

# CHATGPT: A Paradigm Shift in Deep Learning - Evaluating Its Performance, Applications and Charting future Trajectories

**Type:** Review Article

**Received:** January 18, 2024

**Published:** February 22, 2024

**Citation:**

Bijin Philip., et al. "CHATGPT: A Paradigm Shift in Deep Learning - Evaluating Its Performance, Applications and Charting future Trajectories". PriMera Scientific Engineering 4.3 (2024): 03-12.

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**Bijin Philip<sup>1\*</sup>, Keerthana P<sup>2</sup> and Teertha B Menon<sup>2</sup>**

<sup>1</sup>Assistant Professor, Department of Management, Kristu Jayanti College Autonomous

<sup>2</sup>Final Year BBA Students, Department of Management, Kristu Jayanti College Autonomous

**\*Corresponding Author:** Bijin Philip, Assistant Professor, Department of Management, Kristu Jayanti College Autonomous.

## Abstract

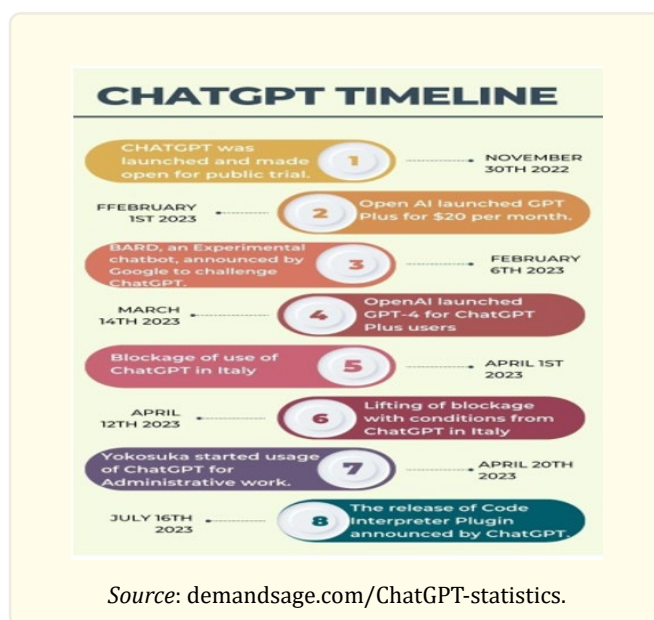
Consider conversing with a Chabot who has a nearly human-like personality. That is precisely what OpenAI ChatGPT offers. With over a million members in just five days of its debut, Chat GPT has become a major player in the tech and internet industries. Chat GPT, the brainchild of Open AI, is poised for tremendous growth and market expansion, along with all other innovations. It is a great tool for producing outstanding work regardless of skill level because of its speedy generation of unique output. This study is to determine the many uses of ChatGPT in the fields of business, healthcare, and education; assess ChatGPT's capacity to protect user security and privacy; and investigate ChatGPT's potential for future research in these areas. The researchers examined numerous articles to assess the aforementioned aims and came to their conclusion. The researchers emphasize how useful ChatGPT may be in different domains, such as Business, Education, and Healthcare. Despite its potential, ChatGPT presents several ethical and privacy issues, which are thoroughly examined in this work.

**Keywords:** Artificial Intelligence; ChatGPT; Deep Learning; Chatbot; Jailbreaking

## Introduction

The most recent viral sensation, ChatGPT, is a sophisticated Artificial Intelligence developed by OpenAI, frequently utilized as a resource and a free online tool based on the GPT language module. ChatGPT is an ingenious system that generates humanoid responses to a given input using artificial intelligence. ChatGPT can accomplish this by using its substantial data storage and effective blueprint to comprehend and carry out user requests. It handles complex tasks efficiently and makes it a remarkable innovation in the field of language processing and artificial intelligence. This Chatbot is capable of generating various types of content, such as programming code, thank-you notes, poetry for your friends, college-level assignments, and even jokes that are of reasonable quality. This GPT model not only relies on a large amount of data but also utilizes a technique called Reinforcement Learning from Human Feedback (RLHF) to continually enhance its performance. This involves providing the

