User Issues and Concerns in Generative AI: A Mixed-Methods Analysis of App Reviews



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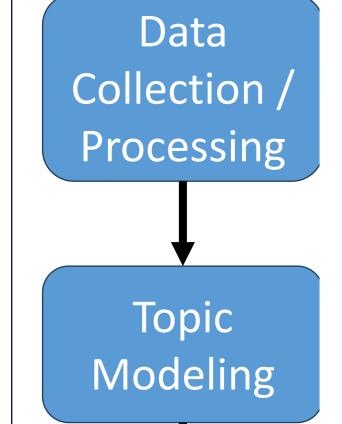
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Introduction

Generative AI models such as ChatGPT and Stable Diffusion have become easily available to end users through various apps. Research has identified several safety risks and limitations of generative AI, but the experiences and issues faced by real users of this technology in the wild have not been systematically investigated. In this study, we investigate the opinions, complaints and concerns found in user reviews of use generative AI-based apps. Our objective to understand the types of issues that real users encounter when interacting with generative AI through these apps.

Method



- We targeted US Google Play Store apps with a description related to AI text (chatbot) and image generation. We identified 62 Google Play apps (35 image, 27 text including the ChatGPT app) and 249,482 user reviews were collected by November 9, 2023. The data was cleaned and processed for analysis.
- We first conducted topic modeling analyses, separately for the image, text and ChatGPT app user reviews.
- The appropriate number of topics was identified by evaluating topic coherence values on models with 2 to 20 topics. The selected models consisted of 9 topics for the image generation apps, 8 topics for the text generation apps and 7 topics for the official ChatGPT app user reviews.

Example of topics and top keywords				
In Image generation apps				
Output errors	put word type thing prompt face draw stuff show turn simple character people search picture write description			
Output quality	prompt result style option lot add feature generation user perfect choose bit detail imagine render realistic			
In Text generation apps				
Al issues and limitations	chat gpt people update talk conversation feel friend fun real bot language human world fact put program datum			
Answer performance	question answer give write information provide essay story accurate point simple wrong topic interesting			
In the ChatGPT app				
Al issues	great thing time problem nice write review word day change solve bad improve save math month reply stuff			
Data-specific limitations	information update knowledge free time datum access world 2021 people real human september info pay ad			

- Qualitative Analysis
- We then conducted a qualitative analysis, using an inductive approach to identify themes in the user reviews.
- We randomly sampled 20 user reviews from each topic, for each type of app. The total sample was 480 user reviews for the qualitative analysis.
- Each review was independently coded.

Results

Each identified theme was framed according to the AI trustworthiness dimensions of validity, reliability, safety, security, privacy, transparency and bias. We grouped the themes in the user reviews into Performance, Threat concern, Personalization and Censorship and bias.

Theme	Framing	lmg	Txt	Chat
Performance				<u> </u>
 Incorrect output 	Validity / Transparency	\checkmark	\checkmark	\checkmark
 Unasked for output 	Reliability	\checkmark	\checkmark	
 Al limitations 	Validity / Transparency	\checkmark	\checkmark	\checkmark
 Issues with AI model used 	Validity / Transparency	\checkmark	\checkmark	\checkmark
Threat concern				
 Threat from others using the AI 	Security	√	√	\checkmark
 Threat from the AI itself 	Security	\checkmark	\checkmark	\checkmark
Personalization				
 Would give user information for personalization 	n Privacy		√	√
 Benefited by sharing user information 	Privacy	√	√	√
Censorship and bias				
 General prompt considered inappropriate 	Safety	√	√	√
 Inappropriate content from a general prompt 	Safety	√	√	
 Opinion on censorship 	Safety	\checkmark	\checkmark	\checkmark
 Censorship options 	Safety	\checkmark	\checkmark	\checkmark
 Censorship rules 	Safety / Transparency	\checkmark	\checkmark	\checkmark
• Bias	Bias	√	✓	\checkmark

"... Overall, very limited information to be given by the AI, but still extremely useful in its own ways. It definitely has its drawbacks with its capabilities, like the usage of websites and info from 2022-2023..."

"...just finishing reading how this program can literally be used by people to write malware even with no programming experience..."

"...but I do feel like it is dumb
that ChatGPT forgets previous chats because
of privacy. The user should be able to change
it in settings, it is their choice to have more
privacy or a better more personal
experience..."

"...It's bizarre to me that certain words are prohibited in making the pictures but when benign words and phrases are used, pornographic pictures are being created."

Conclusions

Overall, our findings indicate that users have expectations of generative AI that do not align with the current actual capabilities of these models. In addition, mentions of issues that can be framed as related to AI safety and validity were frequently found. On the other hand, issues and concerns which can be framed as related to security and privacy were not as prevalent.

References

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