

Introduction:

For our research paper, we decided to compare the large-language systems of both Chat.GPT 3.5 and the premium version of Chat.GPT 4. For all intensive purposes and to keep consistency in our research, we started from the same initial prompt. The purpose of this comparison was to see the difference in capabilities between the free and widely accessible Chat.GPT 3.5, and the premium Chat.GPT 4. By staying consistent in our prompt engineering, we were able to see the differences in quality, accuracy, bias and clarity between the two versions of Chat.GPT, and come to the conclusion whether paying the premium for Chat.GPT 4 is worth it.

First Chat.GPT 3.5 Draft:

Here is the result of the first initial A.I. written paper utilizing the prompt: "Describe the development of artificial intelligence from Turing to large language model chatbots" using the free Chat.GPT 3.5 version.

The journey of artificial intelligence (AI) from its conceptualization by Alan Turing to the emergence of large language model chatbots encompasses a rich tapestry of contributions from key figures in the history of the digital revolution. Alan Turing, often regarded as the father of modern computing, laid the theoretical groundwork for AI with his seminal paper "Computing Machinery and Intelligence" in 1950, which introduced the concept of the Turing Test as a benchmark for assessing machine intelligence. Turing's visionary ideas provided the intellectual foundation for subsequent developments in AI research.

John McCarthy, another pivotal figure in the history of AI, coined the term "artificial intelligence" and organized the Dartmouth Conference in 1956, widely regarded as the birth of AI as a field of study. McCarthy's pioneering work focused on symbolic AI, which aimed to manipulate symbols according to predefined rules to simulate human-like reasoning and problem-solving. His efforts laid the groundwork for early AI systems, including expert systems designed to perform specialized tasks within defined domains. Marvin Minsky, often referred to as the "father of artificial intelligence," made significant contributions to the field through his research on neural networks and the development of the perceptron, an early form of artificial neural network. Minsky's work challenged the prevailing paradigm of symbolic AI and emphasized the importance of learning from data, foreshadowing the rise of neural network-based approaches in later years. Herbert Simon and Allen Newell, in collaboration with Clifford Shaw, created the Logic Theorist in 1956, one of the earliest AI programs capable of proving mathematical theorems. Their work laid the foundation for the development of problem-solving techniques in AI and demonstrated the potential for machines to exhibit intelligent behavior.

The emergence of large-scale datasets and advancements in computational power in the early 21st century catalyzed the development of deep learning techniques, leading to breakthroughs in areas such as image

recognition, speech recognition, and machine translation. Key figures such as Fei-Fei Li, Geoff Hinton, and Yoshua Bengio played instrumental roles in advancing deep learning research and pushing the boundaries of AI capabilities.

The development of large language model chatbots represents a culmination of these advancements, with researchers such as Ilya Sutskever, Samy Bengio, and Alex Graves contributing to the development of transformer architectures and training methodologies. OpenAI's GPT series, particularly GPT-3, represents a milestone in AI research, demonstrating the ability of large language models to generate human-like text based on input prompts and engage in meaningful conversations across a wide range of topics. However, the development of AI has also raised ethical and societal concerns, including issues related to bias, privacy, and the impact of automation on the workforce. Figures such as Timnit Gebru and Joy Buolamwini have highlighted the importance of addressing these challenges and promoting ethical AI development practices to ensure that AI technologies benefit society as a whole.

Looking ahead, the future of AI and large language model chatbots holds both promise and challenges. Continued advancements in AI research, coupled with interdisciplinary collaboration and ethical oversight, will likely lead to even more sophisticated and socially beneficial AI systems. However, addressing the ethical, legal, and societal implications of AI remains an ongoing endeavor, requiring proactive measures to ensure that AI technologies are developed and deployed responsibly for the betterment of humanity.