AI with transcripts of human interactions with the chatbot, which are then analyzed and used to make improvements to the model. However, it's important to note that prediction is no longer at the heart of an AI paradigm. The ability to predict and understand is determined by the parameters of the language model. Having a higher number of parameters allows the AI to perform better in terms of its predictive capabilities and comprehension. The most well-known AI example is deep learning. To formulate predictions based on the data, algorithms in this field of study are trained on a massive data basis. It might incorporate speech recognition, photo recognition, and translation of words. The results demonstrate great potential in fields ranging from education and history to mathematics, medicine, and physics, as well as a significant and growing interest in ChatGPT research, which is primarily focused on direct natural language processing applications. As it does not require hiring human operators to conduct customer service interactions, ChatGPT is a cost-effective alternative. The operation of ChatGPT can be divided into multiple steps. Initially, the user provides a prompt or question to the system. The model then processes this input, utilizing its understanding of language patterns and relationships to generate a response. The generated response is then returned to the user, who can continue the conversation or pose further questions.



A popular topic of conversation since November 2021 is ChatGPT, a potent artificial intelligence chatbot. It has eclipsed Instagram, which reached 100 million members in two and a half years, and TikTok, which approached that milestone in nine months. The timeline of ChatGPT is illustrated in the picture above. Beginning on November 30, 2021, OpenAI discreetly unveiled its new artificial intelligence model, GPT-3.5. ChatGPT, a refined iteration of GPT-3.5, functions as a general-purpose chatbot that can converse on a variety of subjects, such as programming, TV scripts, and scientific ideas. There are several iterations of ChatGPT; the 3.5 version was subsequently released. In March 2023, OpenAI launched its latest version, ChatGPT 4 which primarily focuses on the paid subscription. It is mainly intended for ChatGPT Plus users. (Yosifova, 2023).

This research aims to shed light on Chat GPT's capabilities, potential ramifications, and ethical issues, and provide guidance for further developments in this area.

The conventional AI known as ChatGPT which is created by OpenAI has radicalized several sectors due to its advanced capabilities and versatility. On account of this, many professionals are bothered about ChatGPT possibly replacing their jobs to an extent. It has the potential to be utilized across diverse industries and contexts, for developing interactive and dynamic chatbot solutions that are practical, original, and captivating. Entrepreneurs could look for new business possibilities and means to add greater value to their time

and assets. The literature has seen a spike in chatbot-related studies contemporaneous with the rapid advancement of AI algorithms.

## Review of Literature

Khowaja, S. A. (2023, April 13) The author of this research has primarily concentrated on SPADE (Sustainability, Privacy, Digital Divide, and Ethics), and she suggests that other AI chatbots, in addition to ChatGPT, should also make sure that SPADE is upheld. The author also suggests that the government implement policies and other procedures.

Li, H. (2023, April 11) This paper focuses on Large Language Models (LLM) and how to prevent LLM from producing harmful information. In this research, we investigated the techniques for jailbreaking ChatGPT's security.

Gupta, M., Akiri, C., Aryal, K., Parker, E., & Praharaj, L. (2023, January 1): These days, AI chatbots like ChatGPT are revolutionizing the digital landscape. It focuses on the capabilities of chatbots including Bard and ChatGPT and the maximum extent to which they can grow. It also offers real-time, effective examples that are utilized on ChatGPT. We also had the opportunity to examine ChatGPT's social, economic, and legal ramifications.

Kalla, D. (2023, March 1) The history, operation, and influence of ChatGPT on several academic disciplines are all examined in the following study and analysis. It looks into ChatGPT's capabilities and limits in addition to its benefits and drawbacks. Along with its possible uses for researchers and scholars, it also covers ChatGPT's effects on jobs, cyber security, customer service, software development, and academia.

Zhai, X. (2022, January 1) ChatGPT was piloted for this project to prepare an academic paper with the title Artificial Intelligence for Education. The results of the initial study suggest that ChatGPT can help researchers write systematic, informative, cohesive, and (partially) correct papers. The numerous uses of ChatGPT, particularly in the field of education, were examined in this essay.

