

# Should AI Technologies Replace the Human Jobs?

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**Abstract**— AI (Artificial Intelligence) technologies are a broad category of computer science techniques that enable machines to perform tasks that would normally require human intelligence, such as understanding natural language, recognizing images, making decisions, and solving problems. Chatbots are a specific type of AI technology that is designed to communicate with humans in a natural, conversational way using text or voice input. Chatbots are often used in customer service and support to provide quick and convenient assistance to users. GBT (Gradient Boosting Trees) is an ensemble learning method that uses a set of decision trees to make predictions. It is a popular method for a variety of machine-learning tasks, including classification and regression. GBT is often used in combination with other AI technologies to improve the accuracy of predictions and decision-making. In this paper, we are focusing on the chat gbt and Dalle-2. Should AI will replace the human job? In the future, how much progress we can see in this field?

**Keywords**—Artificial Intelligence, techniques, chatbot, chat gbt, prediction, classification.

## I. INTRODUCTION

AI (Artificial Intelligence) is the simulation of human intelligence in machines that are programmed to think and act like humans. These intelligent machines can be trained to perform various tasks by processing large amounts of data and recognizing patterns in the data. AI can be used to perform tasks that are typically done by humans, such as language translation, image and speech recognition, decision-making, and problem-solving. There are different types of AI, including narrow or weak AI, which is designed to perform a specific task, and general or strong AI, which is designed to be capable of performing any intellectual task that a human

The concept of artificial intelligence (AI) has been around for centuries, but it wasn't until the 1950s that the term "artificial intelligence" was coined. In the early days of AI research, scientists focused on developing programs that could perform specific tasks, such as playing chess or solving mathematical equations. One of the first chatbots was developed in 1966 by MIT professor Joseph Weizenbaum. The chatbot, called ELIZA, was designed to simulate conversation with a human by using pattern matching and substitution techniques to generate responses to user input. Since then, chatbots and other AI tools have become increasingly sophisticated, with the ability to hold more natural and engaging conversations with users. Today,

chatbots are used in a variety of applications, including customer service, online education, and e-commerce.

1966: The first chatbot, ELIZA, is developed by MIT professor Joseph Weizenbaum. ELIZA used pattern matching and substitution techniques to generate responses to user input.

1980s: Chatbots become more sophisticated, with the ability to hold conversations on a limited range of topics.

1990s: Chatbots become more widespread, with the development of chatbot technologies for use on the internet and on messaging platforms.

2010s: The use of chatbots becomes more prevalent, with the rise of messaging apps and the increased availability of chatbot-building platforms.

Today: Chatbots are used in a wide range of applications, including customer service, online education, and e-commerce. They are also becoming increasingly sophisticated, with the ability to hold more natural and engaging conversations with users. Google, Microsoft, and IBM are all technology companies that have developed artificial intelligence (AI) chatbots. Here is a brief overview of some of the AI chatbots developed by each company:

**Google:** Google has developed a number of AI chatbots, including Google Assistant, which is a virtual assistant that can help users with tasks such as setting reminders, making phone calls, and answering questions. Google also developed Allo, a messaging app that includes a chatbot feature called "Smart Reply," which uses AI to suggest responses to messages.

**Microsoft:** Microsoft has developed a number of AI chatbots, including Cortana, which is a virtual assistant that can help users with tasks such as setting reminders, making phone calls, and answering questions. Microsoft also developed Xiaoice, a chatbot that is available in China and can hold conversations on a wide range of topics.

**IBM:** IBM has developed a number of AI chatbots, including Watson Assistant, which is a chatbot platform that allows businesses to build and deploy chatbots for customer service and other applications. IBM also developed an AI chatbot called Jeopardy!, which was designed to compete on the television game show of the same name.

GPT, or Generative Pre-training Transformer, is a type of artificial intelligence (AI) system developed by OpenAI. It is

a language model that uses deep learning techniques to generate human-like text. GPT works by pre-training a large neural network on a large dataset of text and then fine-tuning it for specific tasks, such as translation or summarization. It is able to generate text that is highly coherent and reads like it was written by a human, making it useful for a variety of applications, including chatbots and other language-based AI systems.

