**Project Proposal**

1. **Clear Problem Statement (Objective, Motivation, Method)**

According to the World Health Organization, in March 2023, there are more than 55 million people who have dementia worldwide. Dementia results from a variety of diseases and injuries that affect the brain. Alzheimer's disease is the most common form of dementia and may contribute to 60–70% of cases, so we are talking about 33 to 38.5 million people.

Our objective is to analyze an Alzheimer's Magnetic Resonance Imaging (MRI) preprocessed Dataset using Machine Learning algorithms to identify a person's dementia stage.

1. **Interesting Choice of Problem**

Although no treatment can revert Alzheimer’s disease, Rasmussen et al. (2019) asserted that a diagnosis early in the course of illness allows time for all concerned to adjust while the patient can still actively engage and offers access to advice, financial support and non-pharmacological and pharmacological treatments.

Because of this our project proposes to deal with this issue of early diagnosis by identifying the images of patients with Very Mild Demented, Mild Demented, Moderate Demented or Non-Demented.

1. **Reasonable (Doable) Choice of Problem**

The key categories of applications of artificial intelligence (AI) in healthcare, according to Davenport et al. (2019), involve diagnosis and treatment recommendations, patient engagement and adherence, and administrative activities. So, by choosing the Alzheimer's MRI project, we correspond to the necessity of the healthcare industry to use AI to diagnose and make treatment recommendations.

1. **Review of the Data Source**

After going through many datasets on Kaggle, we discovered the Alzheimer MRI Preprocessed Dataset, with a usability of 8.75 and 11,044 downloads (06/04/23). The Dataset contains 6400 MRI images collected from several sources. All the images are resized into 128 x 128 pixels; the Dataset has four classes of images.

<https://www.kaggle.com/datasets/sachinkumar413/alzheimer-mri-dataset/data>

1. **Indication of Reference Code**

On Kaggle at Alzheimer MRI Preprocessed Dataset, there are 70 codes and one caught our attention because of its organization, the use of CNN and the way the result is exposed:

<https://www.kaggle.com/code/amyjang/alzheimer-mri-model-tensorflow-2-3-data-loading>