ORTHODOX

User Manual

Killian Connolly - 17303116
William John O'Hanlon - 17477494
Supervisor - Prof Tomas Ward

1 Introduction

Welcome to the user manual of Orthodox MMA trainer. This web application provides a means for you, the user, to practice certain MMA strikes and techniques, without the need of expensive tracking equipment. All you need is access to a computer or mobile device with a supported browser, such as Firefox, Google Chrome and Microsoft Edge.

2 Web Application User Guide

2.1 Accessing the Web Application

Our website is currently available on the internet at https://orthodoxmma.com. The first page that you will see is the login page. Here, you can login to the application by inputting your email and password. If you have not registered before, you can click or press “Sign Up here” and it will lead you to the registration page. To register, simply enter your email address and a password, and click the “Get Started For Free” button. After this you should be logged in, provided you used a valid email unique to yourself and provided a valid password.

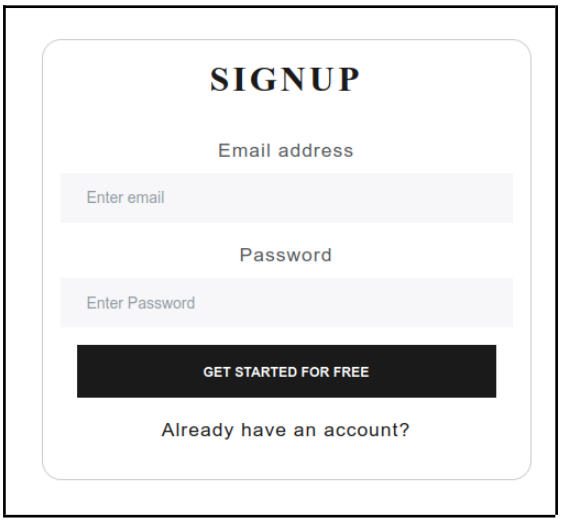

Fig 2.1.2 Registration Page

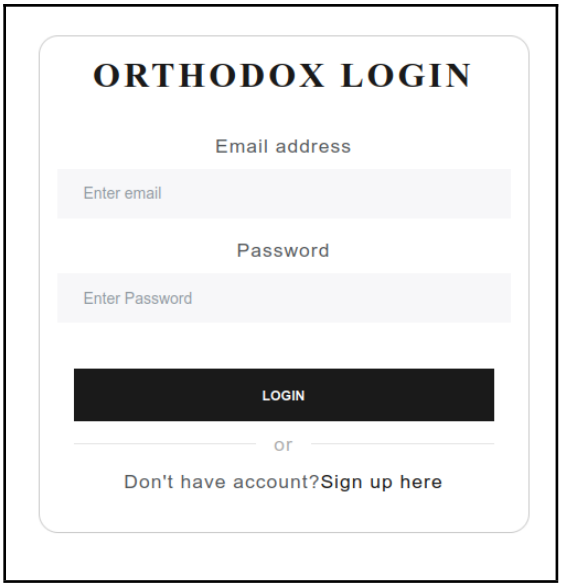

Fig 2.1.3 Login Page

Once logged in, you can use the navigation bar to navigate through the website.

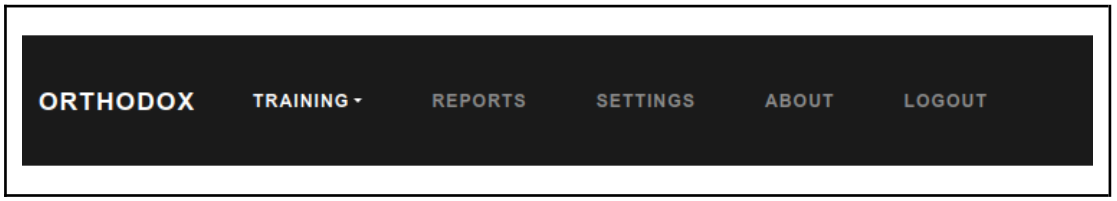

Fig 2.1.1 Navigation Bar

2.2 Editing Credentials

Within the settings page, your account details can be updated. Firstly, you can change your password. Two inputs are required to do so, your new password and confirmation of that password. A banner will arise if your password has been successfully updated.