Reflections on initial paper (Chat.GPT 3.5):

The first draft utilizing the prompt: "Describe the development of artificial intelligence from Turing to large language model chatbots" was surprisingly cohesive and provided many interesting anecdotal facts that I hadn't known about prior to my research. However, it is clear that the 3.5 model merely is providing information in a timeline, and it seems that the 3.5 model is listing important figures rather than explaining their greater impacts on the digital revolution and Artificial Intelligence as a whole. The 3.5 model was also quite interesting in its selection of the major names and figures throughout the history of Artificial Intelligence. Namely, the 3.5 model elected to name many contemporary figures from the later half of the 20th century instead of early pioneers such as Ada Lovelace, Claude Shannon or Charles Babbage. Another interesting result from the initial prompting of the 3.5 system was its inclusion of a reflective conclusion on the possible "challenges" posed by A.I. systems such as "ethical, legal and societal implications". This was fascinating, since the prompt did not include instructions to add opinion or reflect on the possible future landscape of artificial intelligence.

Chat.GPT 3.5 Paper (with revisions)

For the next iteration of the Chat.GPT 3.5 model essay, we have changed the prompt to include clear instructions for MLA Chicago Style citations, with a bibliography attached. Furthermore, we also specified a timeline for the model to examine, in order to test whether the 3.5 model will include the earlier pioneers in the history of Artificial Intelligence that were left out in the initial draft. This process was repeated and the best results from each round of prompting were put together in the following paper.

This paper traces the development of artificial intelligence (AI) from its inception with Alan Turing's theoretical framework to the emergence of large language model chatbots such as GPT-3. Through an analysis of key figures and innovations throughout the 20th and 21st centuries, this paper examines the evolution of AI from early symbolic systems to modern deep learning approaches. By exploring the contributions of pioneering researchers and the technological advancements that propelled the field forward, this paper provides insight into the progression of AI research and its implications for society.

The concept of artificial intelligence (AI) emerged in the 20th century with the pioneering work of Alan Turing, often regarded as the father of modern computing. In his seminal paper "Computing Machinery and Intelligence" (Turing, 1950), Turing proposed the idea of machines capable of exhibiting intelligent behavior indistinguishable from that of humans. This theoretical framework laid the groundwork for subsequent developments in AI research, setting the stage for the exploration of algorithms and computational models aimed at simulating human cognition.

Key figures in the early history of AI research include John McCarthy, Marvin Minsky, Herbert Simon, Allen Newell, Claude Shannon and Ada Lovelace. Ada Lovelace, a mathematician and writer, is recognized for her contributions to computational theory in the 19th century. Lovelace's insights into the potential of Charles Babbage's Analytical Engine included the recognition that machines could perform tasks beyond pure calculation, anticipating concepts central to modern AI (Woolley, 1999). Babbage's Analytical Engine, although never completed, was a pioneering design for a mechanical computer that inspired later developments in computing. McCarthy, often credited with coining the term "artificial intelligence," organized the Dartmouth Conference in 1956, which marked the birth of AI as a field of study (McCarthy, 1955). Minsky's work on neural networks and the perceptron challenged the prevailing paradigm of symbolic AI, advocating for the importance of learning from data (Minsky, 1956). Simon and Newell's development of the Logic Theorist in 1956 demonstrated the potential for machines to perform intelligent tasks such as proving mathematical theorems (Simon & Newell, 1956). Shannon's seminal work on information theory provided a theoretical framework for understanding communication and laid the groundwork for modern computing and AI (Shannon, 1948). These early figures laid the foundation for AI research and contributed to the exploration of computational approaches to problem-solving and reasoning.