Sohail, S. S., Farhat, F., Himeur, Y., & Mansoor, W. (2023, April 24) This study examines potential applications and addresses important ChatGPT-related concerns. It suggests taxonomy, potential fixes for existing problems, prospective paths for ChatGPT research, and predictions for anticipated developments.

Lund, B., & Wang, T. (2023, February 14) Examining how AITGs (artificial intelligence text generators) affect the library environment—including the services provided, the resources made available, and the roles played by library employees—is the goal of research on AITGs' effects on libraries. It also examines academic studies connected to literature and education.

Wu, X., Duan, R., & Ni, J. (2023, July 26) This study aims to shed light on the probable risks of implementing ChatGPT into our daily lives by examining the upgrade path from GPT-1 to GPT-4 and discussing the attributes, constraints, and anticipated uses of the model. We draw attention to the obstacles that privacy, security, and ethical concerns present for widespread adoption.

Ray, P. P. (2023, January 1) This paper examines how ChatGPT has transformed scientific research in several areas, including data processing, hypothesis development, collaboration, and public outreach. The study also looks at the possible drawbacks and moral dilemmas related to using ChatGPT in research, emphasizing the significance of finding a balance between human knowledge and AI-assisted innovation.

Giansanti, D. (2022, September 21) This study looks at ChatGPT's potential health effects as well as present and upcoming trends. Their focus is on ChatGPT's application in the healthcare industry. It seeks to serve as a clearinghouse for academics on matters pertaining to the advancement and application of AI in the field of health. It also emphasizes ChatGPT's forthcoming AI integration.

## Objectives

- To study the various applications of ChatGPT in Education, Business, and Public Healthcare.
- To study the capability of ChatGPT to maintain data privacy and security of users.

- To explore the future scope of ChatGPT.

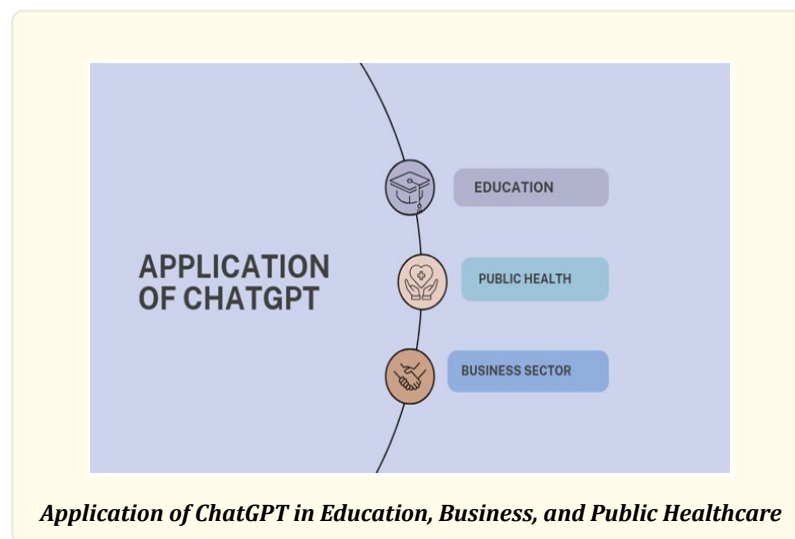
## Methodology

This study is purely based on secondary data. The secondary data has been collected from various published articles, government portals, and websites. The researchers have used keywords like Artificial Intelligence, ChatGPT, Deep Learning, Chatbot, and jailbreaking to access the data from multiple sources. The research paper proposes a two-phase framework. The first phase focuses on the applications and security issues in ChatGPT, and the second phase focuses on the prospects of ChatGPT.

## Results and Discussion

This study reports on an in-depth evaluation of ChatGPT, an extensive language model created by OpenAI. ChatGPT is an effective tool that may be used for many different things, such as translating, creating original content, and text production. The results demonstrate great potential in fields ranging from education and history to mathematics, medicine, and physics, as well as a significant and growing interest in ChatGPT research, which is primarily focused on direct natural language processing applications. The discussion section of this paper will explore the implications of these results and discuss the potential applications of ChatGPT. It will also discuss the limitations of ChatGPT and identify areas for future research. ChatGPT has several potential applications in different domains. For example, it could be used to develop new types of translation software, create new forms of creative content, or develop new educational tools. The purpose of this study is to clarify Chat GPT's capabilities, possible drawbacks, and moral dilemmas, and offer recommendations for further research in this field.

