Chapter 5
Fake News Detection and Its Evolution:
A Comprehensive Bibliometric and Machine Learning Approach

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ABSTRACT

In era of information warfare, data and information manipulation is at core. If any fake news in the form of misinformation and disinformation is circulated amount public, it can lid to national crisis. Fake News can also damage a nations reputation in the internation community. The increase in fake new have a profound impact on public opinion effecting decision in democracy and general social trust. The massive growth of social media platforms has significantly increased the availability of information amount global audience but this also accelerated the growth and spread of fake news. Therefore, fake news detection and elimination have become critical issue, as majority of public consumes information through social media

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rather than from the actual articles. This chapter summarizes the work of various experts on fake news detection systems using different types of algorithms. More specifically we studied the articles which deep dives into various DL model for fake news detection, using NLP, Apache NLP, and LSTM.

1. INTRODUCTION

The increasing amount of information availability in this era has transformed the way a person consumes news and interact with content (Broda & Strömbäck, 2024). While access to various different types of information can increase public's access to various perspectives, it has also increased the spread of Fake News in the form of Misinformation and Disinformation (Ferguson & Avornum, 2022). Misinformation is false or misleading information spread without any specific intent or in other word by mistake for example: "if a person misheard something which then passed them on as an incorrect information unintentionally", on the other hand disinformation is fake news deliberately spread to mislead a person or a group of people, which poses a significant threat to informed decision-making and democratic processes (Probierz et al., 2021; Aïmeur et al 2023). Fake news can have far-reaching impact, affecting public health, political stability, economic growth, and society. This has created an environment where fake news such as makeup stories, spam, rumours, and malicious discussions can spread rapidly and widely, destroying public trust and making societies unstable (Roumeliotis et al., 2025).

The challenge of distinguishing credible information from false narratives has increased as online platforms have become the main news source for many people (Lim et al., 2021). Traditional fact-checking methods such as manual verification is often subjective, time-consuming, and labour-intensive, making it insufficient and it also led to people becoming more depended on social media as their main source of information specially in case of politically News (Beer & Matthee, 2021). By the time a fake news is corrected or stopped from spreading through traditional methods, the damage is already done (Ferguson & Avornu, 2022). As a result, there has been a growing interest in developing a new and robust automated fake news detection systems using machine learning (ML), natural language processing (NLP), deep learning (DL) and various other techniques. These approaches can efficiently analyse massive volumes of content, restrain the spread of false information, and provide scalable solutions for modern news network in term of credibility and security (Prachi et al., 2022).

Despite these advances, accurately detecting fake news remains a significant challenge, as a false information is not simply following a simple pattern, it evolves in its own finding new ways to spread and continue to grow (Beer & Matthee, 2021).