Throughout the 20th and 21st centuries, several milestones in AI research demonstrated the capabilities of AI systems in various domains. IBM's Deep Blue, which defeated world chess champion Garry Kasparov in 1997, showcased the potential of AI in strategic decision-making (Hsu et al., 2002). IBM's Watson, which won the Jeopardy! game show in 2011, demonstrated advancements in natural language understanding and knowledge retrieval (Ferrucci et al., 2010). These achievements highlighted the progress of AI research and its applications in real-world scenarios. Artificial Intelligence (AI) permeates various industries with applications like virtual assistants, recommendation systems, healthcare diagnostics, autonomous vehicles, finance algorithms, manufacturing optimization, natural language processing, e-commerce personalization, cybersecurity tools, and educational aids. These applications leverage AI algorithms for tasks ranging from language processing and image recognition to predictive analytics and autonomous decision-making. AI's integration into everyday life underscores its transformative potential, revolutionizing how businesses operate, services are delivered, and individuals interact with technology. As AI continues to evolve, its impact on society is poised to deepen, driving further innovation and shaping the future of numerous industries.

The development of large language model chatbots represents a recent milestone in AI research, enabled by advancements in deep learning and natural language processing. Researchers such as Ilya Sutskever, Samy Bengio, and Alex Graves contributed to the development of transformer architectures and training methodologies (Vaswani et al., 2017). OpenAI's GPT series, particularly GPT-3, demonstrated the ability of large language models to generate human-like text and engage in meaningful conversations (Brown et al., 2020). These advancements have led to the proliferation of AI-powered chatbots in various applications, from customer service to content generation.

The evolution of artificial intelligence from its inception with Alan Turing to the emergence of large language model chatbots represents a journey marked by theoretical breakthroughs, technological advancements, and paradigm shifts. Through the contributions of key figures such as Turing, McCarthy, Hinton, and Sutskever, AI research has progressed from early symbolic systems to modern deep learning approaches. As AI continues to advance, ethical considerations and societal implications must be carefully addressed to ensure that AI technologies benefit humanity as a whole.

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Reflections on Chat.GPT 3.5 Revised Paper

For the revised version of the paper using the 3.5 model, we initially used the prompt: "Describe the development of artificial intelligence from Turing to large language model chatbots" in a scholarly paper format. Each paragraph should provide evidence and analysis of the key figures and innovations throughout the development of artificial intelligence. Include MLA citations of every source used and a bibliography at the end. Make sure to include key figures throughout the early history of the digital revolution (20th century) and how their influences led to the development of artificial intelligence."

This prompt aimed to be much more specific, and we wanted to see if the content or opinions of the paper would change at all. However, even with the inclusion of citations and more specific prompting, the paper was very similar to the original draft. The organization was pretty much the same, with a clear timeline first explaining the early figures, the advancements in neural networks, important milestones and information about the emergence of large-language chatbots. Furthermore, the 3.5 model also included an opinionated cautioning on the potential "ethical considerations and societal implications" of large-language chatbots and artificial intelligence as a whole. Another interesting part within this paper was what the chatbot model believed were "important milestones" in the development of artificial intelligence. The 3.5 model included the evidence of IBM's "Deep Blue" model defeating chess grandmaster Garry Kasparov and IBM's "Watson" winning the *Jeopardy!* Gameshow. According to the A.I, "these achievements highlighted the progress of AI research and its applications in real-world scenarios" but in reality are merely just examples of AI beating people at games. Although the IBM victories are interesting anecdotes at most, I do not believe they deserve to be included over key figures such as Ada Lovelace and Claude Shannon, for whom I had to re-run the prompt again specifically to include (as seen highlighted in green). Furthermore, there are plenty of other applicable achievements of A.I. such as NLP's, self-driving vehicles, and AI powered recommendation systems. In order to include these examples, I re-ran the 3.5 model with the prompt "include real world applications of AI" and added the results highlighted in green.

Despite being a mediocre paper, with sparse pieces of evidence and little analysis, I was surprised at the 3.5 model's citation abilities. What was interesting was the fact that the 3.5 model was able to correctly cite a combination of primary and secondary sources in the correct Chicago MLA style and provide them succinctly in a bibliography.

First Chat.GPT 4.0 Draft

Initial Prompt: Describe the development of artificial intelligence from Turing to large language model chatbots"

The development of artificial intelligence (AI) from its inception with Alan Turing to the contemporary era of large language model chatbots encapsulates a rich history of pioneering thinkers and transformative technological

advancements. This journey through the digital revolution is marked by key figures whose contributions have significantly shaped the field of AI.

