Project Progress Journal

January 13, 2025 - Group Meeting 1

Progress:

- We successfully set up a GitHub repository for the project.
- A weekly journal was established to track progress and document meetings.

Next Week Goals:

- Replicate Results from Paper 2.
- Team members will refresh knowledge of Python ML frameworks and libraries through Assignment 1.
- Potential models to work with include:
    - YOLOv8
    - ResNet

January 20, 2025 - Group Meeting 2

Next Week Goals:

- Review papers/articles from the UBC library or other resources on jersey recognition models.
- Create brief summaries of the papers/articles read.
- Get the current pipeline (from the `jersey-number-pipeline` repository) running.
- Attend office hours to clarify the project proposal and result replication.

January 27, 2025 - Group Meeting 3

Progress:

- Gained insights into repository problems during office hours.
- The `jersey-number-pipeline` repository was partially set up but not fully operational.

Next Week Goals:

- Get the repository running on Google Colab or AWS.
- Find more research papers for the project proposal.
- Explore computer vision techniques that could be applied to the project.
- Get the repository running and start training the model.

February 3, 2025 - Group Meeting 4

Progress:

- Initial draft of the project proposal has been started.
- Continued efforts to get the repository running on Google Colab/AWS.
- Continued to debug the `jersey-number-pipeline` repository, and tried to run it at the local environment.

Next Week Goals:

- Explore solutions for adapting the MNIST model to our task.
- Begin drafting the project proposal.

February 10, 2025 - Group Meeting 5

Progress:

- Explored alternative models like JEDE, ResNet-34, and YOLOv5 for jersey number recognition.
- Be able to *run python3 setup.py* at the local environment. Download the trained model and replace the one inside the folder reid\centroids-reid\models.

- Discussed using a lightweight model pre-trained on the MNIST dataset.
    - Output Layer Mismatch: Identify the issue of MNIST's 10-class output vs. our 100-class requirement.
    - Input Distribution Shift: Discuss how to preprocess images to match MNIST's format.

Next Week Goals:

- Evaluate the limitations of lightweight models and consider using deeper models like ResNet or VGG.
- Explore decomposing numbers into digits for multi-task learning.
- Figure out the drawbacks of the current jersey-number-pipeline and check on which step we can improve.

February 17, 2025 - Group Meeting 6

Progress:

- Finally be able to run the `jersey-number-pipeline` repository at some of our group member's local machines. But noticed that the inference time is way too long.
- Discussed and decided to remove the legibility classifier as it was time-consuming.
- Decided to use ResNet as the backbone for our model, with parallel fully connected layers for multi-task learning.

Next Week Goals:

- Define appropriate evaluation metrics to measure the model's performance accurately.
- Begin optimizing the pipeline by removing unnecessary components and replacing the PARSeq model with ResNet.
- Explore data augmentation techniques to improve model performance.

February 24, 2025 - Group Meeting 7

Progress:

- Decided to use data augmentation techniques like rotation, scaling, and noise addition.
- Decided to use overall accuracy and F1-score to evaluate the model.

Next Week Goals:

- Compose the project proposal for submission.
- Begin documenting the entire pipeline, including the model architecture, data augmentation techniques, and evaluation metrics.
- Discuss steps for tuning hyperparameters to improve model performance.
- Complete the initial evaluation of the model.
