



Emotion-Based Music Recommender System



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Project Overview

- **Goal:** Detect human emotions from facial expressions and recommend matching music
- **Motivation:** Create a personalized, mood-aware music experience
- **Tech:** Deep Learning, CNNs, Real-time GUI





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Dataset & Preprocessing

Dataset

- [AffectNet (Kaggle)] - 8 classes (Happy, Sad, Angry, etc.)
- Split: 70% Train, 15% Val, 15% Test

Preprocessing

- Rescaling, flipping, shifting
- Class balancing with weights





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Model Selection & Architecture

- Selected:- EfficientNetB0 for best generalization
- Tried:- ResNet50, Xception, FER2013-based models
- Architecture: -EfficientNetB0 + Dropout + Dense Layers
- Softmax output for 8 emotions





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Evaluation & Results

- Validation Accuracy: 60.95%
- Best Classes: Happy (0.87 F1), Neutral (0.89 F1)
- Challenging: Disgust, Fear
- Confusion Matrix (insert image or simplified matrix)





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Real-Time System & GUI

- Built with OpenCV, Tkinter, and Pygame
- Webcam captures face → Model predicts emotion → Music recommended
- Latency: 1.5s per prediction
- Limitations: low light, non-frontal faces
- Include screenshot of the GUI output (as in the report)





Conclusion & Future Work

- Conclusion: EfficientNetB0 + DeepFace integration enables real-time emotion recognition with reasonable accuracy

Next Steps:-

- Improve performance on underrepresented classes
- Add audio feature fusion
- Expand emotion-to-genre mapping dynamically





Meet Our Team

Huda Mawood

mohammed hanzala

Ahmed Medhat





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Thank You

Wise
Kiss
the
most
widely
used
in
music
books.

Jackie
Jacks

It's to
begin
with

is big
big
big

Jackie
I
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