Since its November 2022 premiere, ChatGPT has become phenomenally popular globally. It gained one million members in the first five days and one hundred million users in its initial few months of operation because of how quickly it accumulated people.



### Education

ChatGPT has the potential to transform academics. It can assist students to grasp concepts they are having difficulty with by giving personalized, interactive explanations. The AI-powered technology can also assist teachers in providing personalized feedback to individual pupils, saving time and effort. ChatGPT can also be used to grade assignments and tests, as well as offer students with automatic feedback. However, Reports suggest that online exam proctoring technologies, which use AI and machine learning, have gained attention. (Coghlan et al., 2021).

ChatGPT can also be used to create unique initiatives and resources in addition to these. It can, for example, be used to develop interactive games and activities that engage students more meaningfully. It can be used to construct intelligent tutors who provide students with tailored assistance and feedback as they advance through their studies.

ChatGPT reflects computer scientists' efforts to create artificial generalized intelligence—ChatGPT is capable of not just gathering knowledge, but also coding and debugging programs. (Zhai., 2022).

There are various areas of education that ChatGPT may have an impact on and one among that is Assessment and Evaluation. Essay writing and constructed response projects are frequently used in the classroom to measure students' abilities. ChatGPT appears to be capable of handling such tasks with ease. This raises the possibility that pupils are outsourcing their writing. As a result, evaluation processes may need to shift in terms of both focus and format. (Zhai.,2022).

In other words, general writing abilities are more easily outsourced than critical thinking and innovation. Assessment techniques, particularly those aimed toward assessment objectives, should change the goals. This transformation corresponds to societal needs and changes in school learning objectives. Furthermore, instructors may need to examine novel evaluation forms, particularly ones that can be carried out in real-time.

### **Public health**

In this field of research, there is an essential for the advancement of health systems and is intrinsically connected to the advancement of digital health in terms of the collection, tracking, and administration of information, as well as the administration of hospitals and interconnected government information systems. In terms of progress as well as unification with the healthcare industry, which also needs to pass regulations, ethical inspection, and social acceptance, there are a lot of expectations for AI today and in the future. The integration of artificial intelligence-based technology in the healthcare industry is meant to improve care equity for all parties that are involved, including patients. (Giansanti, 2022).

The application of ChatGPT can be observed in several public health fields, including:

1. To perform literature reviews, analyze data, and synthesize evidence for public health practice and policy, ChatGPT helps public health students build these skills.
2. ChatGPT makes it easy for public health students to learn from and work with other health experts, policymakers, and people in the community.
3. It facilitates the discussion of issues and challenges that could be associated with the implementation of public health education (Sallam, Nesreen, Barakat., 2023).

The development and integration of AI into the health domain will include numerous specialists both now and in the future. There will be a need for suggestions and subject matter specialists in the fields of research, diagnostics, and clinical therapy (Giansanti., 2022).

There is no doubt ChatGPT is superior; but it does not replace a specialist because clinical practice is not just about diagnosing patients, it's about discussing clinical findings and delivering personalized patient care.

### **Business Sector**

Artificial intelligence (AI) has been on the rise in recent years and has become a key enabler for many companies to enhance their business processes, customer service, and decision-making. ChatGPT AI is one of the most innovative technologies that has been developed to transform the business landscape. (Md Arman,Umama Rashid Lamiya., 2023).

