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How Generative AI Supports Understanding of An Ethically Sensitive AI-Induced Event

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Social news about an event often involves multiple parties and it is challenging to present their different or even contradictory perspectives. Often, when various parties' interests are involved, readers will only obtain one-sided or partial information, which is prone to cognitive biases and can impair judgment. The narrative as the foundation of people's understanding of the world offers a coherent system of interrelated stories (Halverson et al. 2011; Keith Norambuena et al. 2023). Its visual form allows users to intuitively find common denominators in these stories. Today, visual narratives can be automatically created using the generative Artificial Intelligence (AI). This paper presents an approach that utilizes generative AI to compose multi-perspective visual narratives from social news. It aims to help readers develop a comprehensive and deep understanding of the news event.

This study focuses on social news related to AI-enabled technologies, such as autonomous driving, that are ethically sensitive. Therefore, we selected an incident that occurred on December 14, 2016, in California, where an Uber self-driving car ran a red light¹. This incident was covered in over ten different news reports from December 2016 to early 2017. By analyzing the texts of these news reports, we were able to manually identify three perspectives on the depiction of the event: Uber, witnesses, and others. We then extracted the content from the news text based on each of these three perspectives and fed it as a single sentence prompt into a generative AI tool to compose a corresponding image. The images from all three perspectives of the same event are then displayed one after another in a given order.

Figure 1 illustrates the Uber self-driving car incident visualized using the generative AI tool DALL.E (Betker et al. 2023) based on the three perspectives of witnesses (left), Uber (middle), and others (right). The stories from each perspective are arranged in top-down chronological order of news reporting. The first news reports are from Uber (the first two images in the middle column), followed by reports from different perspectives. The first image in each column is framed in red and depicts the same event from three perspectives. For example, from Uber's perspective, the incident was caused by the human driver sitting in the self-driving car and pedestrians, and a spokesperson claimed to investigate the driver. A witness to the incident, the owner of the cafe at the intersection, Christopher Koff, claimed that the incident happened when the driver stopped at the intersection to talk to a passenger, and the Uber car suddenly started and ran through the red light. Another witness, a journalist from California named Annie, claimed to have narrowly avoided a collision with an Uber car that ran a red light while she was driving. As voices from different perspectives emerged, the incident quickly escalated into a heated debate. We use purple, yellow and green frames to represent these follow-up news reports from the perspectives of eyewitness, Uber, and the community, respectively. Among the voices from the community framed in green, former Uber employees informed The New York Times that Uber cars frequently ran red lights unexpectedly, highlighting flaws in its pedestrian recognition technology. In responses (framed in yellow), Uber's spokesperson stated, "Pedestrians are not our customers," which aligns with Uber's ongoing efforts to improve ride times for its customers. According to its statistic survey, Uber has reduced ride times of its cars by 35% compared to other vehicles. However, Uber's statements provoked the community (framed in green) with the California Department of Transportation threatening legal action against Uber and the city's mayor meeting with Uber's CEO to discuss concerns about the safety of Uber's self-driving cars.

We found that generative AI can effectively convert textual information to corresponding images, thus vividly depict an event from multiple perspectives and help users to approach an unbiased understanding. However, at the current stage of development, the AI-generated images are often inaccurate to the text and contain incomplete objects, requiring iterative adjustments of the input prompts. In the scenario described by the coffee shop owner, Christopher Koff, where he mentioned the need for the driver to have hands on the steering wheel while stopped at an intersection. The generative AI tool is not yet able to understand such specific instructions and reflect these details, although it offers a more contextually

¹ <https://incidentdatabase.ai/cite/8>

realistic approach to visual narratives. In summary, this study has shed light on the potential of using generative AI to visualize narratives. At this stage, collaboration between humans and generative AI is still necessary to achieve reasonable results for a typical scenario, where AI supports humans in gaining a holistic understanding of social news about an ethically sensitive AI-induced incident.

