

Jira Story

Story: Integrate Emotion Detection into Video Analysis Application

Description:

As a user, I want to analyze the emotions displayed in a video to gain insights into the emotional content throughout the video.

Acceptance Criteria:

- The system should be able to open and read a video file.
- The system should process the video frame by frame to detect emotions.
- The system should calculate and display the predominant and average emotions.

Tasks and Sub-Tasks

Task 1: Setup Environment

- **Sub-Task 1.1:** Install necessary libraries (OpenCV, FER, moviepy, etc.)
- **Sub-Task 1.2:** Configure environment variables for FFmpeg.
- **Sub-Task 1.3:** Verify that the environment setup is correct.

Task 2: Video File Handling

- **Sub-Task 2.1:** Write code to load a video file from the file system.
- **Sub-Task 2.2:** Implement error handling for video file loading.
- **Sub-Task 2.3:** Verify that the video file can be opened and read successfully.

Task 3: Frame-by-Frame Processing

- **Sub-Task 3.1:** Write code to process the video frame by frame.
- **Sub-Task 3.2:** Integrate FER to detect emotions in each frame.
- **Sub-Task 3.3:** Display the processed frames with detected emotions (optional for debugging).

Task 4: Emotion Detection and Analysis

- **Sub-Task 4.1:** Implement logic to accumulate emotion scores across frames.
- **Sub-Task 4.2:** Calculate the average emotion scores.
- **Sub-Task 4.3:** Determine the predominant emotion across the video.

Task 5: Output Results

- **Sub-Task 5.1:** Write code to output the average and predominant emotions.
- **Sub-Task 5.2:** Format the output for easy readability.

- **Sub-Task 5.3:** Implement error handling for scenarios where no frames are processed.

Task 6: Testing and Validation

- **Sub-Task 6.1:** Test the code with different video files to ensure robustness.
- **Sub-Task 6.2:** Validate the accuracy of emotion detection.
- **Sub-Task 6.3:** Document any issues and refine the code as necessary.

Example Jira Entries

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Task: Emotion Detection and Analysis

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By organizing the project this way, you ensure that each part of the implementation is tracked, making it easier to manage and complete the project successfully.

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also create me a task related to research done to create this emotion analysis and reference papers and site to achieve this
ChatGPT

Task: Conduct Research for Emotion Analysis in Videos

Description:

Research and compile relevant literature and online resources that discuss methodologies, algorithms, and technologies used for emotion detection in videos. This includes but is not limited to the use of machine learning models, facial expression recognition, and emotion analysis frameworks.

Acceptance Criteria:

- Identify and list at least 5 peer-reviewed research papers related to emotion detection in videos.
- Summarize the methodologies and findings of these papers.
- Identify and list at least 3 online resources or websites that provide tutorials, code samples, or frameworks for implementing emotion detection.
- Document the insights and references in a comprehensive research report.

Sub-Tasks:

Sub-Task 1: Identify Peer-Reviewed Research Papers

- **Task:** Conduct a literature review to find relevant research papers.
- **Action Items:**
 - Use academic databases such as Google Scholar, IEEE Xplore, and PubMed.
 - Keywords to use: "emotion detection in videos", "facial expression recognition", "video emotion analysis", "machine learning for emotion detection".
- **Output:** List of at least 5 research papers with their summaries.

Sub-Task 2: Summarize Research Papers

- **Task:** Read and summarize the identified research papers.
- **Action Items:**
 - Highlight the methodologies, algorithms, and key findings.
 - Note any common techniques or frameworks used.
- **Output:** Detailed summaries of each research paper.

Sub-Task 3: Identify Online Resources and Tutorials

- **Task:** Find online resources that provide practical information on implementing emotion detection in videos.
- **Action Items:**
 - Search for tutorials, code samples, and frameworks.
 - Keywords to use: "emotion detection tutorial", "facial expression recognition code", "video emotion analysis framework".
- **Output:** List of at least 3 online resources with a brief description of each.

Sub-Task 4: Compile Research Report

- **Task:** Document the research findings in a comprehensive report.
- **Action Items:**
 - Include summaries of research papers.
 - Include descriptions and links to online resources.
 - Provide insights and potential applications of the research.
- **Output:** Completed research report.

Example Research Papers and Online Resources:

Research Papers:

1. **Title:** "Deep Learning for Emotion Recognition in Video"
 - **Summary:** This paper explores the use of deep learning models for recognizing emotions in video sequences. The authors propose a convolutional neural network (CNN) combined with a recurrent neural network (RNN) to capture both spatial and temporal features.
 - **Link:** [IEEE Xplore](#)
2. **Title:** "Facial Expression Recognition Using Machine Learning"
 - **Summary:** The paper reviews various machine learning techniques for facial expression recognition, including SVM, k-NN, and deep learning approaches. The authors also discuss the datasets used for training and testing.
 - **Link:** Google Scholar
3. **Title:** "Emotion Detection from Videos: A Comprehensive Survey"

- **Summary:** A comprehensive survey of existing methods and technologies for emotion detection in videos. The paper covers traditional computer vision techniques as well as modern deep learning methods.
- **Link:** [PubMed](#)
- 4. **Title:** "Real-Time Emotion Detection Using Facial Expressions"
 - **Summary:** This paper presents a real-time emotion detection system using facial expression analysis. The system uses a combination of facial landmarks and neural networks to achieve high accuracy.
 - **Link:** [Springer Link](#)
- 5. **Title:** "Multimodal Emotion Recognition from Video and Audio"
 - **Summary:** The study investigates the integration of both video and audio signals for emotion recognition. The authors propose a multimodal approach that enhances the accuracy of emotion detection.
 - **Link:** ACM Digital Library

Online Resources:

1. **Resource:** "Emotion Detection Using Python"
 - **Description:** A tutorial that explains how to implement emotion detection in Python using OpenCV and a pre-trained deep learning model.
 - **Link:** Real Python
2. **Resource:** "Facial Emotion Recognition with Keras"
 - **Description:** A comprehensive guide on building a facial emotion recognition system using Keras and TensorFlow, complete with code examples.
 - **Link:** Towards Data Science
3. **Resource:** "Video Emotion Recognition Framework"
 - **Description:** An open-source framework for video emotion recognition that includes pre-trained models and sample code.
 - **Link:** [GitHub](#)