An option to permanently delete your account is also provided in the settings page, by way of a delete button. Pressing this button will permanently remove your account from our database, without a prompt, so please use this feature cautiously. After deletion, you will be navigated back to the login page.

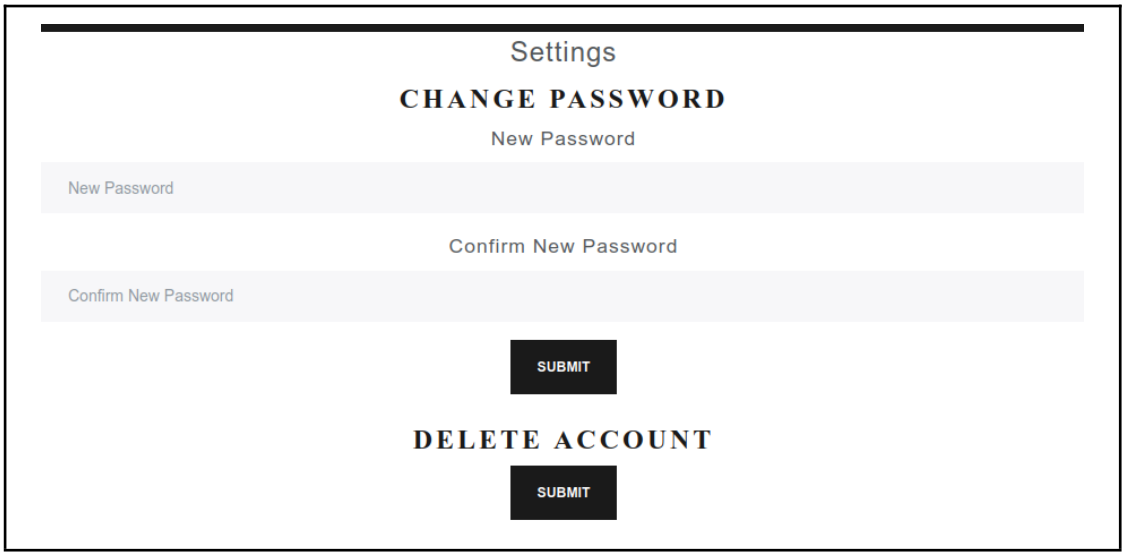

Fig 2.2.1 Settings Page

2.3 Prerequisites

The main feature of the application can be found within the training tab of the navigation bar. Here you are met with three options, however at the moment only one of these options is currently available, and that is jab strike training. In future, the two other options will become available.

