**Project Proposal**

**Project Title:** Fake News is part of a bigger problem: automated propaganda

**Group Details:**

Chanukya ([chanukyalakamsani@ou.edu](mailto:chanukyalakamsani@ou.edu))

Madhumitha P Sivasalapathy ([madhups1992@ou.edu](mailto:madhups1992@ou.edu))

Sai kiran ([sai.kiran.reddy.mamidi-1@ou.edu](mailto:sai.kiran.reddy.mamidi-1@ou.edu))

Shiva ([shivasrk1234@ou.edu](mailto:shivasrk1234@ou.edu))

**Objective:** To find out whether social media is robust to disinformation.

Data taken from twitter is always genuine. (hypothesis statement)

Problem1:

The search engine (eg: YouTube) sometimes shows up in contradictory results. It creates a biased opinion in users mind.

With the help of this project we would like to classify the conspiracy content among the search results. Providing a topic as input to the UI, we would be able to classify the conspiracy content from the results obtained from YouTube explorer(back-end).

Type of Problem**:** Supervised machine learning (Classification) [1]

Problem 2:

We will improvise classification results (removing the dependent variable) by clustering homogeneous subgroups such that objects in the same group are more similar to each other and label them based on the cluster they are present.

**Significance of the project**:

4.1) With the help of Data mining we are trying to answer these questions

Do social platforms really provide us with misinformation on the initial search? Identify conspiracy content in top N results. “Implicitly, most approaches to algorithmic curation of facts assume that citizens are misinformed because they are unable to shift through and critically evaluate information in emerging (social) media environments. There is no doubt that low levels of media literacy among citizens are part of the problem. [2]

4.2) Dataset and their sources: We need training data consisting of both conspiracy and Non-conspiracy content. Testing data will be the suggestions that we obtained from the YouTube explorer.

For developing the dataset, we use twitter data with hashtag conspiracy and free text. Twitter content with #conspiracy would be labeled for target variable and raw text with Non-conspiracy. “The key intuition here is that hashtags provide direct access to the author’s emotional state, which is more accurate and trustworthy than the interpretations of a third-party annotator. [3]

Since it’s text-data we will develop features (that will be helpful in training machine learning algorithm. We are planning to take 10,000 tweets and maybe more depending on the accuracy obtained from the classification algorithm.[4]

4.3) The tasks to be performed are:

Feature selection, Feature extraction

Data mining tasks:

Problem 1: classification (Predictive): classify whether text given as input is conspiracy or non-conspiracy.

Problem 2: clustering (Descriptive): Clustering the text data obtained from twitter into two groups and comparing the results with target variable so to validate the Genuity of the twitter data.

4.4)

Problem1:

Our target variable has two categories (conspiracy and non-conspiracy) and our objective is to determine the correct category for a given observation so we will apply a classification algorithm to identify the shared characteristics of certain class. We will compare those characteristics to the data we are trying to classify and estimate how likely is that observation belongs to a particular class.

Problem 2:

We will remove the target variable from the data and do clustering. We will congregate the data into two clusters and compare the results with classification results.

5)

Implementation and Methodology

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sno. | Tasks | Start Date | End date | Person In charge |
| 1 | Problem Statement Finalize | 09/02/2019 | 09/16/2019 | Madhu,Chan,shiva,kiran |
| 2 | Data Set Identification | 09/05/2019 | 09/09/2019 | Madhu,Chan,shiva,kiran |
| 3 | Document for proposal | 09/06/2019 | 09/16/2019 | Madhu,Chan,shiva,kiran |
| 4 | Data Set Collection and Integration | 09/16/2019 | 09/22/2019 | Madhu,Chan,shiva,kiran |
| 5 | Data preprocessing | 09/22/2019 | 09/25/2019 | Madhu,Chan,shiva,kiran |
| 7 | Feature Extraction and Feature Engineering | 09/23/2019 | 09/30/2019 | Shiva and kiran |
| 8 | Identifying of classification and clustering algorithms | 09/23/2019 | 09/30/2019 | Madhu,Chan |
| 9 | Clustering Technique 1 | 10/01/2019 | 10/14/2019 | madhu |
| 10 | Clustering Technique 2 | 10/01/2019 | 10/14/2019 | kiran |
| 11 | Classification Technique 1 | 10/01/2019 | 10/14/2019 | chanukya |
| 12 | Classification Technique 2 | 10/01/2019 | 10/14/2019 | shiva |
| 13 | Testing of Clustering | 10/14/2019 | 10/21/2019 | Madhu, kiran |
| 14 | Testing of classification | 10/14/2019 | 10/21/2019 | chanukya,shiva |
| 15 | Combining all doc sheets | 10/14/2019 | 10/16/2019 | Madhu,Chan,shiva,kiran |
| 16 | Data Visualization | 10/17/2019 | 10/25/2019 | Madhu,Chan,shiva,kiran |
| 17 | Front-end | 10/25/2019 | 11/05/2019 | Shiva and madhu |
| 15 | Back-end | 10/25/2019 | 11/05/2019 | Chanukya and kiran |
| 16 | Integrating Backend and Frontend and developing a full stack machine learning application | 11/06/2019 | 11/16/2019 | Madhu,Chan,shiva,kiran |
| 17 | Final Project Documentation  And YouTube presentation | 11/17/2019 | 11/27/2019 | Madhu,Chan,shiva,kiran  (each explaining respective work done in the project) |
| 18 | Re-evaluate the model for better results | 11/28/2019 | 12/1/2019 | Madhu,Chan,shiva,kiran |
| 19 | Final Project and Demo |  | 12/02/2019 | Madhu,Chan,shiva,kiran |

References:

[1] D. A. Scheufele and N. M. Krause, “Science audiences, misinformation, and fake news,” *Proc. Natl. Acad. Sci. U. S. A.*, vol. 116, no. 16, pp. 7662–7669, 2019.

[2] C. Zhang, A. Gupta, C. Kauten, A. V. Deokar, and X. Qin, “Detecting fake news for reducing misinformation risks using analytics approaches,” *Eur. J. Oper. Res.*, vol. 279, no. 3, pp. 1036–1052, 2019.

[3] M. Hasan, E. Agu, and E. Rundensteiner, “Using Hashtags as Labels for Supervised Learning of Emotions in Twitter Messages,” *Proc. Twenty-Eighth AAAI Conf. Artif. Intell.*, pp. 187–193, 2014.

[4] H. ALLCOTT and M. GENTZKOW, “Trends in the Diffusion of Misinformation on Social Media,” *Stanford Inst. Econ. Policy Res.*, pp. 1–13, 2018.

Important links:

1. <https://www.publichealthpost.org/research/misinformation-fake-news-health>
2. <https://www.fda.gov/news-events/press-announcements/fda-takes-action-against-17-companies-illegally-selling-products-claiming-treat-alzheimers-disease>
3. <https://www.nbcnews.com/tech/internet/moms-go-undercover-fight-fake-autism-cures-private-facebook-groups-n1007871>
4. <https://www.cjr.org/analysis/algorithm-russia-facebook.php>