

# **AI: State of The Union Address**

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## First Answer to Prompt

The journey from the seeds of AI planted by Alan Turing to the sophisticated chatbots we interact with today is a fascinating tale of ambition, setbacks, and remarkable progress. Here's a glimpse into this historical landscape:

### 1. The Seeds of AI: Alan Turing and the Turing Test (1950s)

- Turing's vision: The legendary mathematician Alan Turing is considered a pioneer in AI. He proposed the "Turing Test" in 1950, a test where a machine would converse with a human and pass if the human couldn't reliably distinguish it from another human. This test became a benchmark for measuring a machine's intelligence.

### 2. Early Steps and Challenges (1950s-1970s)

- Initial optimism: Following Turing's work, the 1950s and 60s saw a surge of optimism in AI research. Programs like the ELIZA chatbot, which mimicked Rogerian psychotherapy, displayed a basic understanding of human language.
- The "AI Winter": However, limitations in computing power and the complexity of replicating human intelligence led to funding cuts and a period known as the "AI Winter" in the 1970s.

### 3. Resurgence and Advancements (1980s-2000s)

- Expert systems and machine learning: The 1980s saw a comeback with the development of "expert systems" proficient in specific domains. This period also witnessed significant advancements in machine learning, where algorithms learn from data without being explicitly programmed.
- The rise of deep learning: The invention of the Perceptron in the 1950s laid the groundwork for "deep learning," which utilizes multi-layered artificial neural networks loosely inspired by the human brain. This approach gained significant traction in the late 20th century, leading to breakthroughs in various AI fields.

### 4. The Age of Large Language Models (2010s-present)

- Explosion of data and computing power: The 21st century witnessed an explosion in data availability and computing power, fueling the development of large language models (LLMs). These complex algorithms are trained on massive datasets of text and code, enabling them to generate human-quality text, translate languages, write different kinds of creative content, and answer your questions in an informative way, just like I am doing now!

### 5. The Road Ahead

- While LLMs like me represent a significant leap forward, the quest to achieve true artificial intelligence, as envisioned by Turing and others, remains ongoing. Research continues to explore areas like artificial general intelligence (AGI), aiming to create machines with human-level intelligence across various domains. The development of AI holds immense potential for various sectors, but ethical considerations and responsible development remain crucial aspects of this ongoing journey.

## **Improvements**

After receiving Gemini's first response, I had many different improvements I wanted to make. First, I asked Gemini to “make it more of an essay style with an introduction, conclusion, topic sentences, and body paragraphs.” In response, I did receive an essay; however, the essay was extremely simplified. The essay only focused on Turing’s work and did not speak at all about the opposition to Turing and Artificial intelligence.

Turing believed that machines could be able to think. Turing was in opposition to Ada Lovelace’s objection that while computers had endless potential, they could not be truly intelligent. The debate surrounding artificial intelligence, machines’ ability to think, and the importance of augmented intelligence is central to the overall development of AI. Augmented intelligence focuses on increasing the relationship between humans and computers, while artificial intelligence is focused on computers taking over or replacing humans. As a result, the next prompt I gave Gemini was to “rewrite this time including a section on augmented intelligence and Ada Lovelace's objection.” In response, Gemini gave me an essay that focused on the challenges of artificial intelligence, with the central challenge being whether computers can go beyond processing information and fully achieve creativity and understanding.

Even though the essay did start to focus on the challenges to Turing and the overall debate affecting artificial intelligence, I still found the essay to be fairly limited. I did not see enough of the debate against Turing. I wanted the essay to talk about the imitation game and the ethical dilemmas that individuals brought up in response to the game and Turing. In response, I inserted this prompt into Gemini: “Lengthen the essay by speaking more about Alan Turing, the debate against Turing, the imitation game, and the ethical dilemmas associated with artificial intelligence.” The response to the prompt gave a lot of information about the ethical debate and Turing in general. The essay spoke to the consequences of the Turing Test and critics' responses. Gemini even included information on counter games to show the insufficiency of Turing’s imitation game.

Although the essay did provide more information about Turing and the ethical debate, it lacked substance about the actual development of artificial intelligence. Artificial intelligence would never have been possible without the development of early computers, and computers would not have been possible without the invention of video games. Video games played a critical role in the development of computers. The computer industry was built out

of the video game industry, as the creation of video games gave people the ability to interact with their monitors in real-time. I wanted the essay to focus on the impact that video games and early computers had on the development of AI. I really wanted my final product to emphasize how inventions come directly from other developments, illustrating that not one single creation or person is responsible for the creation of AI. As a result, I inserted the prompt “rewrite, and this time includes the history of video games, the history of computers, The ENIAC, the ENIAC six, and all of their contributions to the start of AI” into Gemini.