ChatGPT's influence on business can be seen in numerous domains:

1. **Customer Service:** ChatGPT AI analyzes customer inquiries and identifies common issues and trends so that businesses can proactively respond to customer needs and enhance their offerings and services. ChatGPT AI is also revolutionizing customer service by enabling businesses to provide 24/7 customer service. Chatbots are available 24 hours a day, 7 days a week to answer customer inquiries. This allows businesses to offer a consistent customer experience outside of normal business hours. All in all, ChatGuard AI is revolutionizing customer service in the business world by delivering more efficient and personal customer experiences. By embracing ChatGPT AI, businesses will be able to better understand their customers' needs, provide 24/7 service, and enhance overall customer satisfaction (Md Arman, Umama Rashid Lamiya., 2023).
2. **E-Commerce:** E-commerce has changed the way we shop. It has opened up a global marketplace for businesses of all sizes. But it has also raised data privacy and security issues, cross-border trade issues, and a need to keep up with fast-moving technology. Online marketing and business are changing dramatically. AI-driven perceptivity can help marketers identify trends, target audiences, and optimize campaigns. AI-driven analytics can help companies better gather their guests and personalize their tries. AI-driven chatbots can deliver substantiated client bracelets. (Dr. P. Suganya, K Pranesh., 2023).
3. **Finance:** ChatGPT AI is a great tool for financial institutions to help them detect fraud in real time. It can analyze huge amounts of data and recognize patterns that could be a sign of fraud, which can help reduce losses and protect customer data. It can also automate tasks like opening accounts, processing loans, and assessing risks, which can help cut costs and make financial decisions faster and more accurately. (Md Arman, Umama Rashid Lamiya., 2023) Plus, it can save time on tedious tasks like answering questions or checking account info, so banks can focus their resources on more complex questions that need to be answered by someone or from another part of the bank. (George et al., 2023).

### ***Data Privacy and Security in ChatGPT***

Privacy policy is an essential document that gives people comprehensive information about how their data is used and erased. (Wu et al., 2023) In this section, we will examine the privacy concerns and issues related to ChatGPT. To protect people's personal information and data, we will review the potential challenges and factors linked to using ChatGPT. We will also assess any ethical or security concerns that may come up when using this AI technology. Data collecting, storage, sharing, and the possible misuse of information by AI systems like ChatGPT are a few examples of privacy concerns.

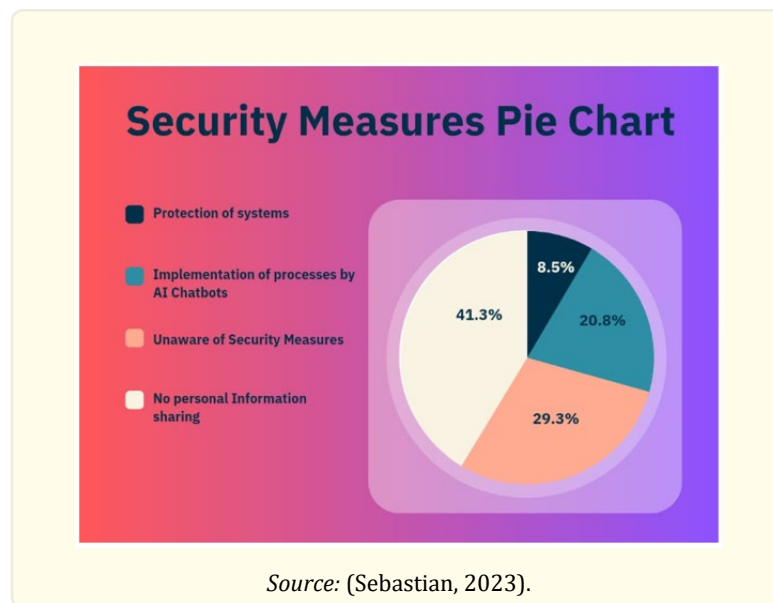
Conversational bots are currently being developed by many technological companies, and they must take robust privacy regulations into account. These conversational bots are introduced to establish their presence in the market. It demonstrates a trend that tech corporations are keen to build their conversational bots to signal their presence in the given field. Google released its conversational bot named Bard, which is only authorized to users over the age of 18 (Khowaja, 2023).

