AI4ALL Project Proposal

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**Dataset**: <https://www.kaggle.com/rmisra/news-headlines-dataset-for-sarcasm-detection>

**Description**:

As human technology continues to grow exponentially, more and more people have access to the internet and online news. However, this accompanies the growth of fake news with around 17 percent of the online news being questionable. Therefore, the ability to detect misleading news becomes the main problem in our current society.

As a solution to this problem, we propose to utilize machine learning to provide an objective view on the news’ headlines. In our research, we have found that a lot of misleading news utilizes sarcastic titles in order to target people that only read the title but not the entire news article. Furthermore, having a sarcastic title “impaired a reader’s ability to make accurate inferences”. Therefore, if we can warn them about the credibility of the title beforehand, we can prevent the spread of fake news. We have found a dataset in kaggle, which contains data from theOnion, where sarcastic versions of news articles are made, and HuffPost, where many non-sarcastic news articles are written.

Each sample in our dataset consists of three attributes:

* is\_sarcastic: 1 if the record is sarcastic otherwise 0
* headline: the headline of the news article
* article\_link: link to the original news article. Useful in collecting supplementary data

It is likely that the source will not be trusted if the machine labeled it as sarcastic, which matches our intention of this project and positively impacts our society. However, we have to be careful about false positives, where the machine labels the news title as sarcastic when it’s not, as this damages the credibility of a trustworthy source. Therefore, it is important to consider different kinds of bias as we are working on this project.

**Data Visualization**: (later)

**Potential sources of bias associated with dataset**:

* Omitted variable bias: The records may be classified ignoring some important factors.
  + List all the possible factors that would affect the classification process
  + If we absolutely cannot include an important variable and it causes omitted variable bias, consider using a proxy variable
* Cause-effect bias: The records may be classified as sarcastic when the system detects certain words.
  + Double check the records with certain words after the classification process
  + Use Third Person Point of View (do not assume)
* Cognitive bias: Some records may be classified as sarcastic when similar records have been classified as sarcastic before.
  + Group all the similar records and manually find the similarities and differences
  + Make all decisions without the knowledge of other classification results
* Sampling bias: The majority of the data was taken from only 2 sites: theOnion and HuffPost, which may not be representative of all US news headlines.
  + Find further datasets if possible
  + Since we did not collect the data ourselves, we would tune our research question to the specificity of our dataset

**Algorithm(s)**: (later)

**Research question:** To what extent does the diction and structure of US news headlines reflect the validity of the US news article.

**Citations**:

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