekognition enables facial recognition for identifying known individuals within images and videos. It can compare faces against a database of known faces (face collection) and provide confidence scores for potential matches. This functionality is useful for applications like security surveillance and user authentication beyond the typical user photographed identification cards. Additionally, face and person tracking capabilities can track the movement and position of faces or individuals within videos.

* **Celebrity Recognition:**

Rekognition has a celebrity recognition feature that can identify thousands of well-known personalities (celebrities, athletes, politicians, etc.) within images and videos. It can produce information about recognized celebrities, including their names and confidence scores.

* **Content Moderation:**

Rekognition offers content moderation capabilities for identifying inappropriate or explicit content within images and videos. It can detect adult content, violence, weapons, drugs, and other sensitive material, enabling automated content moderation for platforms and applications.

* **Custom Labels:**

Rekognition Custom Labels can train custom machine learning models for specific object detection tasks and the ability to create custom models tailored to their unique use cases and datasets.

* **Text Detection:**

Rekognition can detect and extract text (OCR - Optical Character Recognition) from images and videos that can identify text that allows document analysis, content moderation, and text extraction from images. For levity, during the presentation, I observed one slide that contained typographical errors and we had an opportunity to chuckle in what was an otherwise meaningful presentation.

This technology can be useful for implementation across various industries and government in many real-world scenarios such as security and surveillance, retail and E-commerce, and healthcare.

In general, facial recognition technology, including Rekognition are facing several ethical concerns relative to privacy and unauthorized surveillance/monitoring by governments, law enforcement agencies, and private companies that may be used for tracking individuals' movements, behavior, and activities, which may infringe on civil liberties and privacy rights.

**Enhanced Understanding of AI and Machine Learning Perspectives from the Workshop**

Richard – I appreciated the intuitiveness of the Custom Labels Lab and learned how to train Rekognition to identify various AWS Logos with the image bounding feature. From the presentation, it appears future versions of Rekognition could evolve to incorporate advanced emotion recognition capabilities to analyze facial expressions and detect subtle emotional cues indicative of mental health conditions such as depression, anxiety, or stress.