

### **Week of February 22**

Issues Discussed: Initialize project scope, review of the Faster R-CNN model with ResNet-50 backbone

Resolutions: Decided to use NBA clips from NSVA Video Captioning dataset

Action Items: Set up the initial project environment and defined the requirements for the dataset.

### **Week of March 8**

Issues Discussed: Initial test results showed low accuracy in detecting fast-moving objects; challenges with the basic integration of the Faster R-CNN and setting up environment on Vertex Workbench

Resolutions: Agreed to adjust the model parameters and increase the training epochs.

Action Items: Enhance the training protocol and retrain the model with the adjusted parameters; create visualizations to help understand the structure of the data

### **Week of March 15**

Issues Discussed: Integration of video frames with the model

Resolutions: Sampled the video every  $n$  frames to feed into model.

Action Items: Train the model using GPU.

### **Week of March 29**

Issues Discussed: GPU compute resources unavailable

Resolutions: possibly pivot to other platform

Action Items: Figure out how to mount GCP bucket to Colab for more seamless coding environment

### **Week of April 5**

Issues Discussed: Trouble getting GPUs and mounting bucket to Colab

Resolutions: Created new workbench to reorganize files and optimized the training process by reducing the data load per batch.

Action Items: Reconfigure the cloud setup and continue with the enhanced training regimen.

### **Week of April 12**

Issues Discussed: Extract features instead of just throwing clips into the model.

Resolutions: Use a COCO dataset with bounding box information outlining players, rim, and ball.

Action Items: Use finetuned Faster R-CNN and then pass into R(2+1)D and visualize attention overlay + pass extracted features into Claude Opus model to generate commentary

### **Week of April 26**

Issues Discussed: Preparing for final project presentation and report submission.

Resolutions: Finalize all documentation and ensure the project meets all specified requirements.

Action Items: Compile the project report, finalize the presentation