Humor and Generative AI

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ABSTRACT

Artificial intelligence (AI) and especially generative AI is experiencing an explosion of adoption and new application across many facets of society. Generative AI applications are quickly being adopted into the design practices of leading design companies assisting with divergent thinking, and providing inspirational inputs and reflection in the design process. One of the most complex design challenges is the use of humor in interactive experiences. In this article, the topic of humor and design is examined through the use of some popular generative AI tools. Illustrative examples are provided to foster deeper discussion about the strengths and weaknesses of using generative AI in the design of humorous experiences. Future directions are proposed as initial directions for design research of humor and generative AI.

CCS CONCEPTS

• **Human-centered computing → Personal digital assistants**.

KEYWORDS

conversational agents, funny content, humorous, humor, intelligent personal assistants, digital assistant, voice user interface, intelligent personal assistant

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1 INTRODUCTION

Artificial intelligence (AI) has been experiencing increased attention recently in the research and design community as models and techniques have matured in their capabilities and have become more accessible to a wider base of users. Moving beyond the traditional uses of AI as a tool for the classification of data, advances in generative AI involve the creation of entirely new artifacts such as images, video, stories, and human-like dialogue among others. Generative AI applications are increasingly being used in the design practices of leading design and architecture companies [3] assisting with generating new design concepts and as a creativity support tool. Social media companies plan to incorporate generative AI in their platforms, which could mean that users will be able to create personalized chatbots that respond on their behalf to their friends and followers with emotional human-like communication [15]. This represents a deployment of generative AI at a scale without precedent. There will be many challenges in the development of personalized agents, which may need to mimic various aspects of the personality and expressions of emotion. One of the most complex challenges will be the effective use of humor.

Humor is difficult to get right and has largely been considered a truly human skill that is important in maintaining social relationships. Humor involves cognitive processes based on social and contextual stimulus, which triggers an emotional response [12]. Many complementary theories about humor have been developed over the years [5], including Relief Theory [5, 13], which sees humor as a physiological release of emotional tension or the incongruity theory [4], which focuses on cognition and views humor as a response to violations of expected patterns. Even though there has been a lot of research focused on understanding humor and social interactions, designing AI to generate humorous responses is not well understood.

Therefore, in this article, the topic of humor and design is examined through the use of some popular generative AI tools. This helps to demonstrate the current state of generative AI tools and ways to incorporate humor in the artifacts they create. As a point of departure, recent research in conversational user interfaces suggests humor styles can be matched to generate appropriate humorous responses [7]. Using ChatGPT, four humor styles are utilized to generate responses that could be used by a social media chatbot. The same four humor styles are then used to generate different images using MidJourney. Finally, using a generative AI app utility, Imagica, a workflow is developed to enable experimentation with chat and image creation.

Illustrative examples are provided to foster deeper discussion about the strengths and weaknesses of using generative AI in the design of humorous experiences. The prompts that are used to generate the chat responses and images are provided along with a discussion about prompt design. Additional discussion is provided about the workflows of generative AI and the increasing ways designers can develop generative AI tools to assist them in their work. Future directions are proposed for design research focused on humor and generative AI tools.

2 FOUR HUMOR STYLES

Humor can be a wide and complex topic of study and in order to open the discussion, we take a small cross-section by focusing on four humor styles. These styles describe the context for the humor used, the target of the humor, and the speaker's state of mind as shown in Table 1 [11].

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	Other-oriented	Self-Oriented
Positive Styles	Affiliative	Self-Enhancing
Negative Styles	Aggressive	Self-Defeating

Table 1: The four humor styles as represented by [11]

- Affiliative: A friendly humor style, aiming to strengthen bonds between people. It's non-hostile, favoring wordplay and puns, and promotes positive interactions.
- Aggressive: This humor involves ridicule, teasing, and sarcasm, often aimed at the listener. It uses themes that might be socially unacceptable, disguised as absurdity or provocation.
- Self-enhancing: This humor emphasizes self-promotion and positivity, masking any negativity with self-targeted ridicule. It can be a self-defense mechanism to maintain face.
- Self-defeating: A type of humor where the speaker pokes fun at themselves, often inviting empathy from the listener. This can include socially uncomfortable anecdotes where the speaker does not come off well.

