

A Survey on AI-Powered Meme Generator for Company Advertisements

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Abstract—The AI-Powered Meme Generator for Company Advertisements is a creative web application that leverages artificial intelligence to produce engaging and brand-focused memes. By inputting a topic, slogan, or product-related phrase, companies can generate humorous captions using advanced NLP models like Llama, Stable Diffusion XL. The system matches these captions with relevant meme templates or allows custom selection, applying image processing to create professional-quality outputs. The final memes can be downloaded or shared directly, enabling businesses to boost social media presence and drive impactful digital marketing campaigns.

Index Terms—LLaMA Language Model, Stable Diffusion.

I. INTRODUCTION

AI-Powered Meme Generator for Company Advertisements is an innovative web-based tool that increases digital marketing efficiency through intelligent automation. In today's social media era, memes have emerged as a potent tool for brands to reach out to their customers in a humorous and relatable manner. This tool leverages sophisticated AI and NLP algorithms such as Llama 3 8B Instruct to create innovative and relevant captions from the user-input topics, slogans, or product descriptions. It matches these captions with appropriate meme templates or enables the user to choose them, using image processing to produce high-quality output that increases brand visibility and social media presence.

In today's digital age, social media has become one of the most popular and influential platforms for marketing and brand promotion. In today's world, businesses use creative visual content to capture the attention of the audience and communicate their message effectively. Among these, memes have become a popular means of communication because of their humor, relatability, and shareability. Memes not

only entertain people but also help brands in a unique way to reach the audience and increase their online visibility.

However, to make such memes on a regular basis, one needs to be quite creative and have a good understanding of trends and preferences. Many organizations face challenges in developing relevant and engaging content that resonates with their brand voice. This gives rise to the need for an intelligent system that can automate the meme development process without compromising the accuracy of context, humor, and aesthetics. Artificial Intelligence (AI) technology has emerged as a promising solution to meet this demand efficiently. The final objective of this project is to assist organizations in enhancing their social media interactions and brand presence. The developed memes can be downloaded or directly shared on different platforms, making marketing faster, more efficient, and more effective. With the increasing need for innovative advertising approaches, this AI-powered meme generator is an exciting solution that combines automation with creativity to help brands reach their audiences in a more relatable and memorable manner.

A The Role of Memes in Modern Digital Marketing

In today's digital environment, memes have emerged as an effective marketing channel for brands because of their humor, simplicity, and high shareability on social media platforms. Memes enable brands to reach their audience in a relevant and engaging way, moving away from the conventional tones of advertising that may come across as formal or promotional. Memes enable brands to establish their personality, create an emotional connect, and improve recall, as people are more likely to recall and share content that entertains them. Memes enable marketers to leverage trending cultural phenomena and online humor to increase the visibility of brands, create social interactions, and establish a stronger online presence than conventional

marketing methods. Memes also offer a cost-effective marketing solution, as they require less production effort compared to traditional advertisements. Their viral nature enables small businesses to achieve widespread visibility in a short span of time. Therefore, memes have emerged as a marketing resource that enables brands to remain relevant and maintain continuous engagement with their target audience.

B Importance of Automated Creative Content Generation

In today's rapidly changing digital ecosystem, trends in content are constantly shifting, and brands need to keep churning out interesting content to stay in the limelight. But it is not always easy to come up with innovative and funny meme ideas on a regular basis, especially when marketing teams have to work within certain parameters. Automation solves this problem by allowing brands to churn out top-notch creative content on a continuous basis without having to depend on manual brainstorming sessions. Brands can now use AI to come up with captions and images that are in line with the latest trends and interests of their customers.

C Motivation for Developing an AI-Powered Meme Generator

The need for businesses to have consistent, relevant, and engaging meme content served as the motivation for the development of an automated meme generation system using AI. The proposed system solves the major limitations of the traditional meme creation process by incorporating the use of advanced Natural Language Processing to interpret user-sourced slogans, themes, or product messages and create funny and relevant captions. First, the automation process eliminates the need for constant human creativity by providing timely and trend-related content. Second, the use of AI-generated captions and relevant meme templates ensures consistency in branding and prevents the use of inappropriate or off-topic content. Third, the image processing method improves the visual quality and clarity of the final output, making it appropriate for professional digital marketing. Finally, the system enables fast content creation and the ability to adapt to trending topics, allowing businesses to maintain high social media engagement and enhance brand visibility efficiently. This project thus fills the gap between creativity and automation, enabling businesses to adopt contemporary and relevant communication approaches.

