AIM Evaluator App: Installation and Troubleshooting Guide

AIM (Artificial Intelligence for Musicians) Group, Purdue University

1 Overview

This documentation provides guidance on setting up the Evaluator app, a project developed by the AIM (Artificial Intelligence for Musicians) group at Purdue University. The code uses computer vision to assist musicians, particularly string instrument players, in improving their posture and hand movements.

2 Prerequisites

2.1 Git Installation

To clone the repository, Git must be installed on your system. You can download it from Git's official website.

Verify Installation:

```
git --version
```

If Git is installed, this command will display the version number.

2.2 Python Installation

Ensure that Python 3.6 or higher is installed. You can download it from the official Python website.

Verify Installation:

```
python --version
```

This command should return the Python version number.

3 Cloning the Repository

1. **Clone the Repository**: git clone https://github.com/Purdue-Artificial-Intelligence-in-Music/Evaluator-code.git
2. **Navigate to the Project Directory**: cd Evaluator-code/src/computervision/handposedetection

4 Virtual Environment Setup

It is recommended to use a virtual environment to manage dependencies.

4.1 Create a Virtual Environment

```
python -m venv env
```

4.2 Activate the Virtual Environment

- **Windows**:

  ```
  .\env\Scripts\activate
  ```

- **macOS/Linux**:

  ```
  source env/bin/activate
  ```

5 Installing Dependencies

5.1 Install Required Packages

Ensure `pip` is installed and updated.

```
pip install --upgrade pip
```

Manually install the required packages using:

```
pip install opencv-python mediapipe numpy supervision ultralytics ipython
```

6 Common Errors and Troubleshooting

6.1 ModuleNotFoundError: No module named 'cv2'

Solution: Install OpenCV.

```
pip install opencv-python
```

6.2 ModuleNotFoundError: No module named 'mediapipe'

Solution: Install MediaPipe.

```
pip install mediapipe
```

6.3 ModuleNotFoundError: No module named 'supervision'

Solution: Install the `supervision` package.

```
pip install supervision
```

6.4 ModuleNotFoundError: No module named 'ultralytics'

Solution: Install the `ultralytics` package.

```
pip install ultralytics
```

6.5 ModuleNotFoundError: No module named 'IPython'

Solution: Install IPython.

```
pip install ipython
```

6.6 FileNotFoundError: No such file or directory: '.../best.pt'

Solution: Ensure the file path to `best.pt` is correct in the script. It should be relative to the project root or use an absolute path. Verify the file exists at the specified location.

6.7 FileNotFoundError: No such file or directory: '.../Vertigo for Solo Cello - Cicely Parnas.mp4'

Solution: Ensure the video file exists at the specified path. Update the `video_file_path` in your script to the correct relative or absolute path.

7 Running the Script

1. **Activate the Virtual Environment** (if not already activated):
   - **Windows**:

     ```
     .\env\Scripts\activate
     ```

   - **macOS/Linux**:

     ```
     source env/bin/activate
     ```

2. **Run the Python Script**:

   ```
   python test.py
   ```

8 Additional Notes

- **Ensure Dependencies are Installed**: Always check that all necessary Python packages are installed and up to date.
- **Environment Activation**: Remember to activate your virtual environment every time you work on the project.
- **Check File Paths**: Double-check file paths, especially for model weights and input files.

This guide should help you set up and troubleshoot common issues in the Evaluator code. If you encounter further issues, consult the project documentation or reach out to the project team leads.