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Name of Scholar: Sielvie Sharma

Name of Supervisor: Prof. Tanvir Ahmad

Name of the Department: Computer Engineering

Topic of Research: Event Detection and Summarization on Social Media using Deep Learning Techniques

Findings

The rapid growth of social networks has transformed information dissemination, with these platforms becoming primary sources for breaking news. This shift has spurred interest in event detection within online social networks (OSNs), leveraging the vast volume of user-generated content. Detecting events in OSNs poses challenges due to the overwhelming data volume, making manual filtering impractical. As a result, researchers rely on automated algorithms to identify, categorize, and summarize events, including breaking news, natural disasters, and social movements.

This research aims to propose a deep learning-based approach for event detection and summarization on social media platforms, focusing on Twitter (currently "X"). The goal is to identify events of any nature without limiting to specific domains. With the exponential growth of social media users and real-time updates, platforms like Twitter have become primary sources for global events, surpassing traditional media, which often face delays due to organizational constraints. Unlike traditional journalism, social networks enable users to actively contribute to event propagation worldwide.

This work introduces three innovative approaches for event detection in online social networks (OSNs): conteNXt: An unsupervised method leveraging bursty keyphrases, Word2Vec, and Markov clustering for event detection, evaluated on benchmark datasets, outperforming state-of-the-art methods. ConStructED: A dynamic context-aware fusion model combining BERTweet and Graph Attention Networks to capture content and structural context, achieving superior performance across multiple metrics. proBE and AttendFew: Few-shot learning models utilizing BERTweet and attentive prototypes for detecting unseen events with limited data. AttendFew enhances encoding and class matching for improved classification accuracy.

This research presents innovative deep learning (DL) techniques for event detection and summarization.