CAPSTONE PROJECT 2

Classification of Movie Posters by Genre: A Deep Learning Approach

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October 2018

Abstract

Image Classification through Machine Learning/Deep Learning is widely used today for a variety of purposes. It has advanced to a degree that it could be put to use to detect cancers or other health anomalies.

This project will explore an approach to classify movies into different genres by reading the posters alone. We will use a supervised learning approach for this purpose where each movie poster has different genres for labels. Now that could get us thinking – what elements in a picture constitute a horror movie? Or a thriller/action movie? Posters with relatively "dark" and "gory" images could perhaps constitute a horror movie. Thrillers? I'd like to think that a good number of posters constitute of people with confused faces? Fantasy movies like Harry Potter or Star Wars? Fantasy movie posters are probably more vibrant and colorful.

This project will explore if a deep learning algorithm can detect various such features to help us classify movie posters by genre.

Proposed approach

The images will be scraped using TMDB (The Movies Database) API. The interface file, 'Title_basics.tsv.gz' was download from this page. Movies from and after 2012 will be used for this project.

The image url will be generated using the TMDB API. The python program will then read the image, resize it to (224,224,3) to be stored in a numpy array. This array will contain columns for the different genres. The column value for the genre columns will be a '1' of the movie is of that genre. For ex- Harry Potter is an Adventure, Fantasy film. Hence, the Adventure and Fantasy columns will have a '1' while the rest will have a '0'.

Once the images preprocessing is complete, a deep learning model using Keras will be used to train on labeled images to predict on unseen image posters.