Chapter 8
Evolution of Fake-News Detection: Conventional, Automatic, and AI-Based Methods

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ABSTRACT

The viral spread of fake news on social media platforms has become a significant concern. Detecting and mitigating the spread of fake news pose a major challenge, requiring extensive effort from fact-checkers, governments, and organizations. However, the speed and volume of disinformation on social media reach far beyond the capacity of manual efforts to prebunk it. In recent years, various automatic fake news detection mechanisms have been proposed, ranging from models focusing on linguistic cues to approaches analyzing network characteristics. While these methods produce successful results, ever-evolving techniques of deception often outpace them. AI-based approaches offer a new opportunity in the subject matter. Especially deep learning-based detection systems provide substantial new ways to understand the context while adapting well to the evolving patterns of fake news. In this study, we explore the evolution of fake news detection. We discuss conventional and automatic fake news detection methods and the state-of-the-art deep learning approaches.

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INTRODUCTION

Fake news is a kind of information that has been intentionally shared to deceive people. It's contents are false in nature but purposefully designed to mimick the truth (Mahid et al., 2018, p. 2). Fake news is a serious threat. It can be weaponized by any motivated actor to cause fear, chaos, and destruction. It can be used by countries to weaken their rivals or can be used by malicious groups to cause distrust towards democratic governments. It is a proven threat against public health and democracy (Allcott & Gentzkow, 2017; Lin et al., 2022).

A series of new technologies and paradigm shifts contributed to the rise of fake news in the previous decade. Social media is the major enabler among them, followed by the decline of traditional journalism, the rise of bots, and clickbait. Recently, another brand-new technology has been added to the fake news arsenal, which is AI-generated content. These factors and paradigm shifts do not play out in isolation; in fact, the combination of them creates a fertile environment where fake news can thrive.

Being a constantly evolving problem, more effort and resources are required to overcome fake news as time passes. Manual fact-checking cannot keep up with the speed of social media. Traditional automated detection algorithms, on the other hand, struggle with the transformation and sophistication of fake news content. At this point, AI offers promising new ways to help address the old problem more effectively.

FAKE NEWS AND ITS CONSEQUENCES

Fake news is as old as human communication. However, the rise of mass communication means paved the way for fake news to be used as a tool. Partisan newspapers have been using propaganda and defamation of the opponent for centuries. Even in the 19th century, Americans were discussing the integrity of the press as a balance mechanism in democracy because of fake news (Allcott & Gentzkow, 2017, p. 1).

Screen media brought a new dimension to the propaganda and fake news field. Infamous Propaganda Minister of Nazi Germany Joseph Goebbels effectively used and perfected this tool (Geltzer, 2017, p. 306). Cinema screens and TV have proven to be more effective in spreading fear and anger among the population. Manipulated and purposefully cherry-picked visuals paired with inflammatory speech have proven to be capable of deceiving a whole nation.

However, no other media provided such a fertile environment for fake news as social media. The incentive mechanism in social media encourages inflammatory and sensational language, as that type of content gets more clicks, thus more profit. Personalization algorithms are helping to create filter bubbles, strengthening the