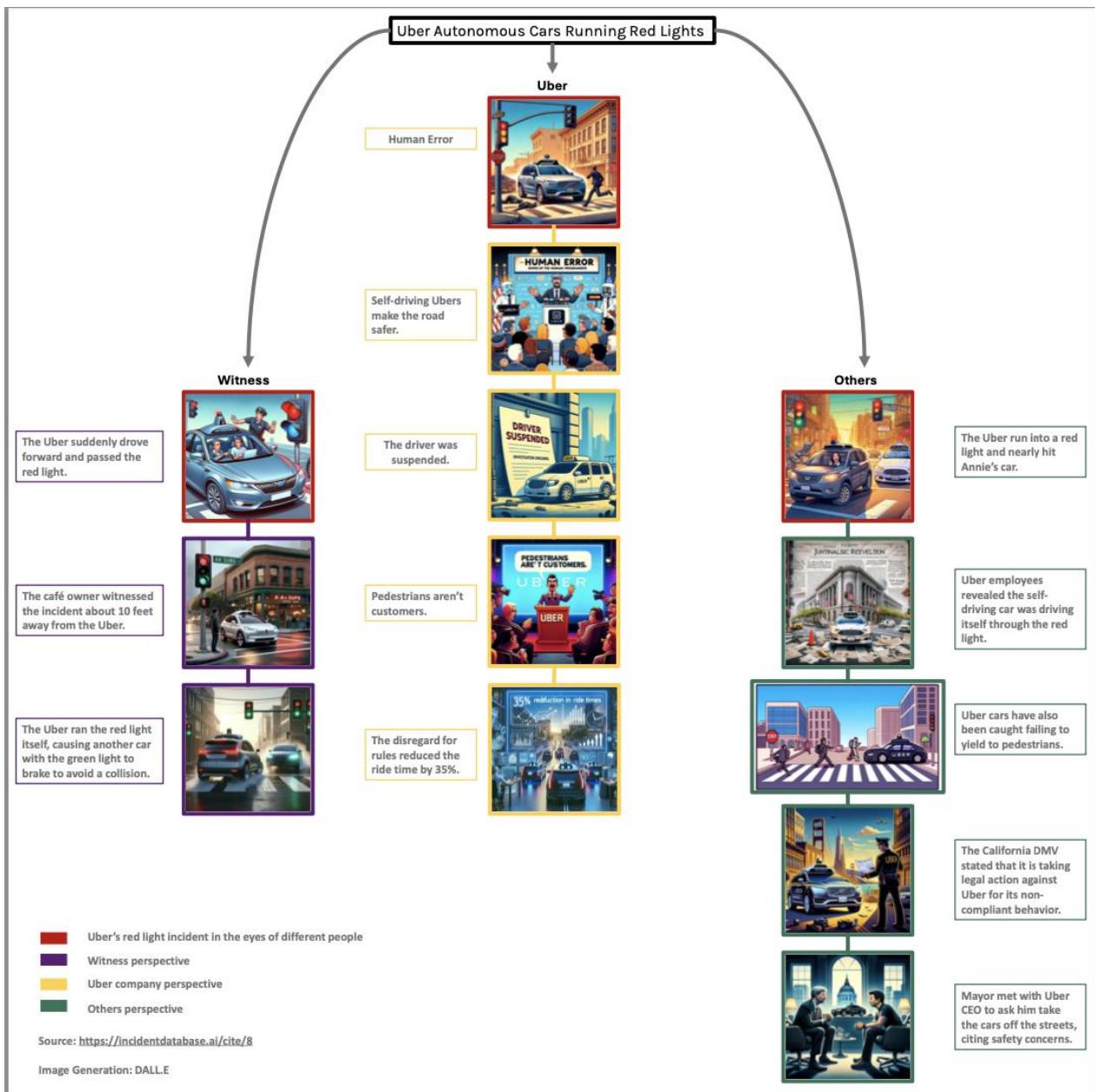


Figure 1. A multi-perspective graphic overview of a news event created by the generative AI.

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