### ***Jailbreaking Attack on ChatGPT***

Jailbreaking uses crafty prompts to allow ChatGPT to bypass programming limits and generate anything it chooses. These devious prompts typically set up user-created role plays to modify ChatGPT's ego and allow ChatGPT to answer queries from users unethically. (Li, 2023). They're carefully constructed requests designed to "jailbreak" or liberate the AI from its predefined set of rules. The outputs of ChatGPT are constrained by OpenAI's internal governance and ethics regulations (ChatGPT Jailbreak Prompts, 2023). These constraints, however, are removed upon jailbreaking, causing ChatGPT to display results that are limited by OpenAI policy. Jailbreaking is as simple as typing precise input instructions into the chat interface. (Gupta et al., 2023) There are a few methods like the DAN (Do Anything Now) Method, The Switch Method, The Character Play Method, etc. which are used as a jailbreaking prompt for generating rude or discriminatory comments.

### ChatGPT vs Security

ChatGPT has made a significant contribution to the security of the internet, where it may be used to identify and prevent cyber-attacks. (Kalla & Smith, 2023) Researchers have pointed to the risk of ChatGPT being used to create polymorphic malware – a more sophisticated form of malware that mutates, making it much harder to detect and mitigate. ChatGPT exposes its end-users and the majority of the population to new hazards, needing increased monitoring and preventative measures. (Wu et al., 2023).



The awareness of ChatGPT's security measures is depicted in the pie chart above. 8.5% of respondents know how to defend their system against different ChatGPT-related threats. This covers protocols, instructions, encryption, and the authentication process or verification process. 20.8% of respondents are putting in place the procedures and protocols needed to shield ChatGPT from threats. These procedures and protocols include malware installation, end-to-end encryption, legal regulation, and more. 29.3% of respondents are unaware of ChatGPT's security precautions, which include education, authentication, protocols, and encryption. The majority of individuals, or 41.3%, are worried about not disclosing their personal information to any of the OpenAI Chatbots such as ChatGPT, Bard, YouChat, etc.

### Future scope of ChatGPT

As technology progresses and artificial intelligence evolves, the possibilities for how we connect with AI platforms such as ChatGPT expand at a rapid pace. ChatGPT has already earned a name for itself in the realm of natural language processing by allowing people to connect with machines in a more human-like manner. But what is the future of this game-changing technology? In this objective, we will look at the predictions and opportunities for ChatGPT's future. ChatGPT's possible applications range from improving customer service to transforming education.

ChatGPT has the potential to come into play in domains such as education, healthcare, and business where conversational bots can provide assistance and advice to those in need. ChatGPT has the potential to alter the way we engage with technology and make our lives easier and more efficient as it advances. (Kalla & Smith, 2023). Consider a future in which you can have a natural language conversation with a robot that assists you with shopping or with your smart home system to change the temperature and lights. (Aljanabi & ChatGPT, 2023). The popularity of ChatGPT has grown to the point where researchers are considering including it as a co-author



in their articles. It would mark a fundamental shift in how artificial intelligence is integrated into academic and research endeavors. However, ChatGPT should not be used as an adjunct to one's expertise of a topic, but it can be used to save time and money by drafting brief descriptions of findings and organizing a manuscript according to various journal style stipulations. (Lund et al., 2023).

Overall, advances in ChatGPT have the potential to have a big impact. As technology advances, we may expect ChatGPT to become increasingly more capable and helpful in a wide range of applications, from customer service and education to public health and beyond. ChatGPT is learning new prompts as more users feed it. Students optimize AI by foregoing traditional schooling to utilize ChatGPT's shortcuts, making it more valuable to users in the future. (Haleem et al., 2022).

