Since the beginning of the discipline, social sciences research has been studying social phenomena in order to inform policy making. Qualitative and quantitative research methods have always made sure that public opinion is represented through data both qualitative and quantitative. All across time, the evolution of social science research methods have always made sure that both primary and secondary data kept representing the public's views. Recent developments in machine learning (Franco 2020) and natural language processing (Boutilier 2020) have offered an opportunity to have an even wider representation in form of being able to partake very large datasets.

A combination of natural language processing and machine learning offers an insurmountable opportunity to perform analysis from text. To understand the state of a phenomena, it is important to know what people both in position of power and the public think about it. Corpuses from parliamentary speeches serve as one of the sources to understand opinion from an authoritative point of view. But to facilitate democracy, it is important to understand opinion form the public's point of view.

Technological advancement has simplified the process of obtaining data. The emergence of social media has offered a platform where such data can be extracted. Social media such as Tweeter and Facebook (Munzert 2020) are playing a big role as data platforms. The advantages of extracting data from social media over preceding methods are that respondents won't be biased to withhold information and data obtained is willingly posted by users. A social media researcher does not have to invest ingenuity in building rapport to respondents for the sake of obtaining the accurate information. In itself, social media data is highly genuine to be reliable for social sciences research purposes. In comparison, Tweeter has been the media that stood out because the extent to which data is willingly posted is much more fluid than other media. Above all, it is a favorable (Kristin 2019) platform to discuss matters relating to public policy where both people in position of influence and the public get to debate on pressing public policy issues.

Natural Language Processing and Machine Learning methods are instrumental in studying such debates. A variety of approaches such as keyword studies, sentiment analysis and stance detection exist in studying social media debates. While keywords are useful in understanding the ecosystem of political frames to the public, sentiment analysis offers the opportunity to study how people feel about certain topics and rank them on a scale from positive to negative. Although ranking people's sentiment about a topic informs on how best to improve policy, it is telling to understand stances they take towards such topics. Stance detection studies the position people take towards a policy issue. A person's position towards a policy issue, tells you how firm they are holding such a grip. Such positions could be supporting, refuting or not taking any side towards a topic in question.

This paper studies the stance people take towards climate science. It applies stance detection to gauge whether people accept, deny or take a neutral position when they tweet about climate science. It also discerns from climate policy related tweets. Accepting climate policy implies supporting climate science while denying climate policy does not mean denying climate science. Based on the target feature – climate science – tweets are sequentially annotated subject to three categories "in favor", "against" and "neutral". At the same time, tweets that are related to climate policy are identified and set aside. These will

be used for future research in studying stances people take when they tweet about climate policy. Category classification depends on annotation rules developed.

To initially evaluate the data, Support Vector Machines (SVMs) function as the baseline. Even though the model performs well with other data, strikingly suboptimal prediction results are found. Much of this is explained by a few data points used compared to experimental datasets. With the existent model, predictions were made on unclassified tweets that led to communicated results. A deep learning component using Bidirectional Encoder Representations from Transformers was used to asses the accuracy of predictions made by the baseline model.

A weak but positive effect of users taking a neutral stance is observed to nudge users denying climate science towards supporting mitigation efforts. As it appears, such deniers are ones that have been swayed by deniers with authority such as prominent right wing politicians. In tandem, this positive effect is also contributed with major events happening in the climate change calendar such as the Global Week for the Future and the warmest month on record. Keenly, practicality and a bipartisan divide turned out to be major drivers for users to be climate science deniers. This practicality manifests through rigidity and pragmatism towards reception of climate science information. Moreover, users following the right wing politicians turned out to be deniers compared to ones following left wing politicians. On the other hand, a strong trust in climate science institutions was noted as major driver for users who take a stance in favor of climate science.