The essay that Gemini gave back incorporated the invention of video games, specifically pong, and early computers and their impact on the development of artificial intelligence. The essay spoke about the ENIAC and even included details on how the ENIAC six played a crucial role in programming the first general-use electric computer. However, I realized that adding these components to the essay led Gemini to cut down on aspects of Turing and Augmented intelligence. The essay puts less emphasis on the ethical dilemma associated with AI. In response, I asked Gemini to lengthen the essay with a greater focus on Turing and augmented intelligence, but I realized that by asking Gemini this, it cut back on information about development. I tried to highlight paragraphs and press lengthen, I tried to tell Gemini to extend to a certain amount of words, and I asked Gemini for more details. However, no matter what I tried, I could not get Gemini to extend the essay to the length I desired.

I decided to move what I had into Chat GPT. I was hopeful that Chat GPT might give me a longer answer. However, Chat GPT did not lengthen the essay. Moreover, I did not like the formatting or the wording of the essay that Chat GPT gave. I also realized that even when I asked Chat GPT to favor augmented intelligence over artificial intelligence, it would not take as stern an opinion as Gemini. I decided to take the essay from Chat GPT and insert it back into Gemini to see if doing this may lead to a longer answer. I then asked Gemini to edit the essay from Chat GPT. Gemini gave me an essay that focused on the aspects I thought were important. However, everything in the essay was simplified, and the essay was still not to the length I had hoped. I felt stuck because I could not figure out how to make the essay longer.

While sitting in class, a fellow classmate said that he asked Gemini for an outline and then took each part of the outline one by one and asked Gemini to write an essay on it. In the end, he combined the various parts that Gemini gave him and created a more extended essay. Instead of doing this with an outline, I took each paragraph from the essay Gemini gave me one by one and asked for an essay for each part. I then put each part into a Google Drive and added transition words to create a united essay. I ended up with a really extensive and in-depth essay, including all of the aspects I found essential to the overall development of AI.

However, I found the essay boring. The essay did not have any exciting aspects. The essay was just a simple writing piece about the development of AI and the ethical dilemmas. I thought of different things I could add or change to make the essay more interesting. I asked Gemini to make the essay funnier. However, I found the result to be a little strange, and I did

not thoroughly enjoy the humor. I then asked Gemini to write from a few different perspectives. First, I asked Gemini to write from the perspective of Shonda Rhimes as Shonda Rhimes is one of my favorite TV showwriters from Grey's Anatomy to Scandal. I really enjoyed reading the result, as Gemini used many of Shonda Rhimes' characters from her shows as examples. However, I did not feel sufficient with the result. I thought that the TV references may take away from the overall development of artificial intelligence and the important ethical debates. I then asked Gemini to write as several different politicians and historians, but I found many of the responses either lacked important pieces or were disconnected from the idea of the paper.

Then, on March 7th, I was watching Joe Biden's State of the Union Address. I thought to myself, what would the paper sound like as a State of the Union address? I asked Gemini to break down the different components of my essay into an outline for a State of the Union address. I took the first component and said to start writing this as a State of the Union Address, and then I took each succeeding component of the outline and said to continue the State of the Union Address using that outline element. I then added my opinion that augmented intelligence is extremely important and that replacing humans is not the way to progress. I added aspects about augmented intelligence, Alan Turing, and the overall ethical dilemmas. I really emphasized the importance of ethics and ethical standards in the development and future progress of AI. I also added the fear of job displacement as well as the importance of training and education in increasing the connection between humans and machines. I really stressed to Gemini that I wanted the State of the Union Address to account for peoples' fears towards artificial intelligence while emphasizing the positive impacts that augmented intelligence could have for the future of the country - from healthcare to education to daily life.

I ended with a substantially long State of the Union Address focused on the invention of AI, the challenges, and the ethical dilemmas. My address highlighted the importance of early computers and video games in the creation of AI. The address also focused on the ethical dilemmas with an emphasis on Alan Turing's Turing Test and counters to that test. The address also emphasized the importance of augmented intelligence and increasing the connection between humans and machines. My favorite aspect of the address is that it gives examples of future work between humans and computers. The address highlights how AI can be used not to replace doctors, firefighters, and other occupations but to help them. The address gives the example that AI can be used to help firefighters find the safest entrances and exits during a fire. I found this example so interesting and important in highlighting how augmented intelligence can be used not to replace humans but instead to improve the world that we live in.

