**Literature Review Outline**

MSc Computer Science

University of Essex Online

27th May 2024

The topic I would like to explore in my literature review is: *Implementing Machine Learning tools and/or techniques in Detecting political misinformation on a social media platform of your choice.*

I’d like to explore the X (formerly Twitter) social media platform. Political discussions (and debates) are prevalent on X; As X is a real-time social media, it’s the perfect platform to spread any kind of misinformation at speed, making it a prime target for spreading political misinformation.

Below is my proposed outline for the literature review:

1. Introduction
   * I will start by introducing the problem of political misinformation on various social media platforms.
   * I will write why I think it’s important to address this ever-growing issue. I would also like to provide some high-level information on machine learning (ML) and how techniques can help detect misinformation at scale.
   * I will define the full scope of the literature review.
2. Background
   * I will, on a high level, discuss the current impact of political misinformation.
   * I will give some context on current challenges around detecting misinformation.
   * Finally, I will provide the definition of the key terminologies.
3. Machine learning
   * I will provide a general overview of what machine learning is.
   * I will explore how text classification works and how it can be used in ML.
   * I will discuss a few selected algorithms that can be used for anomaly detection. (I have not researched this in detail just yet, but from my initial findings some of the techniques to explore are: Naive Bayes, Support Vector Machines, Random Forests and Deep Learning).
   * I will provide a comparison (and the overall performance) of the different techniques used to detect political misinformation.
4. Feature extraction
   * Continuing from machine learning, I will explain what feature extraction is and how important it for model training and accuracy.
   * I will try and assess the effectiveness of the feature sets and provide some explanation on how they can help increase the accuracy of ML models.
5. Dataset and evaluation metrics
   * I will discuss the importance of dataset selection while developing and training ML models. I will also provide some research on how datasets can lead to badly tuned ML models.
   * I will discuss some of the metrics that can be used to evaluate the general performance of a model and I will briefly touch on biases.
6. Current and future directions
   * I will summarise the current ML detection landscape on social media.
   * I will identify the limitations in the existing research.
   * I will discuss the future ML landscape and provide some areas for improvement focusing on political misinformation.
7. Conclusion
   * I will summarise the literature review and restate some of the key findings.
   * I will conclude by writing on the importance of continued research to help combat the spread of misinformation on social media.