TESSA

Text Emotion System Sentiment Analysis

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TABLE OF CONTENTS

01

Introduction

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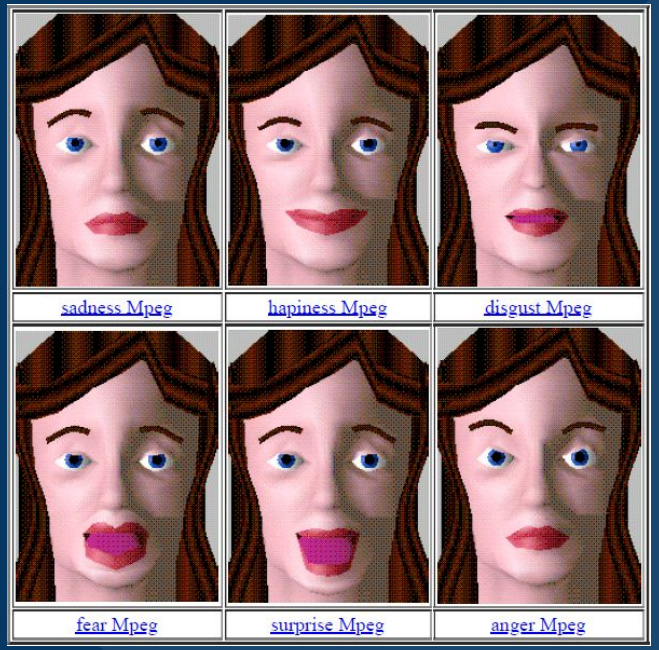


Goal

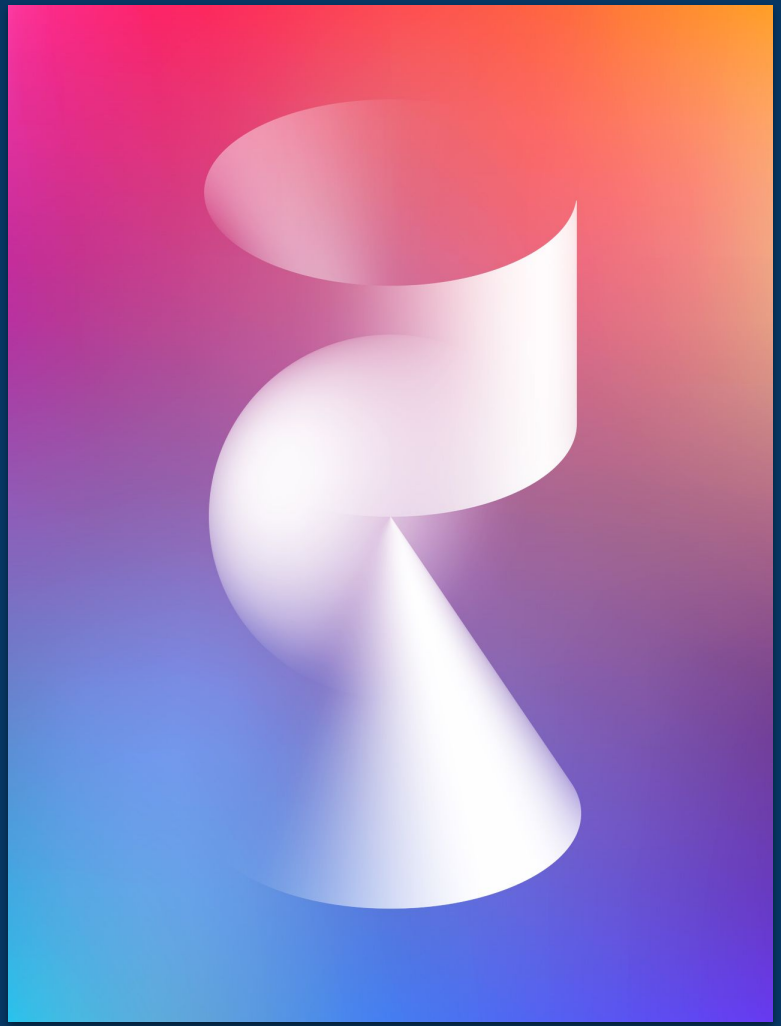
Interpreting human emotions is hard, even for us humans!

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!

