Proposal ML2

Group members:

- **Cristina Giraldo**
- **Taisha Ferguson**

What problem did you select and why did you select it?

- ✓ We selected intracranial hemorrhage detection because it is very interesting to see how we can apply data science, specifically deep learning, to improve health outcomes.

What database/dataset will you use? Is it large enough to train a deep network?

- ✓ The dataset corresponds to 180 GB of images of intracranial hemorrhages. The dataset is big enough for training a neural network and it would have to be run in the cloud.

What deep network will you use? Will it be a standard form of the network, or will you have to customize it?

- ✓ For this dataset, we will likely use Convolutional Neural Networks. Also, we believe that we will be using the standard functionalities provided by the different frameworks (Keras, PyTorch, or TensorFlow) according to our necessities. However, at this early stage we cannot assess whether we will have to customize the code or use the standard.

What framework will you use to implement the network? Why?

- ✓ So far, we are thinking about using keras.tensorflow because it is currently the framework that we know best. However, if we need to make improvements to our code we may change to another framework that is more suitable for our purpose.

What reference materials will you use to obtain sufficient background on applying the chosen network to the specific problem that you selected?

- ✓ https://towardsdatascience.com/keras-vs-pytorch-for-deep-learning-a013cb63870d
- ✓ https://keras.io/preprocessing/image/
- ✓ https://machinelearningmastery.com/how-to-configure-image-data-augmentation-when-training-deep-learning-neural-networks/
- ✓ Gulli, A., & Pal, S. (2017). Deep Learning with Keras. Birmingham: Packt Publishing.

How will you judge the performance of the network? What metrics will you use?

- ✓ We can judge the performance of the algorithm according to the results given by the following metrics: recall, precision and f1-score.

Source:

https://www.kaggle.com/c/rsna-intracranial-hemorrhage-detection

- Provide a rough schedule for completing the project.

N.	Activities	Week 11/01	Week 11/11	Week 11/11	Week 12/1
1	Search Dataset	▓			
2	Verify if the dataset is clean or not	▓	▓		
3	Problem Specification	▓	▓		
4	Problem Understanding	▓	▓		
5	Proposal elaboration	▓	▓		
6	UI Planning	▓	▓		
7	**Code Planning**				
7.1	Data Cleaning		▓		
7.2	Noise detection		▓		
7.3	Noise Removal		▓		
7.4	Feature Selection		▓		
7.5	Algorithm Programming			▓	
7.6	UI Programing		▓	▓	
8	Evaluation			▓	
9	Result Exploration			▓	
10	Testing			▓	
11	Final report				▓
12	Individual report				▓
13	Presentation				▓