TESSA

Text Emotion System Sentiment Analysis

CSC 44800: Artificial Intelligence
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01

Introduction

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sadness Mpeg hapiness Mpeg disgust Mpeg

fear Mpeg surprise Mpeg anger Mpeg
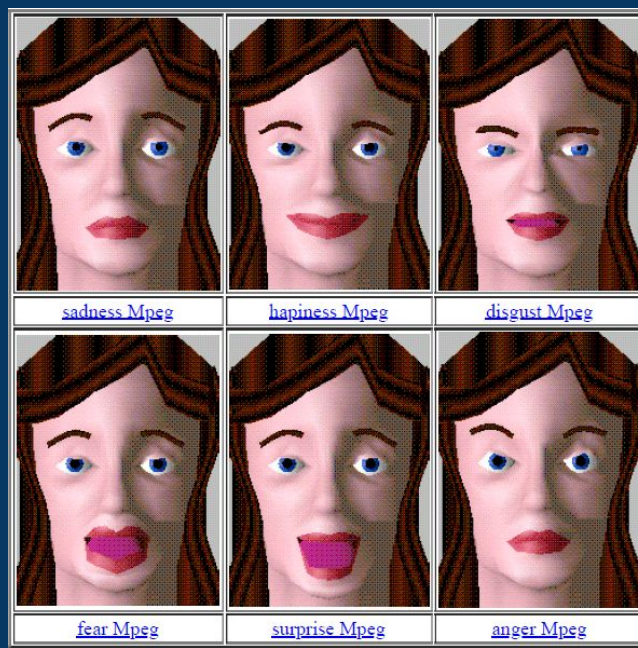
Goal

Interpreting human emotions is hard, even for us humans!

So, can we interpret human emotions on machines with reasonable accuracy?

Action

Interpret a user's human emotion from text using Machine Learning!

Interpret the six universal expressions!

02

Goal

1. **IDENTIFY USE CASES:**

   - Acting
   - Social Media Postings
   - Text Messages
   - Customer Service
   - Product Feedback
   - Market Research
   - Interview Essay Questions
   - Human-Robot Interaction

02

Goal

2.   **EXPLORE AND IMPLEMENT SOLUTIONS**

Particularly, we chose to solve the sub-problem

- **Actors practicing:** Emotion detection can be used to provide real-time feedback on an actor's performance.

USER SCENARIO 1

Prompts user with:

- **A text input field**

Classify Button:

- **Take user input text**
- **Send input text to the model**
- **Return the emotion from the user input text**

USER SCENARIO 2

Prompts user with:

- **Emotion/Expression to convey**

Record Button:

- **Taking actor's voice**
- **Send it to a pre trained speech to text model**

Classify Button:

- **Take text from pretrained model**
- **Send that text to the model**
- **Return the emotion from the actor's text**

- Classification Problem

- 6 emotion values (classes)

    - Anger, Fear, Joy, Love, Sadness, Surprise

- **Training data** = 16, 000 unique text documents (rows)

- **Validation data** = 2, 000 unique text documents (rows)

- **Testing data** = 2, 000 unique text documents (rows)

- Sourced posts from Twitter API

- Main dataset : **https://www.kaggle.com/datasets/praveengovi/emotions-dataset-for-nlp**

- Supplementary datasets to preserve class balances:

    - **https://www.kaggle.com/datasets/shivamb/go-emotions-google-emotions-dataset**

    - **https://huggingface.co/datasets/dair-ai/emotion**

04

Solution

Models to try:

1. **LSTM**
2. **MultinomialNB**
3. **SVM**
4. **Logistic Regression**
5. **Decision Tree**
6. **Random Forest**
7. **XGBoost**

Training/Testing/Validation Technique:

1. **k-fold Cross-Validation**
   - **k = 10**
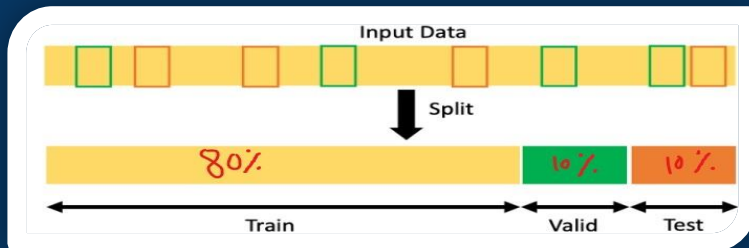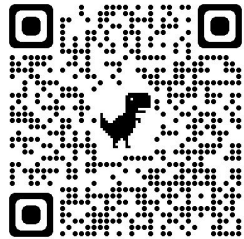
Technologies That May Be Utilized

Questions & Answers

Connect with us on LinkedIn!

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CONNECT WITH ME!