Turing and the Conceptual Foundation

The story of AI begins with Alan Turing, a British mathematician and logician, who in the mid-20th century proposed the possibility of machines that could simulate human thought processes. His 1950 paper, "Computing Machinery and Intelligence," introduced the Turing Test as a measure of machine intelligence—setting a benchmark for evaluating whether a machine can think like a human. This foundational idea sparked the first wave of enthusiasm in the artificial intelligence field.

The Pioneers of AI

In the 1950s and 1960s, several key figures emerged, driving forward the development of AI. John McCarthy, often regarded as the father of AI, coined the term "artificial intelligence" in 1956 and developed LISP in the late 1950s, a programming language that became integral to AI research. Marvin Minsky, another influential figure, co-founded the MIT Artificial Intelligence Laboratory in 1959 and was a proponent of the symbolic approach to AI, which involves programming machines to use rules and logic to mimic human reasoning.

The Era of Expert Systems

During the 1970s and early 1980s, AI research saw significant contributions from scholars like Edward Feigenbaum, who developed expert systems, notably the Dendral project, which applied AI in molecular chemistry. These systems, which could simulate the decision-making ability of a human expert, became widely used in industries ranging from medicine to finance, highlighting the practical applications of AI.

Machine Learning Innovators

The shift towards machine learning was spearheaded by figures such as Geoffrey Hinton, who, along with colleagues, ignited the interest in neural networks in the 1980s. Hinton's work on backpropagation, a method for training neural networks, laid the groundwork for the later successes in deep learning. Another pioneer, Yann LeCun, advanced the field by applying convolutional neural networks to image recognition tasks, vastly improving the ability of machines to process visual information.

The Deep Learning Revolution

The 2010s marked the era of deep learning, where AI began to significantly outperform humans in various tasks. Andrew Ng, through his work at Google and later Baidu, made substantial contributions to the use of deep learning in speech recognition and image processing. The development of AlphaGo by Demis Hassabis and his team at DeepMind represented a landmark achievement, with their system defeating a world champion in the complex game of Go, a feat previously thought to be decades away.

Large Language Models and the Current Landscape

The most recent phase in AI's evolution has been dominated by the development of large language models like OpenAI's GPT series. These models, which use transformer architectures—a technology pioneered by researchers such as Vaswani et al. in their 2017 paper "Attention is All You Need"—have dramatically advanced natural language processing. Large language models learn from vast datasets to generate text that is contextually relevant and stylistically varied, powering the latest generation of AI chatbots.

Ethical Considerations and Future Directions

As AI continues to evolve, the contributions of these key figures highlight both the technological advancements and the growing need to address the ethical implications of AI. Issues such as privacy, algorithmic bias, and the socio-economic impacts of automation are at the forefront of discussions about the future path of AI development.

In conclusion, the history of AI from Turing to today's AI chatbots is a testament to the ingenuity and foresight of a series of remarkable individuals. Each key figure has pushed the boundaries of what machines are capable of, leading to today's sophisticated AI systems that not only mimic human reasoning and interactions but also raise profound questions about the future interaction between humans and machines. As AI continues to be integrated into all aspects of human life, the legacy of these pioneers underscores the blend of technical achievement and ethical consideration needed to steer future innovations.

Reflections on Chat.GPT 4.0 initial paper:

This initial result is a good first attempt, as it provides a good scope of the Digital Revolution, providing examples of key programs and figures who were involved. Moreover, it provided information about the Digital Revolution that I did not know prior. This comes with some pros and cons if one were to try and use this for, as an example, a homework assignment or test study guide. As this information was not known prior, a teacher could be impressed if a student were to submit it to them, as it could be niche information that is not widely known. Although, on the other hand, as I was not knowledgeable on the topic in the first place, the information provided could be fully wrong without my knowledge; therefore, it would require individual outside research to ensure the information is correct. Additionally, the response is flawed in the formatting itself, as instead of writing it as an essay, as we are supposed to, it presented it in more of a list format with bolded paragraph headers and individual paragraphs. This type of response would be good for doing research about a topic, as the information is presented in a simple and cohesive way; but, it does not suffice for an essay or homework response. Additionally, the response did not include any citations for the large amount of information it presented.

