1. **Identifying the emotion, action and describing a Picture( Captioning) :**

Challenge:

* Identifying the emotions of the humans in the images
* Generating textual descriptions for images
* Describing the action in the picture.
* Converting the text to speech.

Reference Link:

<https://ai.googleblog.com/2018/09/conceptual-captions-new-dataset-and.html>

https://towardsdatascience.com/image-captioning-with-keras-teaching-computers-to-describe-pictures-c88a46a311b8

Dataset:

Flickr 8k dataset by University of Illinois at Urbana-Champaign-This dataset contains 8000 images each with 5 captions.

1. **Capturing the apparel that appear in any video/image and provide the details/ recommendation based on the apparel and the website where it is available**.

Reference:

<https://www.tandfonline.com/doi/full/10.1080/20961790.2018.1526251>

Reference data set:

Fashion Product Images Dataset- from Kaggle.

1. **Smart Home Refrigerator:**

* Recognizes all items inside the refrigerator based on the images.
* Keeps a stock of all items in side it and the duration it is present inside the freeze.
* Provides recipe recommendation based on the items.

1. **E commerce Product review Summarization:**

* To build an algorithm for summarization of customer reviews.
* To extract reviews, perform analysis on them, classify them based on polarity and produce a summary.
* Highlight Pros and Cons regarding the product.
* To implement a unique opinion based analysis to produce a more critical review summary while preserving the sentiment and points.
* To provide a feature based rating on the respective product.

**Dataset:**  Amazon review Data set from Kaggle.

**5. Fashion Product attribute Identification using Tensorflow:**

**Tools:** Pandas, Numpy, Tensor flow, web scarping (Scarpy and Selenium for collecting training data), Flask and HTML for building web interface, Paperspace cloud to deploy the above.

- Develop a model that can determine the below clothing attributes from images:

* Type: Upper wear / bottom wear
* Clothing item type: ex. T-shirt, Shirt, jeans
* Length: Half sleeve or full sleeve
* Color: Multi colored or single colored
* Pattern: Solid or printed

-Process the images and labels in a format that fits models for classification of images.

- Build Convolutional and fully connected network to classify the images with better accuracy (80%).

- Train multiple models which can determine the above attributes.

- Build a pipeline with the above to be used as web interface.

- Build a simple web interface to access the functionality using Flask framework and HTML

- Deploy the above in paperspace cloud.

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