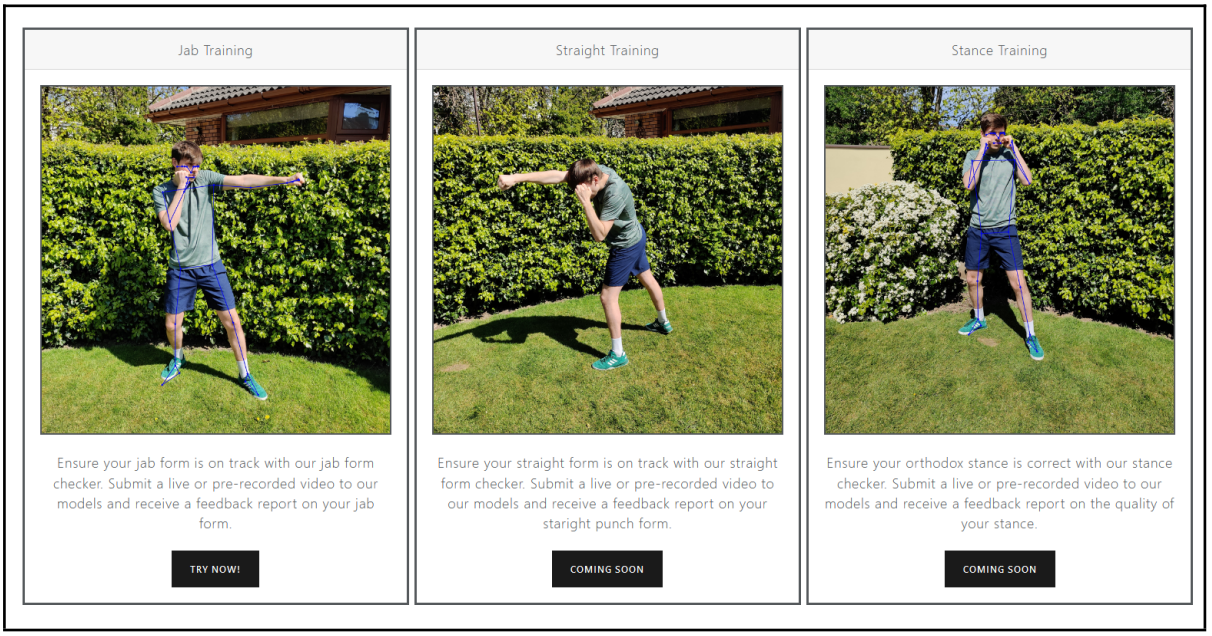

Fig 2.3.1 The choice of training regimes

Once an option is chosen, you will be navigated to the respective choice page. This page provides a description of the strike to be predicted, and an explanation of what our classifiers will be looking for in terms of your striking technique.

There are a few things you need to know before commencing training.

1. You must be in full view, approximately two meters away from the camera, while recording.
2. You must be orientated at a slight angle away from the camera towards their left, in an orthodox boxing stance.
3. If you make a mistake during their training, you can simply start again after the analysis stage.

Fig 2.3.2 Example positioning for taking video

At the bottom of the page, you will also be presented with two options, “live form checker” or “upload pre-recorded video”. These options allow you to pick your preferred method for passing a video of yourself performing a strike to our classifiers. The live form checker requires a camera accessible by your device, and facilitates a live recording of the strike through the browser. The upload pre-recorded video option facilitates uploading a pre-recorded video instead. These options are covered more in depth in the next section.

2.4 Analysing

As mentioned above, there are two options when using the training functionality, a live form checker or an upload option.

