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CRISIS –DRIVEN MISINFORMATION MITIGATING THE EFFECT OF FOMO THROUGH ADVANCED FAKE NEWS DETECTION IN DISASTER SCENARIOS

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ABSTRACT

Crisis-driven misinformation can exacerbate the chaos of disaster scenarios, spreading fear, uncertainty, and mistrust among affected populations. A key factor driving the rapid dissemination of false information in such situations is the *fear of missing out* (FOMO), which propels individuals to share unverified content in their quest for timely updates. This study explores a novel framework for mitigating the impact of FOMO-driven misinformation using advanced fake news detection systems tailored for disaster scenarios. By integrating machine learning algorithms, natural language processing (NLP), and realtime data analytics, the proposed solution identifies and flags misinformation with high precision and speed. It leverages contextual analysis to assess the credibility of sources and content while accounting for the emotional and behavioral patterns that fuel FOMO. The framework also incorporates community-centric features such as localized alerts and user feedback loops to enhance trust and engagement. Preliminary results demonstrate the potential of this approach to curb misinformation propagation, improve situational awareness, and support effective crisis communication. This research provides a foundation for developing resilient information ecosystems that can withstand the challenges of misinformation during disasters

1. INTRODUCTION

In the age of digital connectivity, disasters and crises, whether natural or man-made, often trigger an avalanche of information online. Social media platforms, messaging apps, and news outlets become critical sources of real- time updates. However, these channels are also breeding grounds for misinformation. Crisis-driven misinformation—false or misleading information spread intentionally or unintentionally during emergencies— poses significant risks to individuals and societies. It can escalate panic, hinder emergency response efforts, and erode trust in institutions. A key psychological driver of this phenomenon is **Fear of Missing Out (FOMO)**—the pervasive anxiety of being uninformed or left behind in rapidly evolving situations. In disaster scenarios, FOMO amplifies the likelihood of individuals consuming, sharing, and acting on unverified information. As people scramble for updates, the speed of information dissemination often outpaces fact-checking mechanisms, allowing fake news to proliferate unchecked. To mitigate the detrimental effects of misinformation fueled by FOMO, advanced technologies in **fake news detection** are crucial. By leveraging artificial intelligence (AI), natural language processing (NLP), and machine learning (ML), it is possible to identify, flag, and curb the spread of

misleading information in real time. These technologies analyze linguistic patterns, source credibility, and content dissemination networks to distinguish reliable updates from deceptive ones. This paper explores the dual challenges of crisis-driven misinformation and the psychological pressures of FOMO, emphasizing the role of advanced fake news detection systems in safeguarding information ecosystems during disaster scenarios. Through an interdisciplinary approach that combines technology, psychology, and disaster management, we aim to outline strategies to enhance information resilience and public trust during times of crisis.

2. LITERATURE SURVEY

A mitigating the effects of Fear of Missing Out (FOMO) and addressing crisis-driven misinformation in disaster scenarios through advanced fake news detection should examine key topics such as the psychological impacts of FOMO during crises, misinformation dynamics, and state-of-the-art fake news detection techniques. Below is a structured outline of the survey:

2.1Crisis-Driven Misinformation

Characteristics: How misinformation evolves and spreads during crises.

Examples: Case studies from disasters like COVID-19, natural calamities, or political unrest.
Consequences: Effects on public behaviour, trust, and decision-making.

2.2 Psychological Impact of FOMO

Definition and relevance of FOMO during crises. How FOMO amplifies the consumption and sharing of unverified information. Role of social media in triggering FOMO during disasters.

2.3 Advancedd Fake News Detection Techniques Machine Learning Models:

Neural networks (e.g., BERT, LSTM-based models). Ensemble approaches for improving classification accuracy.

2.4 Natural Language Processing (NLP):

Sentiment analysis and linguistic cues for fake news identification. Use of transformer-based models (e.g., GPT, BERT) for text classification. Data Sources and Tools are Datasets specific to crisis scenarios (e.g., PHEME, Crisis MMD). Tools like FactCheck.org, Snopes, or automated fact-checking systems.

2.5 Mitigating FOMO's Role in Spreading Misinformation Behavioural Interventions:

Promoting digital literacy to identify credible information. Social media nudges to reduce impulsive sharing. Technological Solutions are Real-time misinformation alerts tailored for disaster contexts. Customized algorithms to detect and highlight gaps in verified data. And the Collaborative Efforts of Partnerships between governments, tech companies, and NGOs to combat misinformation.

2.6 Emerging Trends and Future Directions

Integration of multimodal data (text, images, videos) for fake news detection. Role of block chain for traceable information dissemination. Potential of augmented reality (AR) and virtual reality (VR) for factual awareness in crises. Application of gamified interventions to counteract FOMO. Summary of the importance of integrating psychological insights and advanced technology. Emphasis on holistic approaches involving stakeholders across domain

3. SYSTEM ARCHITECTURE

An architecture diagram is a graphic representation that shows how various software system components will be physically implemented. It displays the overall architecture of the software system al ong with the relationships, constraints, and divisions among its many components

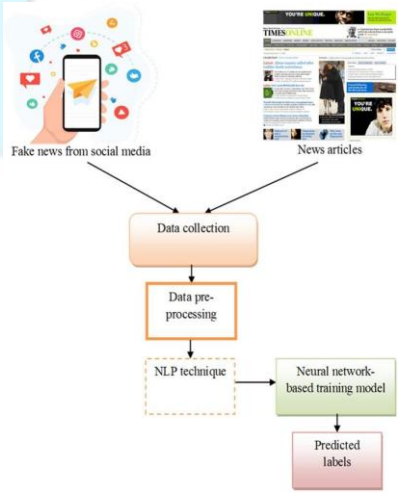

Figure 3. System Architecture

CONCLUSION

In conclusion, mitigating the effects of misinformation, particularly in disaster scenarios, is essential to reducing the potential harm caused by FOMO (Fear of Missing Out) and preventing the spread of panic and confusion**.** Advanced fake news detection technologies, such as AI-powered algorithms, natural language processing (NLP), and machine learning, are critical in identifying and counteracting false information during crises. These technologies can analyze vast amounts of data in real-time to discern fact from fiction, providing a more reliable stream of information to the public. By integrating these detection systems into emergency management platforms and social media channels, authorities can ensure that accurate, timely, and authoritative information reaches affected communities, thereby reducing the emotional and psychological effects of misinformation. Additionally, efforts should be made to educate the public on how to critically assess information during a crisis, helping individuals avoid falling victim to misleading narratives. Ultimately, the combination of technology and public awareness can foster a more resilient and informed society, better equipped to handle the challenges posed by misinformation in disaster situations.

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