Even though I was pleased with the product Gemini gave me, I did notice a good amount of grammatical issues. There were a lot of areas where Gemini inserted a comma where a comma was not needed. I also noticed areas where Gemini did not put a comma where one was needed to prevent a run-on sentence. Another grammatical error I noticed was a lack of apostrophes. Many words that required apostrophes did not have them. I went

through the paper several times to fix the grammatical errors that Gemini had made to clean up the final product and end with one that I was happy with.

Prior to working on this paper, I had barely worked with artificial intelligence. So, when I first began working on the paper, I wanted to test out different AI models. I tried out Gemini, Chat GPT, Claude, and Amazon's Rufus. I gravitated the most towards Gemini. Gemini took more opinions, added more details to the answers, and responded to my prompts the best. Even though I did like Gemini the best, I will continue to mix up my use across different AI models in my future work to see how the different types develop and change as they become more prevalent. I am very grateful to have had the opportunity to work on this research paper. I strongly believe that working with different AI models has allowed me to gain important skills. The increased intersection between students and artificial intelligence in the classroom is essential in achieving augmented intelligence and allowing new developments to have positive impacts on the world.

## Final Product

My fellow Americans,

Look around you. In your pockets, on your desks, even on your wrists – artificial intelligence is woven into the fabric of our daily lives. The virtual assistants anticipating your needs on your phones, the algorithms curating your social media feeds, and the recommendations influencing your online purchases – these are all testaments to the ever-growing presence of AI.

However, the impact of AI extends far beyond the realm of consumer convenience. Imagine a future where **AI-powered tools assist doctors in early disease detection**, enabling them to save even more lives. Picture a world where AI algorithms streamline financial analysis, ensuring fairer and more secure markets. Envision a day where self-driving cars, guided by intricate AI systems, navigate our roads with unparalleled precision, reducing accidents and saving countless lives.

The potential benefits of AI are vast and transformative. However, with such immense power comes a profound responsibility. As AI becomes more sophisticated, blurring the lines between machine and human capabilities, we must **confront crucial ethical questions**. Bias embedded in algorithms can **perpetuate social inequalities**. Automation fueled by AI has the potential to **displace millions from their jobs**. And perhaps the most fundamental question of all – **can machines ever truly achieve consciousness?**

These are not issues we can afford to ignore. It's imperative that we address these challenges head-on. We must develop robust **ethical frameworks** to guide the responsible development

and deployment of AI. We need clear and transparent guidelines to ensure fairness and accountability within these algorithms.

Equally important is investing in our workforce. We must equip our citizens with the skills necessary to thrive in an AI-driven future. Educational programs and job training initiatives will be crucial in ensuring that the benefits of AI are shared by all Americans, not just a select few.

But the story of AI is not one that began with smartphones. No, its roots lie much deeper (AI Grammar Mistake - removed comma) in the visionary mind of a man named Alan Turing. During World War II, while the fate of the free world hung in the balance, Turing, a brilliant mathematician, led a team that cracked the seemingly unbreakable Enigma code used by the Nazis. This wartime triumph not only saved countless lives (AI Grammar Mistake - removed comma) but also laid the foundation for the field of artificial intelligence.

Turing, however, wasn't content with simply breaking codes. He envisioned a future where machines could be more than just tools – a future where they could actually think. This led him to propose the now-famous Turing Test, a thought experiment designed to assess a machine's ability to exhibit intelligent behavior equivalent to, or indistinguishable from, that of a human.

Imagine a scenario – you are having a conversation, but you don't know if you're talking to another person or a machine. If the machine can consistently fool you, then according to Turing, it can be considered intelligent. The Turing Test sparked a firestorm of debate. While some saw it as a landmark achievement, others questioned its limitations. Could a machine truly understand the nuances of human conversation (AI Grammar Mistake - added comma), or was it simply mimicking human responses? These questions remain relevant today as we continue to push the boundaries of artificial intelligence.

The journey of AI is one of remarkable innovation, but it's also a journey that demands thoughtful consideration. In the coming parts of this address, we will explore the ethical dilemmas surrounding AI, the ongoing debates about its capabilities, and the steps we must take to ensure that this powerful technology serves the greater good.

As we delve deeper into the story of artificial intelligence, it's important to understand the foundation upon which it was built. The journey from Turing's groundbreaking ideas to the sophisticated AI applications of today wouldn't have been possible without the remarkable advancements in computing technology.