GPT has been used to create a number of AI systems, including the GPT-2 language model, which is capable of generating human-like text on a wide range of topics.

GPT, or Generative Pre-training Transformer, is a type of artificial intelligence (AI) system developed by OpenAI that can generate human-like text. It is not itself a chatbot, but it can be used to build chatbots and other language-based AI systems. A chatbot is a computer program designed to simulate conversation with human users, often over the internet or other messaging platforms. Chatbots can be built using a variety of techniques, including rule-based systems and machine learning, and they are used in a variety of applications, such as customer service and online education.

GPT could potentially be used to build a chatbot by training it on a dataset of conversational text and then fine-tuning it for the specific task of holding a conversation with a human user. However, GPT is just one of many tools that could be used to build a chatbot, and there are many other approaches to building chatbots as well.

## II. FUTURISTIC APPLICATIONS OF AI

### A. CHATGPT

Text generation using artificial intelligence (AI) techniques involves using machine learning algorithms to generate coherent and appropriate text based on a given input or prompt. This can be accomplished using a variety of approaches, such as natural language processing (NLP), language modelling, and machine translation.

One common approach to text generation using AI is to use a neural network trained on a large dataset of text. The neural network is trained to predict the next word in a sequence based on the previous words, and can generate new text by repeatedly predicting the next word in the sequence.

Another approach is to use machine translation, in which a neural network is trained to translate text from one language to another. The neural network is trained on a large dataset of translated text, and can generate new translations by analysing the input text and using its knowledge of the target language to generate appropriate output text.

GPT-3 (Generative Pre-trained Transformer 3) is a large-scale language model developed by OpenAI that is capable of generating human-like text. It is trained on a diverse dataset of texts, including books, articles, and code repositories, and is able to generate a wide range of text types, including summaries, answers to questions, and translations.

In contrast to GPT-3, template-based models do not work independently and require intermediate steps to be performed by humans. However, they are useful for generating more structured texts, such as reports or documents, and can be useful in automating the production of these types of texts.

Overall, both GPT-3 and template-based models are useful approaches to text generation using AI techniques, and the choice of which one to use will depend on the specific requirements and goals of the application.

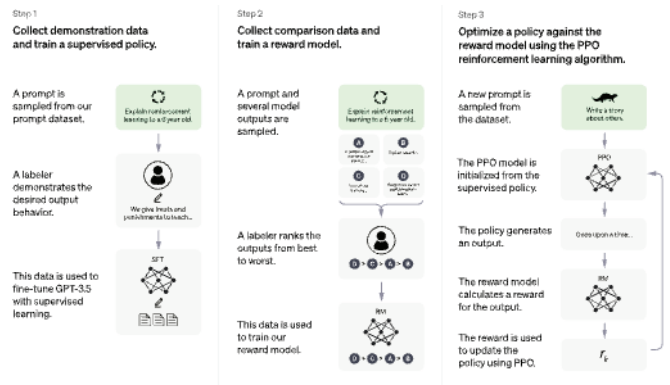


Fig. 1. Working of chatGPT as provided by openai

- AI techniques involved in dictation:

Natural language processing (NLP) is a field of artificial intelligence (AI) that focuses on enabling computers to understand, interpret, and generate human language. NLP involves the use of algorithms and machine learning techniques to process and analyze large amounts of natural language data, such as text and speech.

Some common applications of NLP include:

1. Text classification: NLP algorithms can be used to classify and categorize text documents based on their content or subject matter.
2. Sentiment analysis: NLP algorithms can be used to analyze text data to determine the sentiment or emotion behind it, such as whether it is positive, negative, or neutral.
3. Machine translation: NLP algorithms can be used to translate text from one language to another, allowing users to communicate with people who speak different languages.
4. Voice recognition: NLP algorithms can be used to transcribe and interpret spoken words, allowing users to interact with devices and systems using their voice.

