**Multimodal Research Project Proposal**

This document is dedicated to forming a coherent, detailed, and feasible proposal for our research on multimodal machine learning models. While the logistics of this project remain tentative, we plan to keep track of all priorities that need to be addressed, as well as highlight the best approach to go about it with respect to time.

Multimodal Machine Learning is a popular branch of ML that focuses on aggregating multiple types of information to further support a model’s output. While many conventional techniques produce high accuracies, they commonly rely on only one type of data. This may not extract all the necessary information about a data point. This fact especially holds true in the medical sector, where conventional practices have clinicians review multiple aspects about a patient (e.g. physical examinations, reports, tests) before coming to a diagnosis.

The purpose of our research is to conduct valuable research on applying multimodal machine learning to a specific medical condition, and hopefully, reach an accuracy that exceeds that of the standard medical practice. On top of this, we aim to create a convenient way for accessing this system, so clinicians can use our tool in real time.

* Create a research project proposal
  + Title
  + Introduction
    - Three paragraphs
      * Broad statement of the problem and why the problem is interesting. Put your project in context
      * Short literature review detailing past work on the subject including the outcomes of this past work. No analysis is required, just outline what has already been done.
      * Clear statement of what you are trying to accomplish and how it relates to past work. Conclude this section with a clear statement of exactly what you are trying to investigate or create.
  + Benchmarks
    - What you will accomplish by winter break. This should be a confirmation step. Repeat something that has already been done, do a small, rough test of an algorithm to prove your approach is worth continuing, or define a build outcome.
    - What you will accomplish by May. This should be your main goal for the project.
    - A dream goal, that if everything goes really well you might be able to reach. Something aspirational!
    - Create a research procedure **with hard deadlines.**

**Timeline**

* Complete Proposal by **November 10th**
* Literature Review on specific multimodal topic by **January 1st (tentative)**
  + Sources by **November 30th (Before Thanksgiving Break)**
  + Literature Review Skeleton + Title by **December 10th (End of Thanksgiving Break)**
* Publish Literature Review by **January 15th**
  + Look for conferences (e.g. Look through IEEE conference catalog)
  + Make a list of journals as well
  + **Prioritize conferences, as they typically offer publications**
  + Make sure to only get published **once**
* Begin second paper research by **February 1st**
  + Sources by **February 20th**
  + Paper Skeleton by **March 1st**
* Finish second paper by **April 15th**
* Publish paper by **May 1st**
* Finish clinician accessible tool by **May 10th**
* Complete Project by **May 15th**
* Present to University by **June 1st**