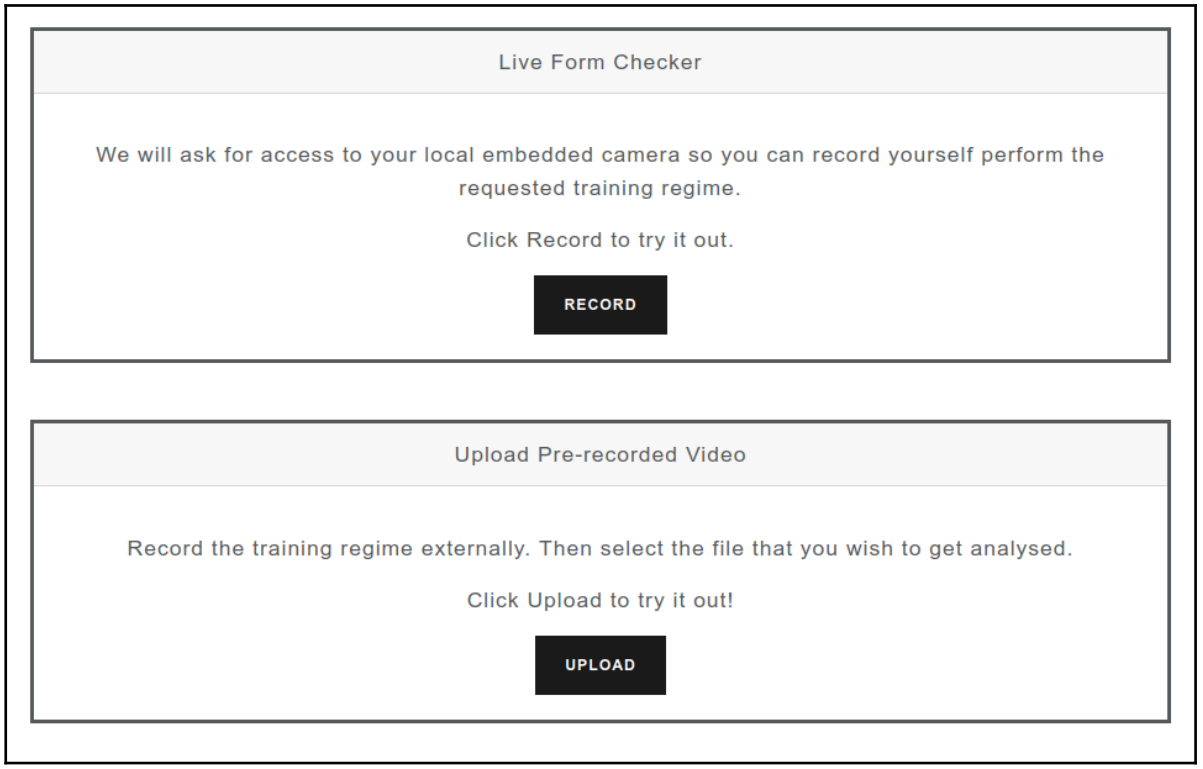

Fig 2.4.1 Showing the choice of recording or uploads

If the live form checker option is selected, you will be navigated to the live recording page. There is an option to flip the camera, if you have multiple cameras. The recording will commence once you press the “Start Recording” button. As mentioned above, please ensure you are in the orthodox stance, angled to your left and in full view. Pressing the recording button will initiate a five second countdown to allow you to get ready. At the end of the countdown the video recording will begin, and you should start your striking exercise. After another 5 seconds the recording will stop and the captured video will be sent to our models to be analysed.

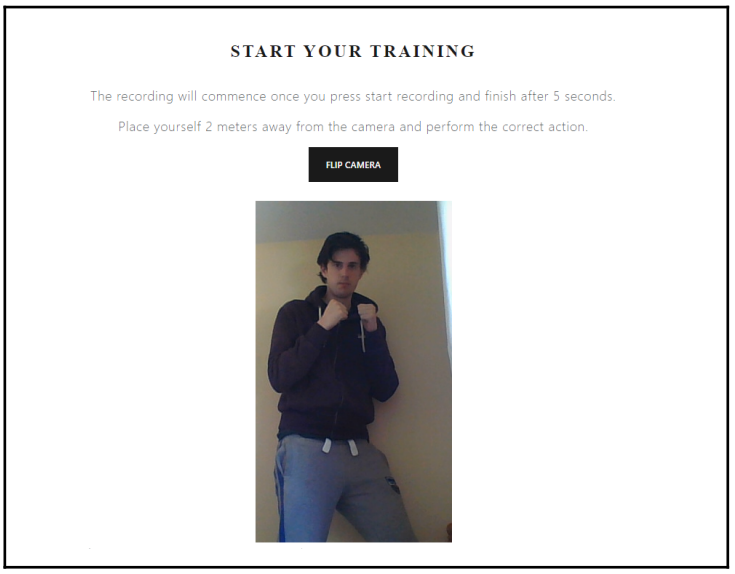

Fig 2.4.1 Live Video Feed Page

If the second method of utilising our analysis tool, the file upload, was chosen you will be navigated to the upload page. Simply click on the choose file button and find the striking video you wish to be analysed. Once a file is chosen, press the upload button to send the video to our models for analysis. Please ensure that the video is a .mp4 file as the system only accepts files with this extension, and that the video is not too long (less than ten seconds) to reduce analysis time.

