STORIFY.

MUSIC SUGGESTION MODEL
FOR SOCIAL MEDIA STORIES

GROUP 3

PROBLEM STATEMENT

In digital storytelling, music greatly enhances the emotional impact of stories shared on social media platforms like Instagram, Facebook, and WhatsApp. Yet, users struggle to select music that matches the mood and theme of their visuals, impacting the storytelling experience and viewer engagement. There is a critical need for an advanced, automated solution to streamline music selection and ensure seamless integration with the emotional and thematic intentions of the content.

MOTIVATION

Our project is motivated by the potential of enhancing social media storytelling by integrating trending music with detected emotional and action cues from user content. Utilizing advanced machine learning algorithms, our system recommends songs that align with both the content's context and current trends. This innovation aims to transform the $109 billion social media advertising market by improving advertisement effectiveness and viewer engagement, ensuring stories resonate deeply and achieve viral spread.

MUSIC ENHANCEMENT

MUSIC ENHANCEMENT

LITERATURE REVIEW

SOCIAL MEDIA ADVERTISING MARKET INSIGHTS

A comprehensive report detailing trends and forecasts in the social media advertising market.

SCHEDL, M.

Deep Learning in Music Recommendation Systems. Explores the use of deep learning algorithms in enhancing music recommendation accuracy and user satisfaction.

SONG, Y., DIXON, S., & PEARCE, M.

A Survey of Music Recommendation Systems and Future Perspectives. Discusses current technologies and potential future advancements in music recommendation, presented at the International Symposium on Computer Music Modelling and Retrieval.

LITERATURE REVIEW

SCHEDL, M.

Integrating Music Content, Music Context, and User Context for Improved Music Retrieval and Recommendation. Details a holistic approach to music recommendation, presented at the MoMM2013 Conference.

RUSSELL, J.A.

Deep Learning in Music Recommendation Systems. Explores the use of deep learning algorithms in enhancing music recommendation accuracy and user satisfaction.

DIGITAL AND SCHOLARLY

- **IEEE Xplore**: Access to advanced research papers on technology and digital media.
- **SAGE Journals**: Includes peer-reviewed articles on the latest studies in music and emotion analysis.
- **MDPI** and Medium Article on Music Media: Discusses the impact of music media in marketing and public health.

PROPOSED SOLUTION

1

ADVANCED EMOTION RECOGNITION

Utilizing advanced CNNs and RNNs to finely interpret human expressions for more accurate emotion-based music matching.

2

ACTION DETECTION

Integrating advanced CNNs for precise action recognition, refining the interpretation of movements and gestures to capture the dynamics and nuances of human actions within their context.

