**F2024 Capstone: Automated Infant Lumbar Puncture**

Weekly Planning / Progress Logs

The goal of this file is to keep track of our progress as we progress through the semester. Ideally, we should work together to make a plan at the start of each week on who will work on what, and at the end of the week we will fill out how much progress we have made on our respective tasks. By doing so, we will have a centralized document to track our collective progress, along with a good way to ensure that group members are not working on the same task simultaneously.

| **Week:** | **Plan for the Week:** | **Progress Updates** |
| --- | --- | --- |
| Pre-Sept. 30th | Isaac:   * Move all data into a shared google drive folder for easy access * Upload all files from Ritvik to shared google drive folder * Work on some basic EDA   Abhik:   * Create the github folder * Make code / weekly update folders * Push first weekly update to github * Work on extracting frames from videos (one of the tasks from the meeting with Ritvik) | Abhik:   * Not sure what the best way is to manage the github: using branches would be nice as an easy way to track progress, but leads to issue of having multiple branches open at once if multiple users are modifying the same files in the repo * Once we extract the frames, how do we annotate them? Is there any use to getting more frames if the extra images we get are not labeled? |
| Sept. 30 - Oct. 6th | **Pre-meeting ideas**   * Split new videos into frames - try to use the same framerate as used for the old videos * Compare old videos to new videos using the methods that Ritvik described. Can also try some standard methods like PCA or do a lit review for other image comparison metrics * EDA on current data - in particular look at distribution of labels among good-quality images * Try training model on good-quality images to compare performance with all-images * Explore normalization techniques for images after point 2: try to limit dissimilarity between old and new videos * Investigate model performance on old videos: start with using the resnet18 model, and get familiar with how it works so we can expand upon it later   **Post-meeting assignments:**   * **Primary goal: finalize the model** * Continue to investigate differences between the images * Re-run ResNet18 on the old images, adding in normalization * Run some basic EDA to look at class balance among good-quality images * Check topology of images (Abhik wants to play)   **To do for this week:**  Abhik:   * EDA: compare old images and new images * EDA for labels: look at distribution of labels among “good-quality images”   Isaac:   * Normalization of videos * Work with Shrinjay to add to ResNet18 code   Harinder / Mohini   * Data augmentation * Work on fancier ways for data normalization   Shrinjay:   * ResNet18: run models on old videos | **Isaac:**   * I got the ResNet18 pipeline working, and am working on adding normalization, but it runs so so slowly without GCP credits. I’m gonna reach out to the TAs today to get some and see if it helps. |