These four humor types provide an overview of how humor can be formed and it has been used to structure responses for communication repair with conversational agents. In a recent study, there were mixed results–the aggressive personality was rated most humorous, however, the participants preferred a more neutral conversational agent to facilitate communication repair[7]. The findings suggest on the one hand that virtual agents can be perceived as humorous and on the other hand, it reminds us that humor may not fit well in all situations.

Olafsson et al.'s study demonstrated that affiliative humor in voice assistants positively motivated health behavior change in participants [14]. Similarly, a study examining the impact of humorous conversational agents in online learning found that affiliative and self-defeating humor enhanced the learning experience [6].

However, the humor theories underpinning some studies, such as those by Ge et al. and Mahmood et al., were unclear [8, 10]. The most commonly researched humor style is affiliative, with Ceha et al.'s study being a rare exploration into self-defeating humor [6].

We consider these four humor styles as framing for the demonstration of humor in the following sections and develop the input to the generative tools.

3 CHATGPT AS A HUMOROUS SOCIAL CHATBOT

There are many potential benefits of using generative AI in the development of social chatbots. If we imagine a social agent acting on behalf of an influencer, there may be goals of getting the followers to like their content or follow links or seek out information from their advertising sponsors.

Using ChatGPT we can ask the GPT-4 model to take on a role and provide alternatives across the four humor styles:

> **Input:** consider the humor styles by Rod Martin, these are the following 4: relatively benign uses of humor to enhance the self (Self-enhancing) and to enhance one's relationships with others (Affiliative), use of humor to enhance the self at the expense of others (Aggressive), and use of humor to enhance relationships at the expense of self (Self-defeating). Now let's imagine a social media influencer (GeePeeTee) is developing an AI to engage and respond to messages from her fans. The fans will send messages thinking they are directly engaging with her, but in actuality, the AI is responding on her behalf. GeePeeTee wants the fans to be convinced it is her personality. It is important that humor is used to explicitly convince the follower to either click "like" on specified content or follow a specific link from a sponsor. Let's create some scenarios of use that demonstrate good uses of humor.

The resulting **Output** text from ChatGPT is as follows:

> Sure, here are a few scenarios showing different ways GeePeeTee's AI can use humor in line with Rod Martin's humor styles to engage with fans and promote action.
> **Self-enhancing humor:**
> Fan: "GeePeeTee, how do you manage to stay so positive all the time?"
> AI: "Haha, it's easy when you mistake your alarm clock for your applause meter every morning! By the way, have you checked out my latest post? It's so funny, even my alarm clock laughed!"
> **Affiliative humor:**
> Fan: "GeePeeTee, I love how you are always so funny!"
> AI: "Well, I always say laughter is the best calorie burner. Speaking of which, if you want to burn some calories laughing, click 'like' on my latest video."
> **Aggressive humor:**
> Fan: "GeePeeTee, why are you always promoting that brand?"
> AI: "Because they pay me in cookies! And who can say no to cookies, right? If you're a cookie monster like me, you might want to follow this link."
> **Self-defeating humor:**
> Fan: "GeePeeTee, how do you deal with haters?"
> AI: "Oh, I just remember that I'm not a taste bud at a pickle party— I can't please everyone. Speaking of pickles, if you want a good laugh, you've got to check out this hilarious sponsored video about pickles. You'll 'relish' it!"
> Remember, the key here is to ensure the humor is true to GeePeeTee's natural voice and personality. These responses should feel authentic to her style, and not out of character. The aggressive humor style, for instance, should be used sparingly and only if it suits her personality, as it can sometimes come across as harsh or abrasive.

This example yields some reasonably humorous responses to social media follower messages and they also seem to follow the four humor styles. In the end of the message, ChatGPT added the caution about utilizing aggressive humor.

4 MIDJOURNEY AS A HUMOROUS ARTIST

The same four humor styles are then used to generate different images using MidJourney. However, instead of creating images in response to follower messages, the example of creating cartoons is provided. In order to develop effective prompts, it is worthwhile to note that MidJourney is constantly changing and refining the art styles and the length of desired prompts. In order to develop prompts for MidJourney, ChatGPT was trained to develop MidJourney prompts by feeding it the guidelines of MidJourney prompts using the text available from the vendor [1, 2]. Furthermore, there needs to be some clear direction given to ChatGPT on the imagery to be generated. For this example, the following prompt was provided to ChatGPT:

> **Input:** Considering the humor styles by Rod Martin, these are the following 4: relatively benign uses of humor to enhance the self (Self-enhancing) and to enhance one's relationships with others (Affiliative), use of humor to enhance the self at the expense of others (Aggressive), and use of humor to enhance relationships at the expense of self (Self-defeating). Now create example prompts that generate a cartoon image for each of the humor styles.