3

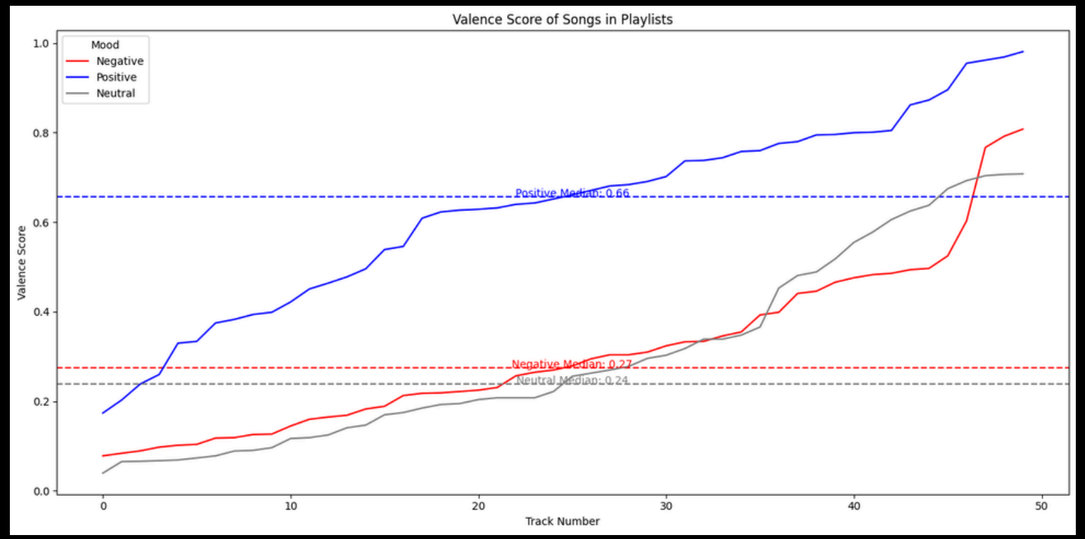
VALENCE-BASED MUSIC MATCHING

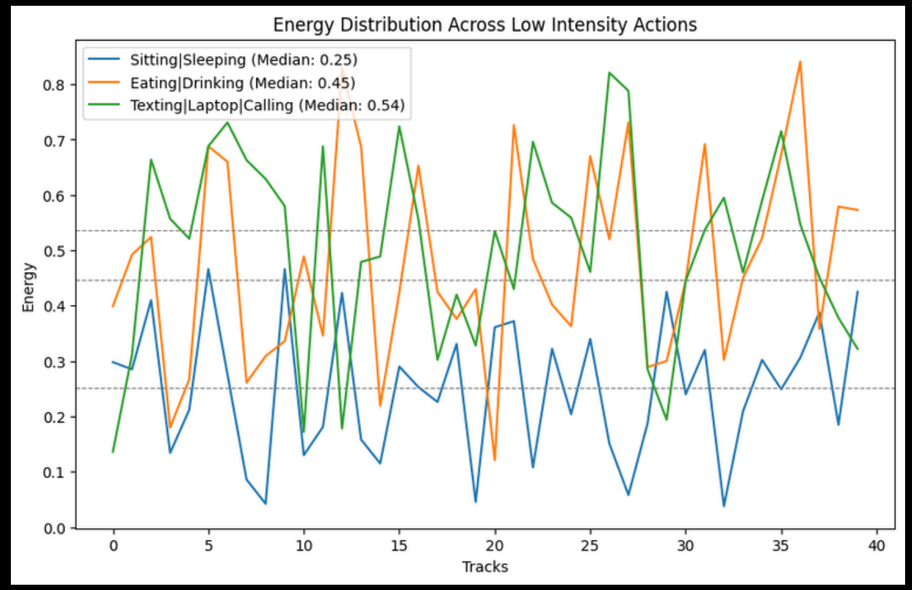
Incorporating valence into our algorithm to align music with the emotional spectrum of visuals, ensuring tracks match the content's emotional tone.

