AI and the Future of Consumer Experience

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Artificial intelligence (AI) is increasingly used to make various tasks more convenient and efficient. For example, AI is used in virtual assistants such as Amazon's Alexa and Google Assistant to help with scheduling, playing music, and answering questions. AI is also used in smartphones to improve the camera's performance and make better recommendations for apps, music, and other content. In the transportation industry, AI is used to optimize routes for ride-sharing services and to assist with self-driving cars. It is also used in healthcare to analyze medical images and assist with diagnoses and in finance for fraud detection and financial analysis. Overall, AI is becoming more ubiquitous and can be found in many different areas of our lives, from shopping to entertainment to work. This study aims to examine the effects of AI on consumer benefits and its drawbacks in terms of privacy violations and trust issues.

Background

Artificial intelligence (AI) is a computer science and engineering field focusing on creating intelligent machines that work and learn like humans. The development of AI can be traced back to the 1950s when pioneers such as Alan Turing and John McCarthy began exploring the possibility of building machines that could think and reason (Shanker, 2005). Today, AI is used in many applications, from self-driving cars and virtual personal assistants to medical diagnosis and financial trading. The field of AI is interdisciplinary and draws on fields such as computer science, psychology, philosophy, and neuroscience. Some essential AI techniques include machine learning, natural language processing, and computer vision. Artificial Intelligence is rapidly becoming ubiquitous in our daily lives, with applications ranging from virtual personal assistants to self-driving cars (Oosthuizen, 2020). As consumers, we are increasingly interacting with AI-powered systems and devices, significantly impacting how we

live, work, and consume. However, the relationship between consumers and AI has its challenges, and it is essential to understand how these two groups can coexist in a mutually beneficial way.

Problem

Artificial Intelligence (AI) has the potential to revolutionize the way consumers interact with technology, offering convenience and efficiency in their daily lives. However, implementing AI in consumer applications brings forth several challenges and concerns that must be addressed. These include issues such as privacy, trust, and societal biases. As AI systems collect and process large amounts of personal data, there is a risk that this data could be misused or mishandled. Many advanced AI systems, such as deep learning models, are considered "black boxes," and it is difficult to understand how they make their decisions (Oosthuizen, 2020). Many advanced AI systems, such as deep learning models, are considered "black boxes," and it is difficult to understand how they make their decisions (Oosthuizen, 2020). AI systems have been found to have biases based on data they were trained on, leading to unfair treatment and discrimination (Oosthuizen, 2020).

Guiding Questions

1. How is consumer privacy impacted?
2. How are consumer trust and AI intertwined?
3. How does AI impact societal biases?

Privacy

One of the most significant concerns for consumers regarding AI is privacy. As technology continues to gather and share personal information, analyzing this sensitive data can lead to potential privacy violations and create pressure on users (Sun et al., 2021). With the

increasing use of AI-powered devices and services, more personal data is being collected and used to train AI systems. This data can include sensitive information such as financial transactions, personal contacts, browsing history, and even location data. This data can enable AI systems to make predictions, personalize experiences, and improve performance; however, if this data is mishandled or misused, it could have severe consequences for consumers. For example, suppose personal data is leaked. In that case, it could be used for identity theft, or if it is used for targeted advertising, consumers could be bombarded with unwanted marketing messages (Baviskar et al., 2021).

AIPA stands for AI personal assistants, and when it comes to privacy, they are one of the most controversial points of discussion (Sun et al., 2021). The use of AIPA technology depends on the active participation of users, which allows it to understand their needs. However, this can also lead to a violation of privacy. Furthermore, consumers may be hesitant to use AI-powered devices and services if they are not confident that their data is being protected and that their privacy rights are respected. Therefore, it is crucial to examine the features of current technology and identify potential privacy risks, particularly in terms of intrusion into users' personal information (Sun et al., 2021).