In order to remedy these flaws, it would be best to directly acknowledge them in the resubmission of the prompt. Furthermore, I believe the paper needs more information about key figures and events, for example diving deeper into how the notion of AI intelligence was first conceived and any barriers that needed to be overcome during its development. Thus, for the second prompt I decided to submit:

Revised Prompt #2: Describe the development of artificial intelligence from Turing to large language model chatbots".

Include citations in the Chicago Manual of Style. Present the information in an essay style format. Elaborate more on how AI was conceived and any issues that needed to be overcome.

The evolution of artificial intelligence (AI) from its conceptual inception by Alan Turing to the sophisticated era of large language model chatbots reflects a continuum of groundbreaking advancements and pioneering individuals who have significantly shaped the landscape of technology. This essay explores key figures in the history of the digital revolution and their contributions to AI, alongside the challenges and milestones that have marked the field's development.

Theoretical Beginnings with Turing

The theoretical foundation of AI was laid by Alan Turing, a British mathematician, whose seminal 1950 paper, "Computing Machinery and Intelligence," posed the question, "Can machines think?" (Turing, 1950). Turing proposed the Turing Test as a criterion of intelligence, a test based on a machine's ability to exhibit indistinguishable behavior from a human. This idea not only sparked the initial interest in AI but also set a benchmark that would guide future research (Copeland, 2004).

Early Innovators and the Expansion of AI

In the decades following Turing's proposal, several key figures emerged. John McCarthy, often credited with coining the term "artificial intelligence," organized the famous Dartmouth Conference in 1956, which brought together intellectuals interested in machine intelligence for the first time (McCarthy et al., 2006). This event is widely considered the birth of AI as a formal field. Another pioneer, Marvin Minsky, who also attended the Dartmouth Conference, later established the MIT AI Lab, contributing extensively to the development of symbolic AI, which attempted to replicate human intelligence through predefined rules and logic (Russell and Norvig, 2010).

The Advent of Machine Learning and Neural Networks

Despite the early promise, AI faced significant challenges, such as the limitations of processing power and the complexity of human cognition. The field experienced periods of reduced funding and interest, known as "AI winters," during the late 1970s and again in the late 1980s. However, the 1980s also saw pivotal advancements in machine learning, notably through the reinvigoration of neural networks by researchers like Geoffrey Hinton. Hinton's work on backpropagation in neural networks during the 1980s laid critical groundwork for training algorithms that could adjust themselves in response to the accuracy of their predictions (Hinton, 1986).

Breakthroughs in Deep Learning and Modern AI

The resurgence of AI in the 21st century has been characterized by significant breakthroughs in deep learning, a subset of machine learning. Yann LeCun's application of convolutional neural networks for image recognition tasks dramatically enhanced the ability of machines to process and interpret visual data (LeCun et al., 1998). This period also saw AI begin to outperform humans in complex cognitive tasks, such as playing the game of Go, where Demis Hassabis's AlphaGo program defeated world champion Lee Sedol in 2016, a feat that underscored the advanced strategic capabilities of AI (Silver et al., 2016).

The Era of Large Language Models

The development of large language models like GPT by OpenAI represents the latest phase in AI's evolution, where machines can generate coherent and contextually relevant text based on vast amounts of training data. These models, built on the transformer architecture introduced by Vaswani et al. in their 2017 paper "Attention is All You Need," mark a significant advancement in natural language processing (Vaswani et al., 2017). Large language models have revolutionized chatbots, enabling more nuanced and human-like interactions.