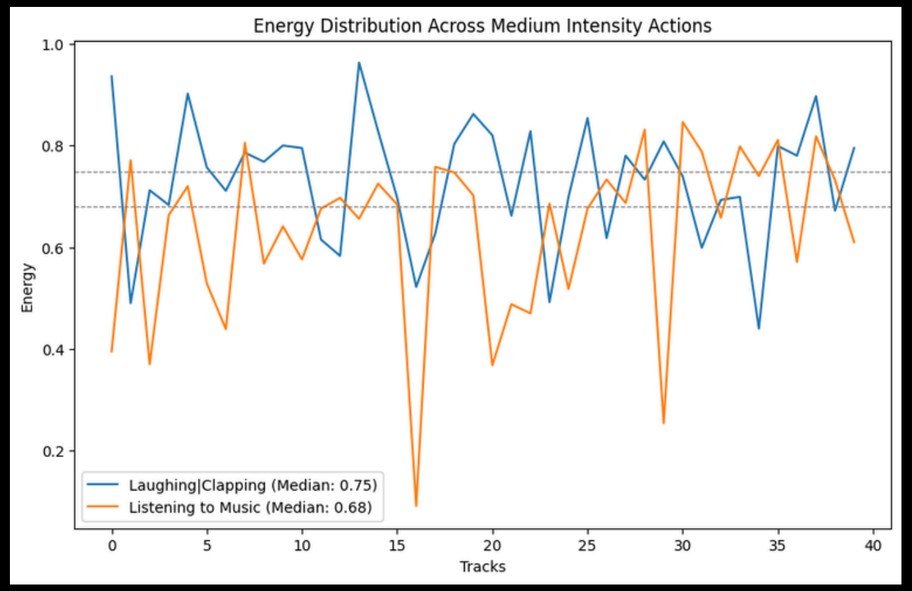
4

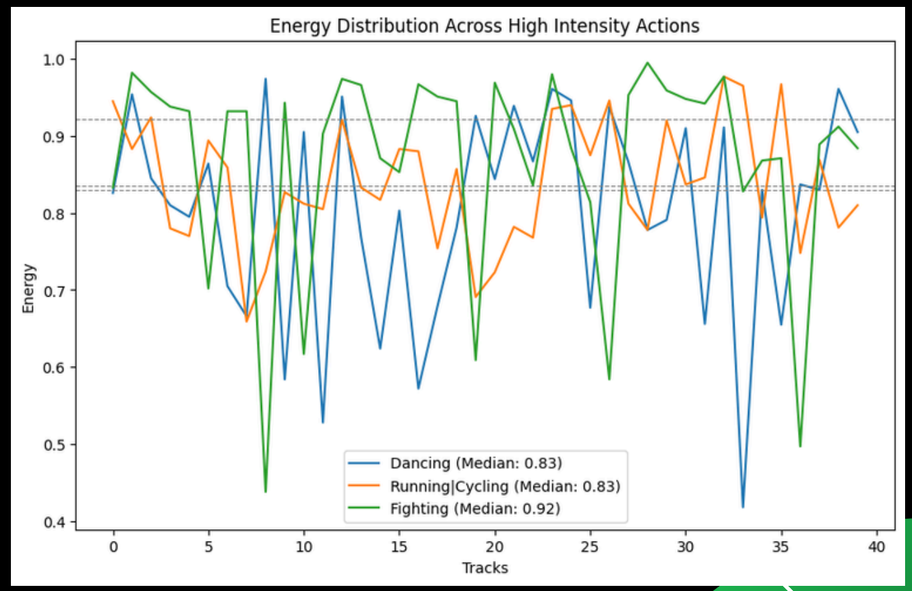
INTENSITY-BASED MUSIC CLASSIFICATION

Classifying music by energy levels—high, medium, low—considering tempo and dynamics to sync music with the visual content's intensity.


Valence Score of Songs in Playlists
Mood
Negative
Positive
Neutral
Positive Median: 0.66
Negative Median: 0.27
Neutral Median: 0.24
Valence Score
Track Number


Energy Distribution Across Low Intensity Actions
Sitting|Sleeping (Median: 0.25)
Eating|Drinking (Median: 0.45)
Texting|Laptop|Calling (Median: 0.54)
Energy
Tracks


Energy Distribution Across Medium Intensity Actions
Laughing|Clapping (Median: 0.75)
Listening to Music (Median: 0.68)
Energy
Tracks


Energy Distribution Across High Intensity Actions
Dancing (Median: 0.83)
Running|Cycling (Median: 0.83)
Fighting (Median: 0.92)
Energy
Tracks

NOVELTY

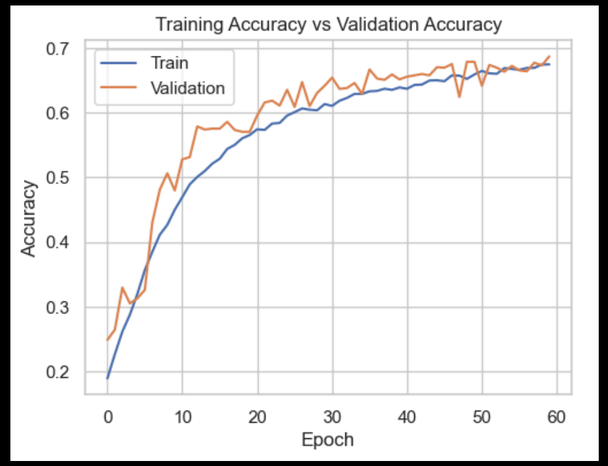
Our project introduces a groundbreaking approach to social media advertising, leveraging a Convolutional Neural Network (CNN) and dynamic Spotify API integration to revolutionize influencer marketing, valued at $109 billion. This system not only detects emotions and actions within posts for deeper insights but also dynamically recommends music, enhancing storytelling and engagement. By combining advanced AI and real-time updates, we offer a transformative solution that personalizes user experience and magnifies global audience interaction.