Trust

Another concern is trust. Trust is a crucial aspect of the relationship between consumers and AI. Companies must ensure that their AI systems are trustworthy and reliable, and AI is not always reliable. As AI systems become more sophisticated and are used in more critical applications, such as medical diagnosis or financial decision-making, consumers increasingly need to trust these systems (Putoni et al., 2021). However, people need to trust the decisions made by AI systems to be more likely to use them, which could limit the potential benefits of the

technology. For example, if a consumer does not trust the diagnosis of an AI-powered medical system, they may not follow the recommended treatment, which could lead to serious health consequences (Putoni et al., 2021). In one instance where an unfortunate Alexa customer had one of her conversations recorded and sent to a random person, they said they "felt invaded" and concluded, "I am never plugging that device in again because I cannot trust it" (Horcher, 2018). In short, the affected individuals may perceive consumer data collection as exploitative. While organizations and institutions benefit financially and politically from this data, consumers may lose ownership and control over their personal information, leading to a sense of powerlessness.

Social Biases

AI has biases and always will. This bias does not necessarily come from the algorithms. In any case, it comes from the data fed into models. One proposed solution is manual labeling, a process in which humans can structure data before its feeds into the algorithm. However, manual annotations, or labeling, have two potential downsides. The first is that the process of labeling can be biased. The second is that the labels may not be accurate (Ferrer et al., 2021). Facial recognition technology is a form of AI that uses algorithms to analyze and match facial features to identify individuals. However, studies have shown that these systems can be less accurate for people with darker skin tones, particularly for African American and Asian individuals (Huo et al., 2022). This is because the training data used to develop the technology is often disproportionately composed of images of lighter-skinned individuals, leading to a need for more diversity in the data set. This can lead to potential false arrests or other negative consequences for individuals wrongly identified by the system. For example, in 2019, the National Institute of Standards and Technology (NIST) found that in one facial recognition algorithm, the false

positive rate for African American individuals was nearly 100 times higher than for white individuals (Huo et al., 2022).

Similarly, natural language processing (NLP) systems, which are used to analyze and understand text and speech, can also be affected by societal biases. These systems are typically trained on data sets that are overwhelmingly composed of text written by people from a specific demographic group, such as English text written by white, educated native speakers (Garrido-Muñoz et al., 2021). If an NLP system is trained on this type of data set, it may not perform well when applied to text written by individuals from other demographic groups or in other languages. This can lead to biased results and discrimination against those groups in job applications where an NLP system is used for resume screening (Hovy et al., 2021).

Discussion

Preventing AI from violating ethical principles, such as protecting consumers' privacy, is a crucial topic, significantly when its understanding of ethics and morality is still lagging behind that of humans. Future developments in AI should take an ethical approach in determining its limits and applications. Furthermore, consumers' perception of privacy invasion is influenced by norms (Pantano, E., & Scarpi, D, 2022). When they expect a loss of privacy to outweigh the personal expected gain, it creates stress and leads to actions to protect privacy. Research has also shown that privacy invasion can be a source of stress related to self-disclosure (Sun et al., 2021).

Regarding policy, it is important to rally around shared values and ethical principles. This approach allows for more influence early in the innovation cycle when regulations need to be more explicit. The reasoning behind the EU High-Level Expert Group is Artificial Intelligence's identification of five principles- beneficence, nonmaleficence, the autonomy of humans, justice, and explicability- for AI's trustworthy and ethical development (Gill, 2019). As for biases in AI,

we can mitigate these issues through better data analysis and usage. Researchers and practitioners are working to ensure that the training data used to develop AI systems is more diverse and representative of the population. This can include using data sets that include individuals from different demographic groups and implementing techniques such as fair and transparent algorithms to ensure that AI systems do not perpetuate existing societal biases (Garrido-Muñoz et al., 2021). Ultimately, the key is to create regulations and guidelines, invest in research and development, and promote transparency and accountability in the development and use of AI technology.

Conclusion

As with any new and emerging technology, AI has its advantages and disadvantages that need to be considered. On the one hand, AI has the potential to revolutionize the way consumers interact with technology, offering convenience and efficiency in their daily lives. It can also optimize and automate specific tasks, improve decision-making, and reduce human error. For example, AI-powered chatbots can provide customer service 24/7, and AI-powered virtual personal assistants can help with scheduling, playing music, and answering questions. AI can be used in transportation for route optimization and self-driving cars, in healthcare for medical image analysis, and finance for fraud detection and financial analysis. However, on the other hand, if the growth of AI is left unregulated, it could lead to serious negative consequences, such as privacy breaches, trust issues, and bias in decision-making. If not properly managed, it could be considered one of the most dangerous developments in human history. We must carefully consider AI's potential risks and benefits and take steps to ensure its implementation is completed responsibly and ethically.

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