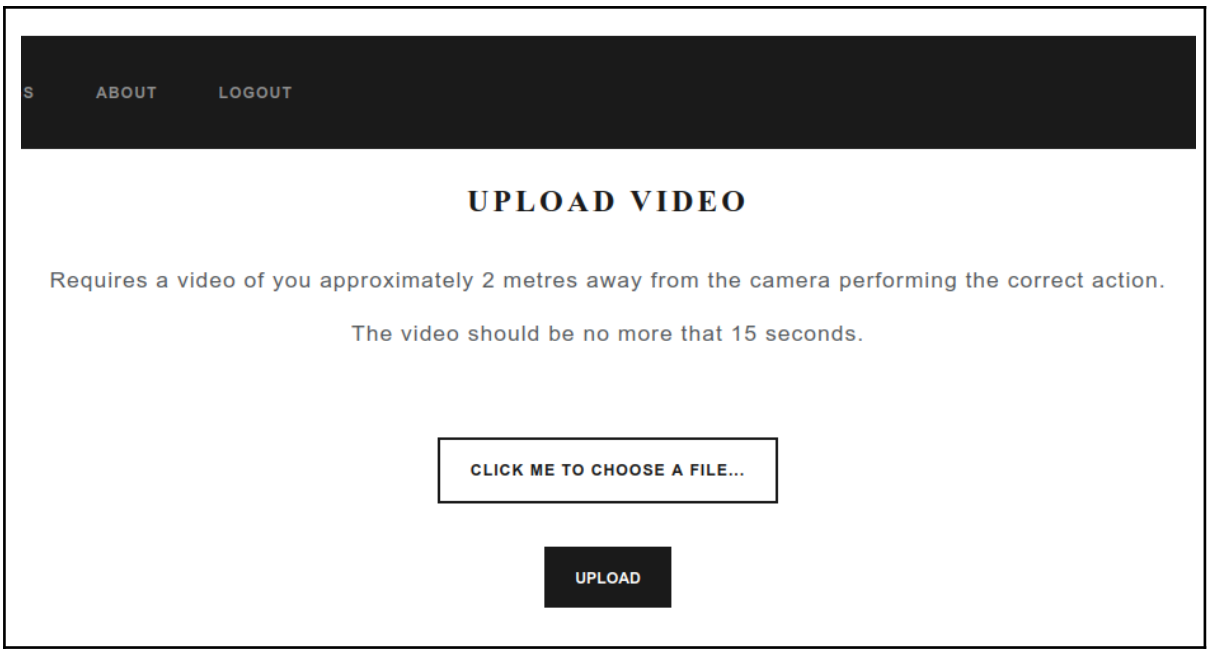

Fig 2.4.2 Upload Page

After analysis has completed, you will be redirected to another page which will display our analysis in the form of a feedback report, regardless of the option was taken. Once you obtain the feedback, you should carefully review it. If you have made a mistake it should be evident in the report. It is important to correct the error to prevent injury and to overall improve your striking technique. Below the report you have the option to save the analysis. If so, your report is recorded and can be viewed within the Reports tab in the nav bar. If you do not wish to save your report you can simply try again or navigate to another page.