D Technology Stack and Development Tools

The AI-Powered Meme Generator needs a properly organized and efficient technology stack to support the precise captioning, seamless user interaction, and high-quality meme generation. The system uses sophisticated NLP models like Llama 3 8B Instruct to analyze user inputs and generate contextually relevant and funny captions. The front-end is created using React or Next.js to ensure a responsive and friendly interface for template selection and previewing results. The back-end is created using Node.js and Express to manage API requests, caption processing, and component interaction. Image processing libraries are used to combine generated captions with selected meme templates, ensuring visual clarity and alignment. Cloud services and containerized platforms are used for system deployment and scalability to ensure professional-quality meme content delivery for digital marketing. Version control platforms like Git and GitHub are also used for collaborative development, and testing tools are used to ensure system stability before deployment. The technology stack ensures that the system is efficient, scalable, and capable of professional-quality meme content delivery for digital marketing. The technology stack offers a solid foundation for developing a dynamic, automated, and user-friendly meme generation application.

II. LITERATURE SURVEY

The AI-Powered Meme Generator for Company Advertisements is an intelligent web-based tool that uses advanced NLP models like Llama 3 8B Instruct to generate creative meme captions for businesses. The tool allows businesses to input a topic, slogan, or product-related phrase that is then processed by the advanced NLP models to generate creative meme captions. The tool automatically pairs the generated captions with relevant meme templates from a curated database and uses optional image-processing tools like background removal to create professional-quality memes. The tool automates the meme creation process, allowing businesses to quickly create engaging memes that can be shared on social media platforms, thereby improving brand visibility and the efficiency of social media marketing campaigns.

Lin Wang, Qimeng Zhang, Youngbin Kim, Ruizheng Wu, Hongyu Jin, Haoke Deng, Pengchu Luo, Chang-Hun Kim [1] This project proposes a framework for

generating culturally relevant memes using deep learning. The study highlights the use of advanced neural network architectures to create humorous and context-aware content. It emphasizes careful dataset selection, bias mitigation, and ethical AI considerations. The approach demonstrates how responsible design and output evaluation can produce engaging, socially aware AI-generated memes.

Han Wang, Roy Ka-Wei Lee [2] This project proposes a framework for generating memes that consider both context and user stance. It integrates multimodal inputs, combining text and images, to produce contextually relevant and engaging content. The system emphasizes aligning meme outputs with intended sentiment while maintaining humor. Overall, it demonstrates how AI can create socially aware and audience-tailored meme content.

Suryatej Reddy Vyalla, Vishaal Udandarao, Tanmoy Chakraborty [3] This project presents a large-scale meme generation system designed to create humorous and engaging content automatically. It leverages deep learning models to generate memes at scale while maintaining contextual relevance. The system focuses on ensuring diversity in meme formats and content, enhancing audience engagement. Overall, it demonstrates how AI can efficiently produce creative and socially appealing memes.