For centuries, calculations were performed by hand or with the aid of rudimentary mechanical devices. The invention of the abacus, for example, marked an early step in simplifying complex calculations. However, the true turning point came with the development of programmable machines, devices that could follow a set of instructions to perform specific tasks. From the intricate clockwork mechanisms of Charles Babbage's

**Analytical Engine to the punch card-operated tabulators** used in the early 20th century, each innovation paved the way for the revolutionary machine that would change everything – the Electronic Numerical Integrator and Computer, or **ENIAC**.

Completed in 1945, the ENIAC was a marvel of engineering – the first electronic **general-purpose computer**. Now, the term "general-purpose" might seem like an understatement by today's standards. The ENIAC was massive, filling an entire room and weighing over 30 tons. Programming it was a cumbersome task, requiring the manipulation of thousands of cables and switches. Yet, for its time, the ENIAC represented an astonishing leap forward. It could perform complex calculations at speeds far exceeding any previous machine, paving the way for advancements in fields ranging from engineering and physics to cryptography and, yes, even artificial intelligence.

While the ENIAC's limitations were considerable, its **significance cannot be overstated**. It was the first step on the path to the compact, powerful computers that power the AI revolution we see today. In the next part of this address, we'll explore how the capabilities of AI have evolved alongside those of computers, and the ethical considerations that must guide this ongoing development.

**As we've seen**, the journey of AI began with the visionary ideas of Alan Turing and the groundbreaking capabilities of the ENIAC. However, the road to true machine intelligence has been paved with not only innovation but also with **debate**.

Some, like philosopher John Searle, have **challenged the very notion of machines achieving true intelligence**. His "Chinese Room" thought experiment posits a scenario where a person with no knowledge of Chinese follows a set of rules to manipulate symbols, mimicking a conversation in Chinese. Searle argues that even though the person might appear intelligent from the outside, they wouldn't actually understand the meaning of the symbols. This challenges the idea of AI simply mimicking human behavior as true intelligence.

The debate around AI capabilities **extends beyond philosophical discussions**. **Video games**, a beloved form of entertainment, have also become a surprising battleground for pushing the boundaries of AI. Early video game enemies were pre-programmed, responding to player actions in a predictable manner. However, today's games often feature complex AI that can adapt their strategies, learn from player behavior, and even exhibit a level of creativity in their tactics. These advancements, while exciting for the gaming world, also raise questions about how close AI might be to achieving true understanding and independent thought.

The questions surrounding the nature of machine intelligence are **complex and ongoing**. Yet, one thing is clear: AI is evolving at an astonishing pace. In the next part of this address, we'll explore how this evolution has led to the practical applications of AI that are transforming our world and the ethical considerations that must accompany this progress.

As we've witnessed, the pursuit of artificial intelligence has been a journey of both imagination and innovation. Now, let's turn our attention to the exciting present, where AI is no longer confined to theoretical discussions or laboratory experiments. Today, AI is making a tangible impact on our lives through a range of practical applications.

At the heart of this revolution lies a technology known as Large Language Models, or LLMs. Imagine vast digital libraries containing mountains of text and code. LLMs are trained on these colossal datasets, allowing them to absorb and understand the nuances of human language. These "learned" capabilities are then harnessed to power chatbots – sophisticated computer programs that can engage in conversation with humans.

The chatbots of today are far removed from the stilted, pre-programmed interactions of the past. Powered by LLMs, they can understand complex questions, respond in a natural and engaging way, and even learn from each interaction. This has opened doors to a multitude of **real-world applications.**

In the realm of customer service, chatbots can now handle routine inquiries, freeing up human representatives for more complex issues. Imagine a world where your bank questions can be answered 24/7 by a helpful AI assistant. The field of education is also embracing AI, with chatbots acting as virtual tutors, providing personalized learning experiences **(AI Grammar Mistake - added comma)**, and answering student questions on demand.

The potential applications of AI extend far beyond these examples. Imagine chatbots providing companionship to the elderly or **assisting healthcare professionals in streamlining patient communication.** The possibilities are truly boundless. However, with such power comes responsibility. In the next part of this address, we'll delve into the ethical considerations that must guide the development and deployment of AI to ensure this technology benefits all Americans.

Fellow Americans, the story of AI is one of remarkable progress, but it's a story that isn't without its **challenges.** As we embrace the potential of AI to revolutionize our world, we must also confront the ethical dilemmas that accompany this powerful technology.