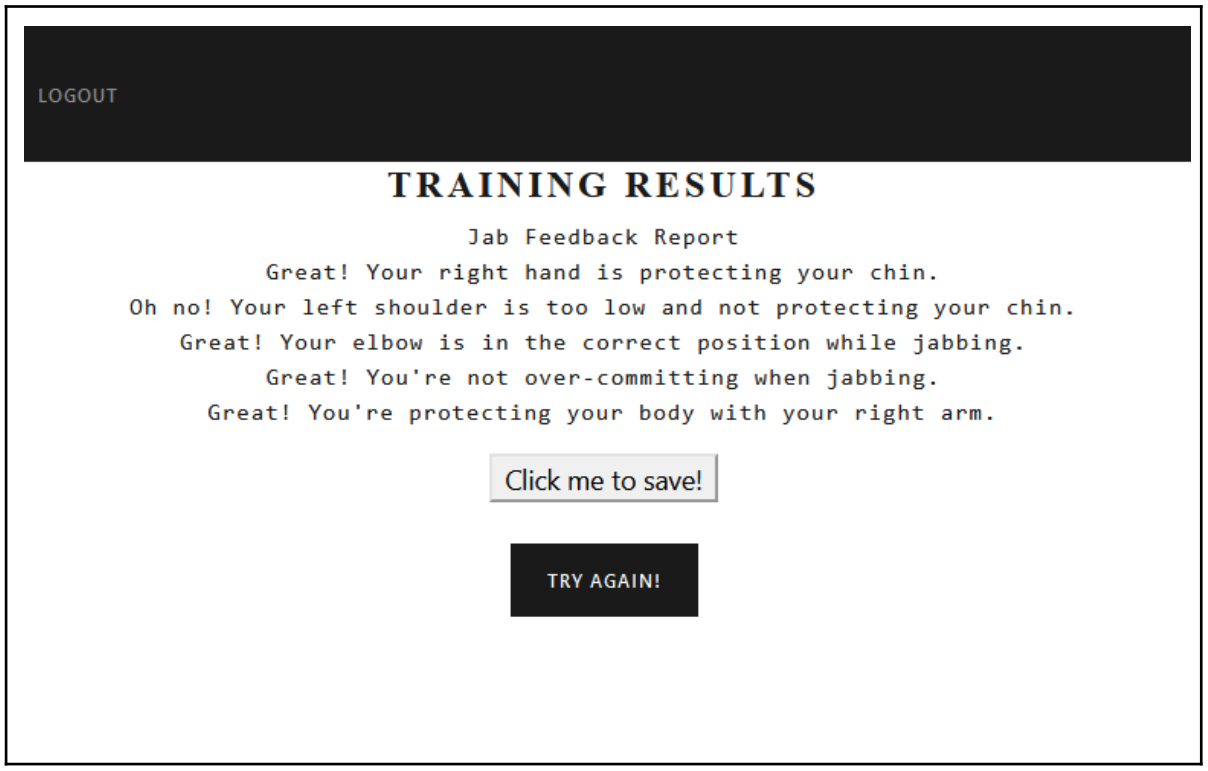

Fig 2.4.3 Feedback report generated after Upload video or Live Stream

Fig 2.4.4 Feedback Reports Page

The Reports page is where you can view your history of saved feedback reports. This is unique to your account and is stored in our database. It contains the training regime along with the previous feedback reports stored after analysis from our classifiers.

3 Local Setup User Guide

This local setup is provided for engineers or developers who wish to continue the work that has been done on our project and for testing purposes. Our repository will have to be forked or downloaded first. README.md files describing local set up of components have been added to the respective directories within `2021-ca400-connok27-ohanlow2/src .` There are three main components that must be set up in order to get the web application functioning. These are the API, a database and the Flask application itself.

3.1 Database & API

Firstly, the database can be created locally or accessed through the configuration file. These configurations are private to prevent external use however, as our database contains sensitive user information. Therefore, you must create your own database. MySQL files containing the commands required to create the databases are provided in the API directory i.e.

`2021-ca400-connok27-ohanlow2/src/OrthodoxAPI`

Obviously, prerequisites of doing this require MySQL to be downloaded on your local machine, available to download at the following URL: https://www.mysql.com/downloads/ .

The API requires the appropriate installation of Go Language, hence ensure you have it downloaded on your machine. if you don't, please install Go, available at https://golang.org/doc/install . Once installed, running `go run main.go` on the command line should start the API, given that the database has been properly set up.

3.1 Flask App Set Up

For the Flask application itself, simply install the `requirements.txt` file available at the root directory of our repository. Note that the classification models for predicting classification are not on the repository due to the large file size. They are currently stored on a google drive, along with our datasets, and you will have to request access for them. However, the code we used to create our datasets and train classifiers is available on the repository, along with README files explaining how to use the code. Once you have the models, edit the configuration file to adhere to the location of the models. No changes need to be made to linking the application to the API. You can now run the application by executing `python app.py` in the `Flask_App` directory.