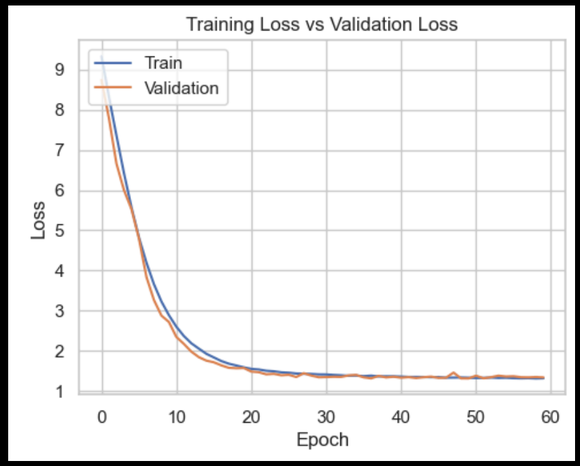
METHODOLOGY

Emotion Detection

Model: "sequential"

Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 158, 158, 32)	896
max_pooling2d (MaxPooling2D)	(None, 79, 79, 32)	0
conv2d_1 (Conv2D)	(None, 77, 77, 64)	18,496
max_pooling2d_1 (MaxPooling2D)	(None, 38, 38, 64)	0
conv2d_2 (Conv2D)	(None, 36, 36, 128)	73,856
max_pooling2d_2 (MaxPooling2D)	(None, 18, 18, 128)	0
flatten (Flatten)	(None, 41472)	0
dense (Dense)	(None, 512)	21,234,176
dropout (Dropout)	(None, 512)	0
dense_1 (Dense)	(None, 15)	7,695





ARCHITECTURE

GRAPHS

Accuracy & Loss

METHODOLOGY

Emotion Detection

```
1/1 [==============================] - 0s 62ms/ste
Predicted Emotion: Happy
```

