### Project Plan

### Tasks with deadlines

Future tasks:

| Task | Description | Team member(s) | Deadline |
| --- | --- | --- | --- |
| Move work to overleaf and finalize writing | Intro  Illustration  Project plan | George | Thursday June 5 before meeting |
| Background  Ethical Considerations  Project plan writing  Risk register | Rosalie | Thursday June 5 before meeting |
| Data processing, architecture | Marcus | Thursday June 5 before meeting |
| Baseline models  architecture | Harry | Thursday June 5 before meeting |
| Data Collection | Collect a diverse dataset of yoga poses from different sources | Rosalie | Monday June 10th, 11:59pm |
| Data Preprocessing | Go through the collected data and augment data, load dataset into model | Rosalie | Thursday June 13th, 11:59pm |
| Primary model outline | Write outline of what functions DL model needs | George | Monday June 10th, 11:59pm |
| Design Model Architecture | Use PyTorch to create the initial model architecture | George & Harry | Thursday June 13th, 11:59pm |
| Baseline Model Training | Handcrafted features | Marcus | Monday June 10th, 11:59pm |
| Support Vector Machine (SVM) | Harry & Marcus | Thursday June 13th, 11:59pm |
| Analyze our output | Analyze the initial results (plots) and two model’s performance after training | Marcus & George | Saturday June 15th, 11:59pm |
| Tune hyperparameters | Experiment with various hyperparameters to optimize the performance of our model | Rosalie & Harry | Tuesday June 18th, 11:59pm |
| Evaluate Model | Evaluate the performance of our model based on its training error and accuracy, testing error and accuracy, etc | Harry & George | Tuesday June 18th, 11:59pm |
| Write Progress Report Draft | Write a draft on the model’s progress | Everyone (prepare the work they’ve done) | June 25th, 11:59pm |
| Progress Report Final Editing and Submission | Edit the final draft of the Progress Report and submit | Everyone (prepare the work they’ve done) | Wednesday July 3rd, 11:59pm |
| Write Final Report | Write a draft on the model’s final progress and include: Introduction, Illustration/Figure, Background & Related Work, Data Processing, Architecture, Baseline Model, Quantitative and Qualitative Results, Evaluate Model on New Data | Everyone (prepare the work they’ve done) | Aug 15, 11:59pm |
| Presentation Preparation | Prepare main presentation content: problem, data, data processing, model, demonstration, quantitative results, qualitative results, takeaways | Everyone (prepare the work they’ve done) | Aug 10, 11:59pm |
| Record Final Presentation | Have all presentation content prepared and ready to film | Everyone (prepare the work they’ve done) | Sunday, August 12th |
| Presentation Final Editing and Submission | Have the Final Presentation Edited | Rosalie, George | Thursday, August 15 |
| Submit | Rosalie | Thursday, August 15 |
| Final Report Final Editing and Submission | Edit the final draft of the Progress Report and submit | Marcus, Harry | Thursday, August 15 |

Completed tasks:

| Task | Team member(s) | Deadline |
| --- | --- | --- |
| Intro draft | George | Monday, June 3 |
| Background | Rosalie | Monday, June 3 |
| Architecture draft | Harry, Marcus | Monday, June 3 |
| Finish Intro | George | Wednesday, June 5 |
| Draft illustration | Marcus, George | Wednesday, June 5 |
| Data process draft | Marcus | Wednesday, June 5 |
| Architecture in paragraphs | Harry | Wednesday, June 5 |
| Baseline model | Harry | Wednesday, June 5 |
| Ethical considerations | Rosalie | Wednesday, June 5 |
| Brainstorm project plan | Rosalie, George | Wednesday, June 5 |
| Risk register draft | Rosalie | Wednesday, June 5 |

### Communication and Collaboration

How we work together:

* Do google drive work and colab?

When will you meet:

* Meet in evenings or weekend

Communication Tools:

* Discord: For daily communication, offline discussions, and small, quick updates
* Discord Call: For audio calls
* Zoom: For video calls, sharing screen
* Google Drive: For sharing documents, datasets, and files

How will you ensure that you won’t overwrite each other’s code?

* github

Meeting Schedule:

* Weekly Team Meetings: 9pm Wednesdays

How Our Team Will Collaborate:

Throughout the project, our team will make use of a variety of tools and techniques to ensure effective communication and collaboration. For collaborative document and code editing, we will mainly utilize Google Drive and Github. This will allow for team members to work concurrently and have our work saved in real time.

Meeting Schedule:

We intend to schedule frequent meetings in order to have constant development and collaboration of our project. We have scheduled weekly Wednesday 9pm EST meetings to ensure we meet our internal deadlines and goals. In addition, we plan to meet when it is necessary to have more discussions and assist each other with larger tasks, such as writing reports.

Communication Tools:

We will use a range of communication tools for various use cases:

Discord: This will serve as our primary channel for daily, offline discussions and brief updates

Discord Call: When verbal contact is required we will utilize this application’s feature for audio calls

Zoom: We’ll utilize Zoom for formal meetings that involve screen sharing and video calls.

Google Drive: Our main repository for exchanging files, datasets, and other documents

Maintaining Code Integrity:

Github will be used to maintain version control and prevent overwriting other’s code. We plan on working on separate branches, with each member’s code modifications requiring a pull request for others to review before merging the code into our main branch.

### Risk Register

In order to be successful, recognizing and controlling risks is essential. This section includes a risk register with important, probable risks related to our project. Each risk is assessed by its likelihood, risk, and risk mitigation.

**Baseline model hard to make**

**Team Member Dropping Course**

Likelihood: Low. Not extremely likely based on our interest in the course, however still a possibility as sometimes external circumstances arise.

Risk: The project’s overall development and team’s workload distribution may get impacted, as every member has their own tasks to complete and different schedules. There also may be a skill gap in the team, which can stress the team

Mitigation:

* Meet with the team: conduct a meeting so that we can discuss and assess our current progress, then reassign responsibilities based on what is left to do of our project, leveraging each other’s strengths and schedules.
* Document our work: keep thorough records of our work and project progress in our google drive, including meeting minutes, data processing procedures, commenting code, and drafts of our work
* Seek Help: If we are having difficulty navigating the loss of a team member we could possibly reach out to the course instructor or teaching assistants to ask for some guidance on how we can proceed as a group

**Model Development and Training Taking Longer Than Expected**

Likelihood: High. Model Development and training periods can take a longer time than expected especially for many iterations and modifications required.

Risk: Prolonged times needed for the model’s development and training times can cause delays and setbacks for other project tasks such as evaluation, hyperparameter tuning, and report writing, which can shorten our timeline to work on these tasks.

Mitigation:

* Early Testing: test the model as early as possible so that we can find possible problems earlier on. We can also start building the model and train it incrementally with smaller portions of the dataset so that we can better understand and streamline the training procedure
* Optimize Code: Try our best to optimize our code where we can to reduce training time. For example, reducing code complexity, reducing the file size of data
* Include Buffer Time: anticipate delays by adding in a grace period for our project scheduling so that we can complete our tasks by our internal deadlines

**Data Quality Issues**

Likelihood:

Risk:

Mitigation:

**Model Performs Below Expectations**

Likelihood:

Risk:

Mitigation:

**Communication and Collaboration Issues**