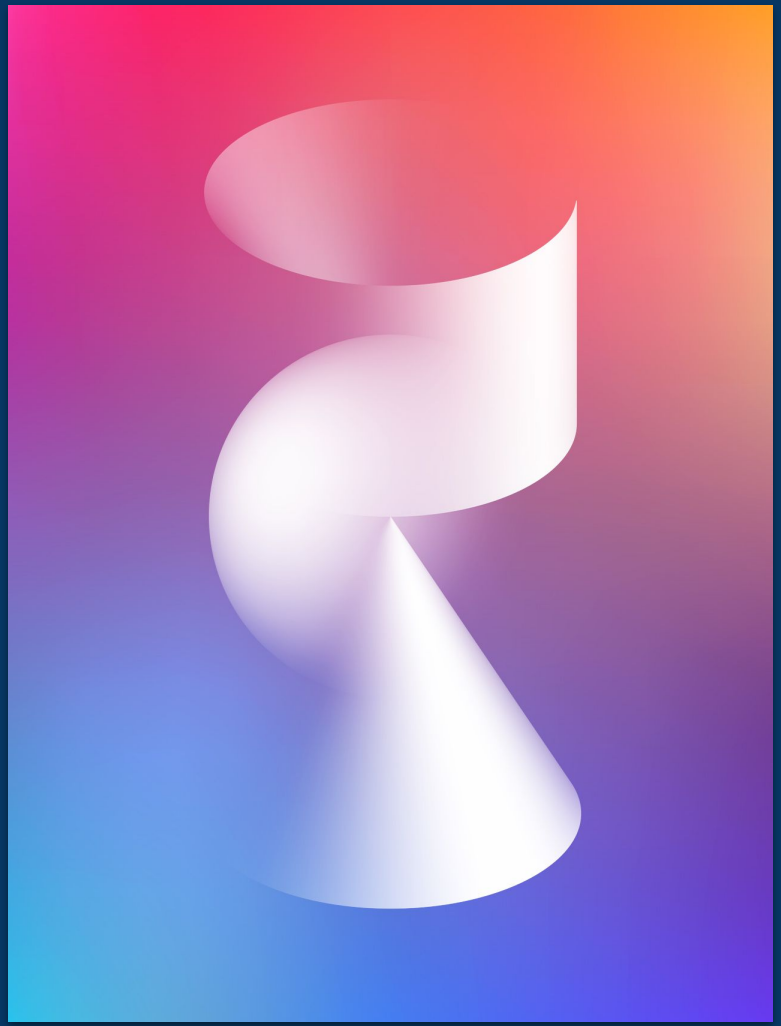


02

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.

03

USER SCENARIOS

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

04

Solution

SOLUTION

- Classification Problem
- 5 emotion values (classes)
- 39,825 text documents (rows)
- Sourced posts from Twitter API

https://www.kaggle.com/datasets/pashupatigupta/emotion-detection-from-text

sentiment		content
neutral	22%	39827 unique values
worry	21%	
Other (22903)	57%	

- Supplementary datasets to preserve class balances

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

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

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

sadness	Funeral ceremony...gloomy friday...
enthusiasm	wants to hang out with friends SOON!
neutral	@dannycastillo We want to trade with someone who has Houston tickets, but no one will.

04

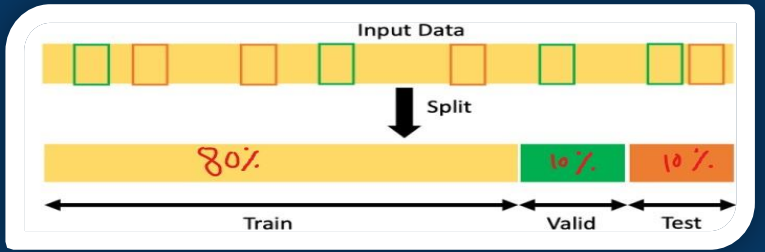
Solution

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

TECHNOLOGIES

1. Tensorflow
2. Pytorch
3. Keras
4. NLTK
5. SciKit-Learn
6. Numpy
7. Pandas
8. Imbalanced-Learn
9. Plotly
10. Matplotlib
11. Seaborn
12. Jupyter Notebook
13. Python
14. Flask
15. Streamlit
16. Hugging Face
17. HTML
18. CSS
19. JavaScript
20. Git
21. GitHub

Questions & Answers

QUESTIONS!

Connect with us on LinkedIn!

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CONNECT WITH ME!