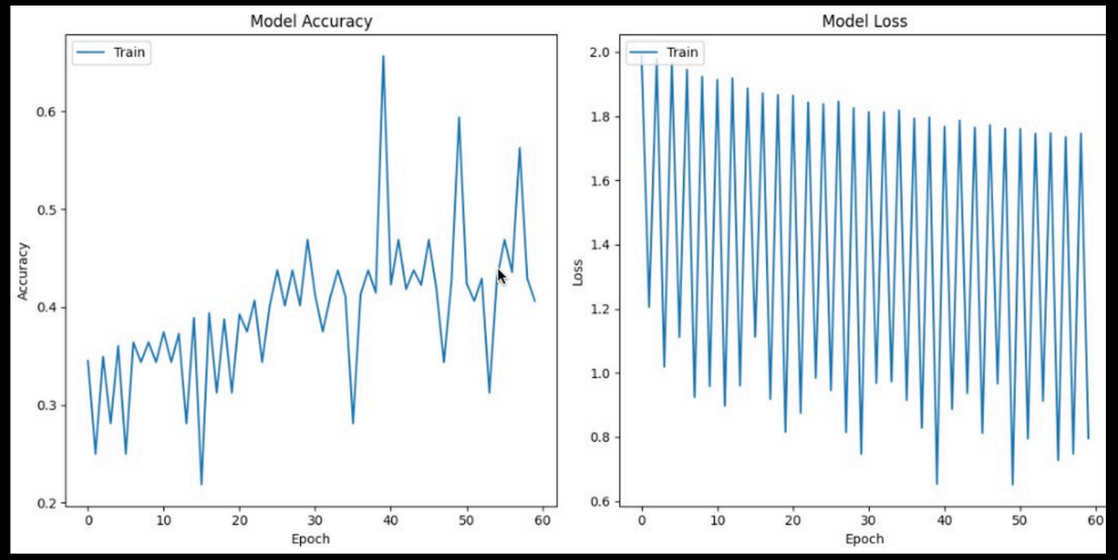
INPUT

OUTPUT

METHODOLOGY

Action Detection

Layer (type)	Output Shape	Param #
conv2d_42 (Conv2D)	(None, 48, 48, 32)	320
conv2d_43 (Conv2D)	(None, 48, 48, 64)	18,496
batch_normalization_49 (BatchNormalization)	(None, 48, 48, 64)	256
max_pooling2d_34 (MaxPooling2D)	(None, 24, 24, 64)	0
dropout_51 (Dropout)	(None, 24, 24, 64)	0
conv2d_44 (Conv2D)	(None, 24, 24, 128)	204,928
batch_normalization_50 (BatchNormalization)	(None, 24, 24, 128)	512
max_pooling2d_35 (MaxPooling2D)	(None, 12, 12, 128)	0
dropout_52 (Dropout)	(None, 12, 12, 128)	0
conv2d_45 (Conv2D)	(None, 12, 12, 512)	590,336
batch_normalization_51 (BatchNormalization)	(None, 12, 12, 512)	2,048
max_pooling2d_36 (MaxPooling2D)	(None, 6, 6, 512)	0
dropout_53 (Dropout)	(None, 6, 6, 512)	0
conv2d_46 (Conv2D)	(None, 6, 6, 512)	2,359,808
batch_normalization_52 (BatchNormalization)	(None, 6, 6, 512)	2,048
max_pooling2d_37 (MaxPooling2D)	(None, 3, 3, 512)	0
dropout_54 (Dropout)	(None, 3, 3, 512)	0
flatten_9 (Flatten)	(None, 4608)	0
dense_26 (Dense)	(None, 256)	1,179,904
batch_normalization_53 (BatchNormalization)	(None, 256)	1,024
dropout_55 (Dropout)	(None, 256)	0
dense_27 (Dense)	(None, 512)	131,584
batch_normalization_54 (BatchNormalization)	(None, 512)	2,048
dropout_56 (Dropout)	(None, 512)	0
dense_28 (Dense)	(None, 7)	3,591