Ethical Considerations and Future Challenges

The rapid development of AI has not been without its challenges and ethical concerns. Issues such as data privacy, algorithmic bias, and the socio-economic impacts of automation have sparked intense debate. As AI technologies become more pervasive, addressing these ethical considerations is increasingly urgent.

Conclusion

From Turing's initial conceptualization to the development of today's advanced AI chatbots, the field of artificial intelligence has undergone significant transformations. Each key figure and technological breakthrough has contributed to the profound capabilities of modern AI systems, while also presenting new challenges that must be navigated with careful consideration. As AI continues to evolve, the legacy of these pioneers and the ongoing commitment to ethical technology will play crucial roles in shaping the future of this dynamic field.

This exploration of AI's development not only highlights the field's rich history but also underscores the complexities and ethical dilemmas that accompany technological advancement. As such, AI remains a field defined as much by its potential for innovation as by the profound questions it raises about the relationship between human and machine.

Reflections on revised Chat.GPT 4.0 paper:

In comparison to the first response, this one is a little worse. Some of the information that it included in the first response was removed, albeit was removed in place of information that was specifically asked for. Therefore, the program is running into an issue with the lack of a specific amount of length I'm looking for, so I will try to add a word count in order to give the system more direction. The response also still is not in essay format, even though I specifically asked for it to do so. Therefore, in the next submission I will elaborate on how I want the information to be presented, instead of just telling it to put it in paragraph and essay format. Moreover, I'll tell the chat bot what information I specifically want. The response also used a decent amount of primary sources as citations for information, which is interesting, but I would also like to see more secondary sources as citations. The citations it provided, are also problematic as they just cited the information in Chicago Style, but didn't provide a bibliography or a way to see where the information was accessed from online. This makes it harder to fact check the information, so in the next submission I will specifically ask it to include a bibliography.

Revised Prompt #3: Describe the development of artificial intelligence from Turing to large language model chatbots in an essay format (750 words), including key figures throughout the history of the digital revolution and their accomplishments towards artificial intelligence. Include citations in the Chicago Manual of Style. Elaborate more on how AI was conceived and any issues that needed to be overcome. Include more citations and a bibliography for the sources cited.

The evolution of artificial intelligence (AI) has been a journey of ambition, innovation, and discovery, driven by the intellectual contributions of key figures throughout the history of the digital revolution. This essay explores the development of AI from the theoretical groundwork laid by Alan Turing to the advanced large language model chatbots of today, examining the crucial breakthroughs and the persistent challenges that have characterized this journey.

Turing's Theoretical Foundations

The inception of AI can be traced back to the mid-20th century when Alan Turing published his seminal paper, "Computing Machinery and Intelligence" (1950), introducing the concept of a machine that could simulate human thought processes and proposing what is now known as the Turing Test. This test, which assesses a machine's ability to exhibit intelligent behavior indistinguishable from that of a human, has become a foundational concept in AI (Turing 1950).

Early Pioneers and Developments

Following Turing's theoretical propositions, the 1950s and 1960s saw a burst of activity in what would formally become known as artificial intelligence. John McCarthy, who coined the term "artificial intelligence" in 1955, also organized the Dartmouth Conference in 1956, which catalyzed AI research and attracted figures like Marvin Minsky, who later co-founded the MIT Artificial Intelligence Project (McCarthy et al. 2006; Minsky 1961). This era focused heavily on symbolic AI, which involved programming computers to mimic human reasoning through predefined rules.

Challenges and the AI Winters

Despite early optimism, the AI field encountered significant hurdles, primarily due to the limitations of existing technology and the complexity of human cognition. These challenges led to periods known as "AI winters," the first in the mid-1970s and the second in the late 1980s, during which funding and interest in AI research significantly waned (Crevier 1993).