The results were prompts for MidJourney that could be used to generate images, however, they were not humorous as stand-alone images but required additional context to understand the humor. Let's look at the Self-enhancing humor prompt:

> A cartoon self-portrait laughing and floating on a raft, relaxed amidst a sea of paperwork.

When entered into MidJourney V5, the resulting image shows a person happily in the middle of a huge amount of paperwork as shown in Figure 1

The resulting image doesn't seem to be humorous on its own, and the prompt was not remarkably humorous. In a second attempt, the prompt was modified slightly in ChatGPT adding one word "smurf" to give more direction.

> ...Now create example prompts that generate a smurf cartoon image for each of the humor styles.

the resulting prompt for MidJourney included one for each of the four styles. The resulting self-enhancing style prompt was:

> An image of a Smurf cartoon character laughing while reading 'The Smurf's Guide to Self Improvement', with a thought bubble showing the punchline of a joke from the book, 'Why don't Smurfs ever play hide and seek? Because they always turn blue!

This prompt resulted in a much more complex and slightly humorous scenario, however, the resulting image fails to capture the context and important details of test and thought bubble as shown in Figure 2.

The prompts created capture a slight element of humor, however, there is much lacking. The prompts given to ChatGPT can be refined and further guidance can be given in the generation of good MidJourney prompts. However, this demonstration highlights the difficulty in generating humorous images, especially without much guidance or existing humorous concept.

Figure 1: Resulting image from MidJourney V5 using the Self-enhancing prompt generated by ChatGPT V4.

Figure 2: Resulting image from MidJourney V5 using the Self-enhancing prompt generated by ChatGPT V4, yet with the added word, "smurf"

5 WORKFLOWS AND GENERATIVE AI

In the previous examples, generative AI was utilized in a very simplistic process. In the ChatGPT example, the prompt was given as one step. In the MidJourney example, there were two simple steps involved. An exciting future direction for research on generative AI for creative practice and design research is the workflow and overall process. Increasingly, there are "no code" tools being released that enable complex workflows. By baking in the process, experimentation and interaction are embraced as with the visual programming tool, Imagica [9]. Using a boxes and wires approach, these tools lower the barrier of entry and enable web apps to be created by end-users that are interactive and encourage input and iterative development. To facilitate discussion about the tools, the following link: https://s.imagica.ai/e/i847hdfhTAb is an example app that takes the user input and provides an output that includes each of the four humor styles.

6 DISCUSSION

Through the examples provided in the previous sections, it is clear that using generative AI for creating humorous outputs is still very challenging. There are various limitations in the basemodel tools that often require the user to iterate and refine the prompts in order to yield a good result. With the increase in generative AI tools, and many that do not require coding skills, there will be increasing engagement from the general public.

In terms of humor and generative AI, there are still many challenges yet to be solved. In future research, there are many contexts of use that should be explored further. The roles that humor may play in virtual agents will increase in the coming years as generative AI becomes more capable and aligned with human expectations and norms. We are likely to see humor used in loyalty program interactions in which the AI tries to calm the user, or encourage them to seek more information. In other situations of high stress, such as wedding planning, generative AI might be able to offer personalized responses that can reduce stress and/or make the process more enjoyable? There are likely many other potential uses of generative AI and humor, not taking over the role of the human, but enhancing and extending the abilities of the designer and end-users.

7 CONCLUSION

In this paper, the goal was to explore generative AI and humor through demonstrations of current tools. The examples provided aim to foster deeper discussion about the strengths and weaknesses of using generative AI in the design of humorous experiences. The paper emphasizes that designing interactive and digital experiences with an element of humor is one of the most difficult design challenges. While there are many capabilities of generative AI using the current tools, there is considerable potential and opportunities for future development. While traditionally AI has been researched in the engineering and computer science fields, future research will need to embrace other fields and experts including design researchers in order to align generative AI with user needs and develop meaningful and reliable uses of generative AI in design practice and design research.

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