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„Advancements in Prompt Engineering: A Systematic Review of Methods and Applications in Customer Service AI“

The development of Artificial Intelligence (AI) technologies has driven their integration into customer service, particularly in industries such as hospitality, banking, and healthcare, where they can enhance efficiency, accuracy, and overall customer engagement. This study aims to identify prompt engineering techniques used in AI-based customer service applications and explore how these techniques improve user satisfaction and experience. A systematic review was conducted following PRISMA 2020 guidelines. The initial database search yielded 1,079 articles, but after screening, 25 studies were included in this review. The findings highlight three key prompting techniques: few-shot prompting, adaptive prompting, and sentiment-aware prompting. Adaptive prompting utilizes iterative learning and feedback integration to improve personalization, while few-shot prompting ensures response accuracy by categorizing user inputs. Sentiment-aware prompting, on the other hand, enhances the emotional sensitivity of AI models. However, the review also reveals that these techniques are susceptible to bias and raise ethical concerns, which need to be addressed. The applications of these prompting techniques demonstrate their effectiveness in enhancing customer engagement, satisfaction, and retention. AI models exhibit strong potential in customer service applications due to characteristics such as promptness, empathy, professionalism, and problem-solving skills. Therefore, industries should adopt few-shot, adaptive, and sentiment-aware prompting to improve the effectiveness of AI-driven customer service models. Additionally, strategies to address bias and ethical concerns are essential for ensuring the responsible use of these technologies.

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