AFFECTIVE MOVIE EVALUATOR

PROJECT EVALUATION

B1301511 ELEBE FAITH ALFRED

Submitted to the

FACULTY OF COMPUTING AND DIGITAL TECHNOLOGY
(SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY)

In partial fulfilment of the requirements
for the degree of

BACHELOR OF INFORMATION TECHNOLOGY (HONS)

HELP UNIVERSITY
JANUARY - APRIL 2019

Project Evaluation

1 Introduction

Sentiment Analysis is already widely used by different companies to gauge consumer mood towards their product or brand in the digital world. However, in the offline world, users are also interacting with the brands and products in retail stores, showrooms, etc., and solutions to measure users' reactions automatically under such settings has remained a challenging task. Emotion detection from facial expressions and body postures using AI can be a viable alternative to automatically measure consumers' engagement with their content and brands.

Affective Movie Evaluator is an automated system that helps Movie production studios to determine the success rate of their movies by analysing the emotions of an audience while watching the movie through their facial expressions and body postures. With a review of the project objectives and the quality of work done, I can say that the project is partially completed.

2 Evaluation of Objectives

Below are the objectives listed in the project proposal:

Define the metrics by which the system is going to give the score (e.g.: value between 0.0-1.0 or a discrete grading system, like A+, A, B). This objective is not achieved. This is because it is to be achieved in iteration 2 of this project. At this phase we are completing iteration 1.

Research the requirements of the dataset, and methodologies before week 3.

This objective is successfully achieved. I learnt about a methodology slightly different from the traditional type used in most software engineering projects and I also learnt about the different libraries of dataset available today.

Find or create the required test datasets for in order to complete objective 5

a. Facial dataset with labelled emotion:

This task is not achieved. This is due to not having enough time to request for a more accurate and recent dataset. The dataset library we were able to gain access to was too old and the accuracy of the data was low as well.

b. **Dataset containing body pose labelled**:

This task is successfully achieved. Pose dataset is not freely available compared to facial dataset, so my project partner created pose dataset for the implementation of this project since this task is handled by him.

c. Video recordings of audiences reacting to movies.

This task is not achieved. This is to be accomplished in iteration 2 of this project.

Determine accuracy of the project by comparing its output to existing scoring systems.

This task is not achieved. This is because it is to be done in iteration 2, we are still in iteration 1.

Produce accuracy reports with established methodologies for:

a. Emotion recognition
b. Body pose/action estimation

This objective is not achieved. This is because it is to be done in iteration 2, we are still in iteration 1.

Problems faced during project development

Project management

We created our Work Item List, Work Breakdown Structure (WBS), Gantt Chart, Burn Down Chart etc. Before you can create a Work, Item List which will further enable you to create a Gantt Chart, you must have an idea of what is required in order to implement the project. This phase was difficult for me because I did not have a knowledge of what is required in projects like this. I had to read a lot of articles on existing projects that have been accomplished, ask questions during

meetings with my supervisor and get a lot of insight from my project partner who has an extensive knowledge in AI projects.

Time management

Working on this project and trying to fulfil the criteria for other subjects I am taking this semester is difficult. There are few tasks I couldn't complete at the stipulated time, but in order to stop extending a task timeline which affects the completion of other tasks, I had to make sure I complete each task within the period allocated for it. Accomplishing this involves a lot of late nights and help from my project partner when I am stuck and need guidance.

Knowledge of Programming Language

The programming language used in this project is python. I had to study python again from Data camp because it's been a long time since I worked on any project that requires the use of this programming knowledge.

Finding a current/recent facial dataset

It was not easy to find and access a facial dataset that is recent and free at the same time. Most of the ones I found requires us to write and ask for permission before we could access it. But with continuous search we were finally able to find a recent and free dataset.

Communication Problem

I had a minor communication problem with my partner, he was not always with his phone sometimes, but the problem was resolved quite early. If I sent him a message through social media and there was response, I will take it upon myself to give a call until he replies.

Skills in Analysis and Design

Designing this system was a little challenging for me because it is both a traditional project and a machine learning project at the same time. I sat together with my project partner to create the Work Breakdown Structure, identify the tasks and

prioritise the tasks. One of the most challenging tasks was to decide on how long it will take to complete a task.

The interface code for external media player is not multiplatform.

To solve this problem, we had to modify the existing code so the media file can play on both of our operating system.

3 Further Improvement

Another issue is Emotion detection for facial expression is not accurate. The confidence level or probability level of the system fluctuates when analyzing peoples faces to detect the emotion they are expressing. One way to solve this problem is to have a large and more accurate facial dataset either by requesting for it from the available free libraries or by creating a dataset by myself.

One of the issues I faced during the design phase is the inability of the system to analyse more than a single audience member at a time. If more than one person is in a photo or video, the system can only detect the face of a single person.

4 Future Work

I plan on working on the accuracy of the Facial Expression recognition because this is an important aspect of the project. The system must analyse emotions accurately as this is what will be used in scoring a movie, therefore determining if the movie will be successful or not. Another target of mine is for the system to be able to identify/detect more than one face at a time. The aim of our project is for the system to evaluate an audience of at most four people watching a movie, so it is very important for this aspect of the system to be implemented. For the body pose analysis, my partner plans to make sure the system can analyse a full body pose.

5 Conclusion

The implementation of this project has enabled me to gain knowledge in the aspect related to AI. I have learnt about other methodologies that can be used in implementing a software project. In a quest to understand what the output of this

system will be and how to implement it, I have read numerous articles, books and published materials related to psychology and human emotions. The knowledge gained from these educative materials is not only limited to this project, but it's also helpful when interacting with individuals in real world. Through the implementation of this project, I have revised my knowledge of python programming, I understand what it means to train a model and I have also learnt that most classes that exist in object oriented does not have to exist in real life. In this project I have been able to develop a system that can analyse the different facial expressions of humans depicting the six basic human emotions – anger, sadness, surprise, happy, disgusted and fear.