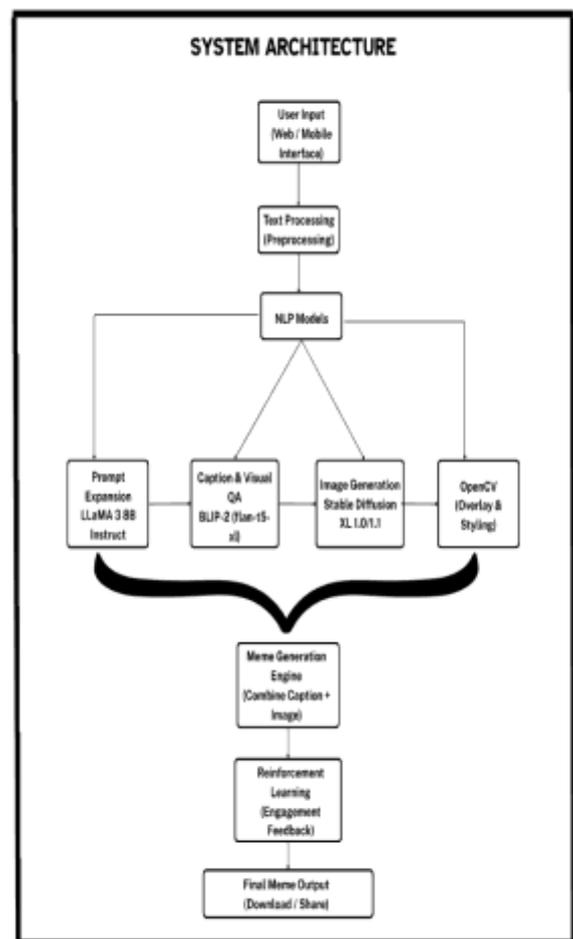
EunJeong Hwang and Vered Shwartz [4] This project introduces a dataset designed for meme captioning and interpretation, enabling AI systems to understand and generate meaningful meme content. It focuses on pairing images with relevant captions to capture humor, context, and implied meaning. The dataset supports training models for accurate meme comprehension and creative generation. Overall, it facilitates the development of AI systems capable of interpreting and producing contextually appropriate and engaging memes.

Tanmoy Chakraborty, Suryatej Reddy Vyalla, et al [5] This project analyzes image-based humor in memes by combining visual and textual features. It uses machine learning to detect humor, sentiment, and sarcasm. Multimodal feature extraction helps interpret context and intended meaning accurately. Overall, it demonstrates AI's capability to understand and analyze humor in social media content.

Ranjay Krishna, Michael Bernstein, Li Fei-Fei [6]

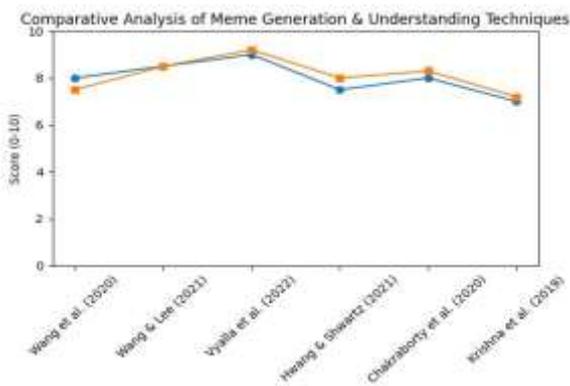
This project focuses on generating captions for memes using neural network models. It combines visual and textual information to produce contextually relevant and humorous captions. The system leverages deep learning techniques for accurate feature extraction and interpretation of meme content. Overall, it demonstrates how AI can automatically create meaningful and engaging captions for images in social media contexts.

III. PROPOSED METHODOLOGY



In this particular project, a Generative AI model is trained on a massive dataset of viral and brand-safe memes to produce advertisements. The process involves Natural Language Processing to analyze the brand input (product, tone, and trend) and a visual template engine to pick a suitable meme template. A reinforced learning module (such as the Q-table in the example) is used to dynamically adjust the humor to brand safety ratio depending on user engagement, enabling the AI to learn the optimal combination of caption, image, and cultural reference to achieve maximum virality and brand compliance with the least risk of negative backlash.

IV RESULTS



VI REFERENCES

The graph presents a comparative analysis of various meme generation and understanding techniques based on performance scores (0–10). Among the listed methods, Vyalla et al. (2022) shows the highest performance, while Krishna et al. (2019) records comparatively lower scores.

V CONCLUSION

The AI-Powered Meme Generator for Company Advertisements is an efficient and creative tool for improving digital marketing. By utilizing NLP and AI-powered meme captioning, the tool allows companies to generate memes that are funny, engaging, and very much connected to the brand message. The automated process cuts down on manual labor and time consumption while maintaining high-quality content that is visually appealing and suitable for posting on various social media platforms. Moreover, the tool also provides for better consistency in terms of branding and messaging by generating contextually relevant captions and matching them with suitable meme templates. This enables companies to quickly react to trends, post content more frequently, and stay active on the internet. Consequently, brand awareness is enhanced, engagement levels are increased, and messaging becomes more relatable and effective. In conclusion, the project demonstrates how artificial intelligence can make creative marketing tasks easier and serves as a useful and scalable tool for companies looking to innovate and upgrade their marketing approaches.

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