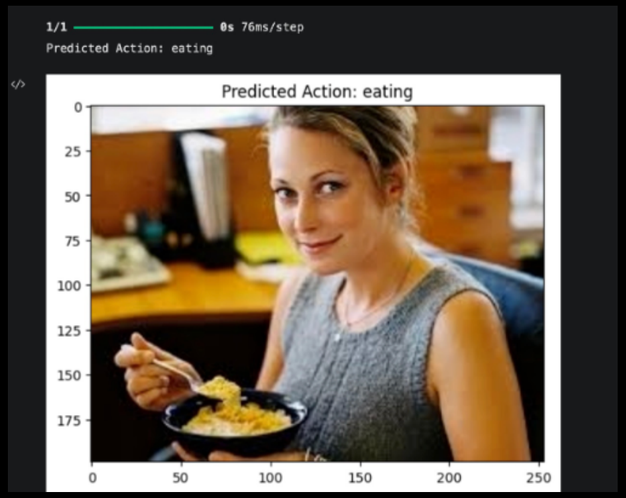
ARCHITECTURE

GRAPHS

Accuracy & Loss

METHODOLOGY

Action Detection



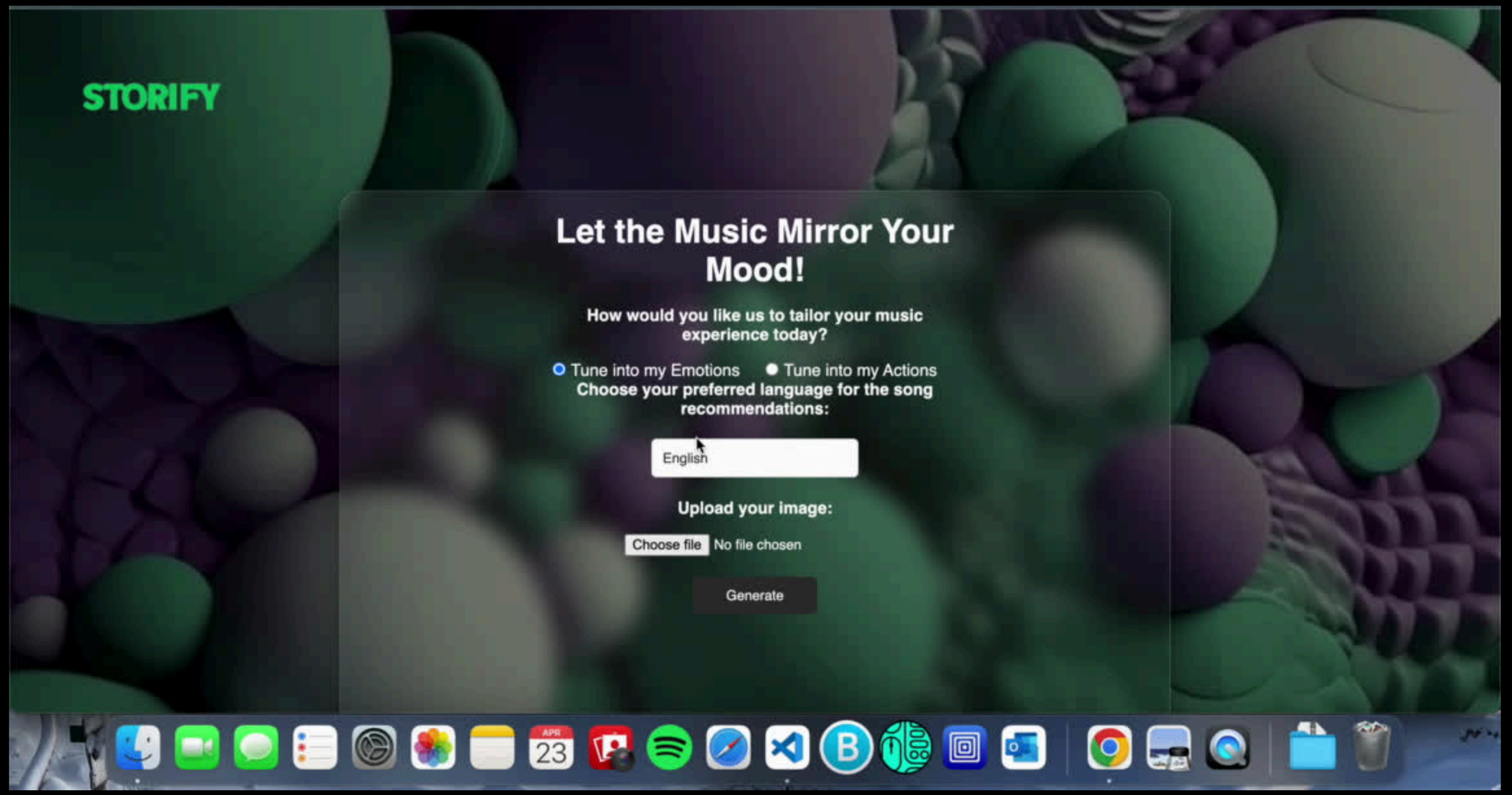
INPUT

OUTPUT

RESULTS

The Storify model has significantly enhanced its performance, with accuracy improving from 40% to 67% and a notable reduction in loss metrics, indicating better generalization and learning efficiency. These advancements demonstrate the model's improved capability to align music with the emotional content of social media visuals, effectively enhancing user engagement and storytelling.

GITHUB: HTTPS://GITHUB.COM/SHLOKM08/IR_PROJECT


STORIFY
Let the Music Mirror Your Mood!
How would you like us to tailor your music experience today?
Tune into my Emotions
Tune into my Actions
Choose your preferred language for the song recommendations:
English
Upload your image:
Choose file
No file chosen
Generate