1. *Customization*: ChatGPT can currently provide tailored solutions based on user input, but future advances could lead to even more specialized and customized experiences. (Ray, 2023) Featuring individualized prompts, such as the user's name, age, or a reference to previous talks, can increase user comfort and comprehension. ChatGPT can deliver a more personalized and specific response by referring to the user's past interaction. (Jungwirth & Haluza, 2023).
2. *Public Health*: This research is crucial for the advancement of public health systems and is directly related to the development of digital health, both in terms of information collection, monitoring, and management, and connected in terms of government network management (Giansanti, 2022). It can assist this industry in predicting diseases both individually and collectively, whilst also identifying and correcting population behaviours. (Jiang et al., 2022).
3. *Quality control*: In future years, Quality Control professionals may be able to create thorough test scripts and test scenarios based on precise requirements and specifications using tools powered by GPT. Additionally, these tools might be able to analyze test results and offer perceptions and suggestions for raising the standard. (Stankevicius, 2022).
4. *Full of integrity*: To establish a trustworthy AI, future versions of ChatGPT should incorporate capabilities to ensure impartial and fair responses. To boost AI performance, advanced technological breakthroughs such as supervised learning, machine learning, and neural networks made up of algorithms should be merged with computer processes. (Sohail et al., 2023) The data collected demonstrate that there are significant disparities, and ChatGPT's dependability in this area is low. As a result, while employing ChatGPT as a tool in bibliometric investigations, researchers should proceed with caution. (Farhat et al., 2023).
5. *Linguistic Attributes and Biases*: Addressing cultural and language bias in AI systems entails creating tools to detect, estimate, and minimize such biases in both training and produced data. ChatGPT can already generate text in various languages, but future advances may result in even more advanced multilingual attributes that can interpret and develop content in an extensive range of languages. (Ray, 2023).

While these breakthroughs have tremendous capacity to boost the quality of our lives, it is the responsibility of us as individuals to thoroughly study and take action on the moral dilemmas and societal repercussions. (Aljanabi & ChatGPT, 2023).

## Conclusion

In Conclusion, there are numerous exciting options for this technology that could transform our lives in meaningful and useful ways, ranging from collaboration with other artificial intelligence (AI) tools to the potential for better tailoring and personalization to the ongoing enhancement of linguistic accuracy.

The purpose of this study is to clarify Chat GPT's capabilities, possible drawbacks, and moral dilemmas, and offer recommendations for further research in this field. This study reports on an in-depth evaluation of ChatGPT, an extensive language model created by OpenAI. ChatGPT is an effective tool that may be used for many different things, such as translating, creating original content, and text production. This change is in line with changing educational goals and societal demands. It implies that as soon as possible, contributions to the field of artificial intelligence research should be discussed in a scientific setting. Furthermore, to follow the discourse's directions, actual guidelines for ethical scientific practice must also be updated. Future studies could look into the way ChatGPT can be included in higher education research curricula and pedagogy.



There are a lot of societal standards for AI today alongside those of the future, both in terms of advancement and unification with the medical field, which also must comply with norms, ethical scrutiny, and mainstream acceptance. Even though ChatGPT can improve peer review, human reviewers shouldn't be entirely substituted by it. It's crucial to take a well-rounded strategy that incorporates both human and AI expertise.

In conclusion, this paper provides an overview of ChatGPT's distinct domains, privacy and security protocols, and research priorities to advance future growth in technology. Everything being considered, this paper provides researchers and practitioners who want to learn more about ChatGPT with a useful place to start.

