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AI-Driven Analysis of Citizen-Generated Videos for Disaster Management

Citizens often share videos on social media during disasters that could provide valuable insights for disaster management. However, extracting relevant information from these videos can be challenging and time-consuming. In this study, we investigated the potential of artificial intelligence (AI), particularly computer vision and large language models, to interpret citizen-generated videos during disaster events. We collected hurricane-related videos from tweets and input them into a Video-based chat system. This system analyzes the videos and communicates the insights through a chatbot, allowing users to ask questions about the content of videos. We evaluated the chatbot's accuracy by posing both general questions (e.g., 'Is there wind in the video?' and 'Is there visible damage?') and complex questions (e.g., 'Do you observe the impact of high winds on critical utilities such as electricity, water, and gas?'). Findings reveal that the Video-based chat system excels at recognizing objects and motion in the videos, as well as answering general questions. However, it struggles in responding to complex, high-level questions that demand advanced reasoning skills. Despite these limitations, these results are promising for the development of an enhanced system that could effectively identify valuable citizen-generated videos for disaster response efforts. Leveraging the domain expertise of practitioners could further enhance

these AI systems, ensuring they provide actionable intelligence to decision-makers.

Presentation Theme: This poster explores the integration of artificial intelligence in the response phase of emergency management, particularly through the analysis of citizen-generated videos during hurricanes. By utilizing AI techniques, including large language models, our research provides new pathways for quickly extracting actionable intelligence from real-time data, aiding decision-makers in managing disaster responses more effectively.

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