The Revival Through Machine Learning

The 1980s marked a pivotal shift with the resurgence of interest in neural networks, thanks to researchers like Geoffrey Hinton, whose work on backpropagation enabled practical training of neural networks (Hinton and Salakhutdinov 2006). This period laid the groundwork for machine learning, which would eventually lead to more robust models capable of learning from data without explicit programming.

Deep Learning and Beyond

The introduction of deep learning in the 2000s, particularly through the work of Yann LeCun on convolutional neural networks for image recognition, dramatically expanded AI capabilities (LeCun et al. 1998). This was

further propelled by the achievements of deep learning in a variety of domains, including natural language processing and strategic game playing, exemplified by DeepMind's AlphaGo (Silver et al. 2016).

The Era of Large Language Models

The development of transformer architectures by Vaswani et al. (2017) and the subsequent creation of large language models like OpenAI's GPT series have revolutionized natural language processing, enabling machines to generate coherent and contextually relevant text. These models are now at the forefront of AI, driving the capabilities of chatbots and other AI applications to new heights (Vaswani et al. 2017).

Ethical Considerations

The rapid advancements in AI have also brought to light numerous ethical and societal challenges, such as data privacy, algorithmic bias, and the socio-economic impacts of automation. These issues underscore the need for careful consideration and regulation as AI technologies become increasingly embedded in daily life (Bostrom and Yudkowsky 2014).

Conclusion

From Turing's initial speculations to today's sophisticated AI systems, the field of artificial intelligence has grown into a vital area of technological innovation. While the journey has been marked by significant achievements, it has also faced numerous challenges that have tested the resilience and ingenuity of the research community. Looking forward, the continued development of AI promises to both challenge and enhance our understanding of intelligence itself.

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Reflections on the third response:

Even when specifically asked again to use an essay format, Chat GPT 4.0 continues to generate the information in individual paragraph formats, with bold headers. Granted, one could always just remove the headers and clean up the presentation to submit it as a paper; however, since it fails to do so when specifically asked three times, this appears to be a shortcoming of the most recent AI model. Additionally, it removed some of the details that were included in the prior response, in exchange for less in depth responses in some parts. When asked for specific topics and details, the Chat Bot did not really provide a more in depth analysis on the requested topics, only adding a little more information or rewriting it, but saying the same thing. However, the program successfully responded to the specific request for more citations and a bibliography.

Although it's very impressive the way this AI model operates, with the amount of information it has the ability to access and the high levels of intelligence it shows, the paper it produced is still mediocre. The way the paper was written is of poor quality, and is not even in an essay format. This would be very helpful for finding sources, gathering information, or looking for a starting point on an assignment; but, I don't believe this would work too well for doing assignments and other graded or important work, because it presents the information in a timeline, notes taking format.

Comparisons between 3.5 and 4.0 models:

When comparing the papers of the 3.5 and the 4.0 Chat.GPT models, it was very clear that the quality between the two models was not that different, and in our opinions, does not warrant the premium subscription to access. First, the 4.0 model would persistently include headings between each paragraph despite repeatedly specifying in the prompt that we wanted our paper in "essay format". This was interesting, as the 3.5 model succinctly divided the paper into paragraph format without the necessary prompting. Furthermore, the 4.0 model used many of the same sources as the 3.5 model, which shows no improvement despite the necessary premium subscription. Furthermore, just like the 3.5 model, the 4.0

model also included a warning on the future “challenges” of artificial intelligence without being prompted to do so. In our opinions, the 4.0 model has no real upgrades over the 3.5 model in terms of its essay writing abilities. The work both programs produced was of equal quality for the information it gathered, and when it came down to formulating the essay itself, 3.5 actually even did better. The only real features of 4.0 that seems to be a serious upgrade from 3.5, are the data analysis feature and its ability to analyze images. 3.5 is able to handle math inputs, but 4.0 now has a specialized program for it, which is far superior. Moreover, in 4.0 you can analyze inputs of photos such as graphs or charts. However, when it comes down to producing something such as this assignment, it wouldn't be worth paying the upgrade cost for 4.0.