## References

1. Kalla D and Smith NB. "Study and Analysis of Chat GPT and its Impact on Different Fields of Study". ResearchGate (2023).
2. Wu X, Duan R and Ni J. "Unveiling Security, Privacy, and Ethical Concerns of ChatGPT". ResearchGate (2023).
3. Farhat F, Sohail SS and Madsen DI. "How Trustworthy is ChatGPT?". The Case of Bibliometric Analyses (2023).
4. Sohail SS., et al. "Decoding ChatGPT: A Taxonomy of Existing Research, Current Challenges, and Possible Future Directions". Journal of King Saud University - Computer and Information Sciences; Elsevier BV (2023).
5. Jiang P., et al. "Big data in basic and translational cancer research". Nature Reviews Cancer; Springer Science+Business Media (2022).
6. Giansanti D. "Artificial Intelligence in Public Health: Current Trends and Future Possibilities". International Journal of Environmental Research and Public Health; Multidisciplinary Digital Publishing Institute (2022).
7. Jungwirth D and Haluza D. "Artificial Intelligence and Public Health: An Exploratory Study". International Journal of Environmental Research and Public Health; Multidisciplinary Digital Publishing Institute (2023).
8. Ray PP. "ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope". Internet of Things and Cyber-Physical Systems; Elsevier BV (2023).
9. Haleem A, Javaid M and Singh RP. "An era of ChatGPT as a significant futuristic support tool: A study on features, abilities, and challenges". BenchCouncil Transactions on Benchmarks, Standards and Evaluations; Elsevier BV (2022).
10. Lund B., et al. "ChatGPT and a New Academic Reality: AI-Written Research Papers and the Ethics of the Large Language Models in Scholarly Publishing". Social Science Research Network; RELX Group (Netherlands) (2023).
11. Aljanabi M and ChatGPT C. ChatGPT: Future Directions and Open possibilities (2023).
12. Gupta M., et al. "From ChatGPT to ThreatGPT: Impact of Generative AI in Cybersecurity and Privacy". IEEE Access; Institute of Electrical and Electronics Engineers (2023).
13. ChatGPT Jailbreak Prompts. Insane - TheInsaneApp.com (2023). Li H. Multi-step Jailbreaking Privacy Attacks on ChatGPT. arXiv.org (2023).
14. Khowaja SA. "ChatGPT Needs SPADE (Sustainability, PrivAcy, Digital divide, and Ethics) Evaluation: A Review". arXiv.org (2023).
15. A REVIEW OF CHATGPT AI'S BENEFITS AND IMPACT ON E-COMMERCE SECTORS | EPRA International Journal of Research & Development (IJRD). (n.d.).
16. George A, George A and Martin A. A Review of ChatGPT AI's Impact on Several Business Sectors. Zenodo (CERN European Organization for Nuclear Research); European Organization for Nuclear Research (2023).
17. Coghlan S, Miller T and Paterson JM. Good Proctor or "Big Brother"? Ethics of Online Exam Supervision Technologies. Philosophy & Technology; Springer Nature (Netherlands) (2021).
18. Zhai X. "ChatGPT User Experience: Implications for Education". Social Science Research Network; RELX Group (Netherlands) (2022).
19. Arman M and Lamiya UR. "Exploring the Implication of ChatGPT AI for Business: Efficiency and Challenges". Journal of Innovation Information Technology and Application (2023).
20. Li H. "Multi-step Jailbreaking Privacy Attacks on ChatGPT". arXiv.org (2023).

21. Lund B and Wang T. "Chatting about ChatGPT: how may AI and GPT impact academia and libraries?". Library Hi Tech News; Emerald Publishing Limited (2023).
22. Biswas S. "Role of Chat GPT in Public Health". Annals of Biomedical Engineering; Springer Science+Business Media (2023).
23. Sebastian G. Do ChatGPT and Other AI Chatbots Pose a Cybersecurity Risk? - An Exploratory Study. Social Science Research Network; RELX Group (Netherlands) (2023).
24. Biswas S, Dobarra D and Cohen HL. "ChatGPT and the Future of Journal Reviews: A Feasibility Study". Yale Journal of Biology and Medicine; Yale University Press (2023).
25. Susnjak T. "ChatGPT: The End of Online Exam Integrity?". arXiv.org (2022).
26. Aggarwal SP. A Review of ChatGPT and its Impact in Different Domains. International Journal of Applied Engineering Research; Research India Publications (2023).
27. Gundu T. "Chatbots: A Framework for Improving Information Security Behaviours using ChatGPT". IFIP Advances in Information and Communication Technology (2023).
28. Yosifova A. "The Evolution of ChatGPT: History and Future". 365 Data Science (2023).
29. Hines K. "History of ChatGPT: A Timeline of The Meteoric Rise of Generative AI Chatbots". Search Engine Journal (2023).
30. Roumeliotis KI and Tselikas ND. "ChatGPT and Open-AI Models: A Preliminary Review". Future Internet; Multidisciplinary Digital Publishing Institute (2023).
31. Aithal PS and Aithal S. "Application of ChatGPT in Higher Education and Research – A Futuristic Analysis". International Journal of Applied Engineering and Management Letters (2023).
32. De Silva GHBA, Sandanayake T and Firdhous M. "ChatGPT in Higher Education - A Comprehensive Review of Its Impact on Student Research". ResearchGate (2023).