One major concern lies in the **potential for bias** within AI algorithms. These algorithms are trained on massive datasets, and if those datasets reflect societal biases, they can perpetuate those inequalities. Imagine a loan application system that unintentionally discriminates against certain demographics due to historical biases in lending practices. This is a very real possibility and one that demands careful consideration as we develop and deploy AI systems.

Another significant concern is the **potential for job displacement.** As AI automates tasks once performed by humans, millions of jobs could be lost. While AI may create new opportunities, we must ensure that our workforce is equipped with the skills needed to thrive in this evolving landscape.

Furthermore, as AI becomes more sophisticated, the question of machine sentience arises. **Can machines ever truly feel emotions or possess consciousness?** While this remains a complex scientific debate, the very notion blurs the lines between human and machine, raising ethical questions about how we interact with and utilize AI.

Take, for example, the development of self-driving cars. These vehicles rely heavily on AI algorithms for navigation and decision-making. In the unfortunate event of an accident, who is responsible – the programmer, the car manufacturer, or the AI itself? These are the types of ethical quandaries we must address as we integrate AI into increasingly complex systems.

The good news is that these challenges are not insurmountable. There are ongoing discussions about developing ethical frameworks for AI development and use. These frameworks aim to ensure that AI is deployed in a fair, transparent, and accountable manner.

As a nation, we must embrace responsible AI development. This means investing in research to mitigate bias, preparing our workforce for the future, and fostering open discussions about the ethical implications of this technology.

By working together, we can ensure that AI serves as a powerful tool for progress – a tool that unlocks a future brimming with innovation and opportunity for all Americans.

The incredible journey of AI doesn't end with chatbots and self-driving cars. **The future holds even more exciting possibilities, a future where humans and machines work together in a powerful partnership – a future of augmented intelligence.**

Imagine a doctor performing surgery, not alone, but with the assistance of an AI system that can instantly analyze patient data and suggest optimal treatment options. Picture a firefighter navigating a burning building, guided by an AI that can identify the safest escape routes through smoke and heat. **This is the promise of augmented intelligence – AI not replacing human capability (AI Grammar Mistake - removed comma) but augmenting it, enhancing it, and pushing the boundaries of what we can achieve together.**

Some may fear that AI will eventually render us obsolete. **But the truth is, the human mind, with its creativity, empathy, and problem-solving skills, is irreplaceable.** Augmented intelligence leverages the strengths of both humans and machines – the machine's unparalleled processing power and the human's unique ability to think critically, adapt, and make ethical judgments. **This potent combination will propel us toward a future of unimaginable innovation and progress.**

However, building this future of augmented intelligence requires a commitment to responsible AI development. The ethical considerations we discussed earlier remain paramount – ensuring fairness, transparency, and accountability in AI systems. We must also invest in education and training programs to equip our workforce with the skills needed to thrive in this new era of human-machine collaboration.

By embracing augmented intelligence, we can unlock a future brimming with possibilities. Imagine scientists tackling global challenges like climate change with the combined power of human ingenuity and AI's ability to analyze vast datasets. Envision artists and creators pushing the boundaries of their craft with the help of AI tools that can generate new ideas and inspire fresh perspectives. The potential for positive change is limitless.

Let us not shy away from the challenges that lie ahead. The ethical development and responsible deployment of AI is crucial. But let us also approach this future with optimism and a sense of shared purpose. By harnessing the power of augmented intelligence, we can build a tomorrow where humans and machines work together, not as rivals, but as partners in progress, creating a brighter future for generations to come.

In closing, my fellow Americans, let us reflect on the remarkable journey of artificial intelligence. From the visionary ideas of Alan Turing to the groundbreaking capabilities of large language models, AI has evolved from a theoretical concept to a powerful force shaping our present. Today, AI assists us in our daily lives, from answering our questions to streamlining our tasks. Looking ahead, the potential for AI to revolutionize fields like healthcare, transportation, and even artistic expression is truly boundless.

However, as we embrace these possibilities, we must remain vigilant about the ethical considerations. We must ensure fairness in AI algorithms, prepare our workforce for a changing landscape, and foster open discussions about the role of AI in society. The future of AI is not predetermined. It lies in our hands – in our commitment to responsible development and ethical deployment.

Let us approach this future with optimism and a sense of shared purpose. By harnessing the power of AI in collaboration with human ingenuity, we can create a world brimming with innovation, opportunity, and progress. Together, we can ensure that AI serves as a powerful tool for good, not just for some but for all Americans.

May this spirit of collaboration guide us as we embark on this exciting new chapter. Thank you, God bless you, and God bless the United States of America.

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