# Project Proposal

Deep Learning Systems(ENGR-E 533)

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## 1 Problem statement

Radiologists use X-ray images to diagnose a variety of medical conditions, but interpreting these images can be challenging and subjective. This is because X-rays are complex images that can be difficult to interpret accurately, and there is often no single "correct" interpretation. Despite existing research, the need for improved chest X-ray interpretation persists due to the complexity of medical imaging and evolving technology.

In this project we plan to conduct a literature review and enhance existing deep learning models to optimize Chest X-ray image interpretation, which will provide a head start to the radiologist and doctors in preliminary analysis process.

## 2 Goals:

1. We are going to replicate the experiments reported in the paper as a baseline model
2. We will replace the baseline model with deep learning algorithms used for image interpretation
3. Finally we will summarize and report the findings

## 3 Responsibilities

1. **Ketul Patel :**
   (a) Doing Literature Review and Discovery
   (b) Implementing the experiments stated in the papers
   (c) Developing new strategies to improve the model performance
2. **Harshwardhan Raghunath Patil :**
   (a) Doing Literature Review and Discovery
   (b) Testing the experiments designed by Ketul
   (c) Documenting background work, experiments, and their results
   (d) Forming a final report and presentation slides

## 4 Primary Reference Paper:

1. Y. Xue, T. Xu, L.R. Long, Z. Xue, S. Antani, G.R. Thoma, X. Huang Multimodal recurrent model with attention for automated radiology report generation Proceedings of the international conference on medical image computing and computer-assisted intervention (MICCAI), Springer, Granada, Spain (2018), pp. 457-466

## 5 Reference Datasets:

1. https://academictorrents.com/details/66450ba52ba3f83fbf82ef9c91f2bde0e845aba9
2. https://academictorrents.com/details/5a3a439df24931f410fac269b87b050203d9467d