AI VIDEO VALIDATOR

Task Description: Gather and train models on machine learning models directed towards analysis and verification of video materials on programming languages. The trained models should be sound in processing, transcribing, and classifying the audios and videos concerning programming languages.

Task Distribution:

1.Research and Data Collection:

Build diverse data sets consisting of video and audio files, which are basically just programming languages such as Python, Java, and Solidity.

The dataset should include:

Videos of full-course tutorials, code-along or lectures.

Code Demonstrations: Videos that implement actual coding.

Explanations: Videos explaining syntax, logic, and structures of languages.

This considers the most widely adopted programming languages, commonly used in real businesses, including Python, Java, Solidity, JavaScript, C++, etc.

2. **Model Selection**:

Explore the possibility of machine learning models for audio transcription and video frame classification:

The speech-to-text models - Transcribes audio programming language-for example, Whisper.

The use of models for classifying frames while doing videos means that it can extract important information from video content to analyze like keywords appearing on screen or identifying the code editor.

3. Model Training:

Fine-tune existing models, say, Whisper in audio transcriptions, and object detection models in videos by having collected datasets. The model should understand some programming terms, syntax, and usual terminologies.

Distinguish between models of different programming languages using keywords, screen-content, such as code displayed on screen, audio context.

4.Testing and Validation:

Script test on video content using the models. The video should be classified as

Correct Programming Language: Overlay the captured or recorded data with the expected topic.

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APPROPRIATE CONTENT DETECTION: Use models to be sure that the videos contain no inappropriate content.

Audio-Video Synchronize: All that is found in the video must be in the transcript.

5.\tDocumentation and handover:

Record the whole process, from gathering the data to training and testing of the model.

Increase the usage of deployed models to gain acceptance and totally sink the models in the validation system.

Required Skills:

• Training Experience of ML Models in NLP and Video Analysis.

Familiarity with various machine learning frameworks, including PyTorch, TensorFlow, and Hugging Face.

• Video and audio processing libraries, such as: MoviePy, OpenCV.

• Knowledge of programming languages for correct dataset selection and model training.

Expected Outcomes:

A well-trained model to transcribe, to analyze and classify videos of programming languages.

• Discuss the datasets used, the training, and evaluation for the model.

Copies that illustrate how the model applies in video content validation.