### B. DALL E Image processing and manipulation

Image generation using artificial intelligence (AI) involves the use of machine learning algorithms to generate new images based on a given input or prompt. This can be accomplished using a variety of approaches, such as generative adversarial networks (GANs), autoencoders, and style transfer.

GAN (generative adversarial network) One approach to image generation using AI is to use a generative adversarial network (GAN). A GAN consists of two neural networks, a generator and a discriminator, that are trained together to generate new images. The generator network generates an image, and the discriminator network determines whether the image is real or fake. The generator network improves over time by learning from the feedback provided by the discriminator network.

Generative adversarial networks (GANs) are a type of artificial intelligence (AI) system that involves training two

neural networks, a generator and a discriminator, to work together to generate new, synthetic data. The generator network is trained to produce synthetic data that is similar to a training dataset, while the discriminator network is trained to distinguish between synthetic data produced by the generator and real data from the training dataset.

Here's how GANs work in detail:

- The generator network is initialized with random weights and biases and is given a random noise vector as input.
- The generator network uses the noise vector to generate synthetic data, such as an image or a piece of text.
- The synthetic data is fed into the discriminator network along with real data from the training dataset.
- The discriminator network is trained to determine whether the input data is real or synthetic. It does this by outputting a probability that the input data is real.
- The generator network is trained to improve its synthetic data generation by minimizing the probability that the discriminator network outputs for the synthetic data. The discriminator network is also trained to improve its ability to distinguish between real and synthetic data. This process is repeated until the generator network is able to generate synthetic data that is indistinguishable from real data, and the discriminator network is unable to differentiate between the two.

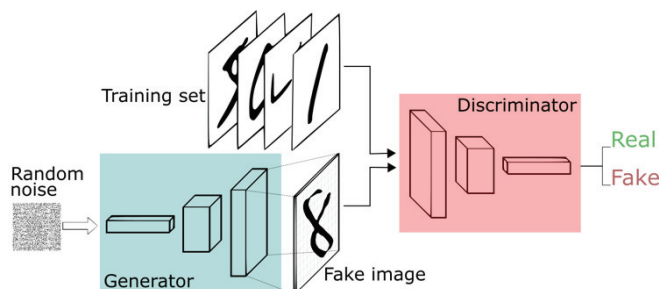


Fig. 2. Working of generative adversarial networks

Another approach is to use an autoencoder, which is a neural network trained to reconstruct an input image. An autoencoder can be used to generate new images by encoding an input image into a latent representation and then decoding the latent representation back into an output image. Autoencoders are a type of unsupervised machine learning algorithm that uses neural networks to learn a compressed representation of input data. The neural network is designed with a bottleneck that forces the data to be compressed, and the network is trained to reconstruct the original data from this compressed representation. If the input data has some structure or correlations between the features, the network can learn and utilize this structure to reconstruct the original data more accurately. Autoencoders are commonly used for tasks such as dimensionality reduction and data denoising.

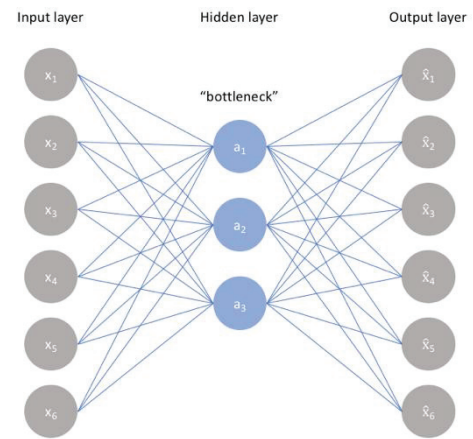


Fig. 3. Use of autoencoders in image processing

Style transfer is a technique for image generation using artificial intelligence (AI) in which the style of one image is applied to another image to create a new image that combines elements of both. This can be accomplished using a neural network trained to transfer the style of one image to another. There are several steps involved in style transfer using AI:

**Preprocessing:** The input images are typically resized and normalized to make them easier to process.

- **Feature extraction:** The neural network is used to extract the features of each input image, such as the colors, textures, and patterns.
- **Loss calculation:** The loss function is used to compare the extracted features of the two images and calculate how different they are.
- **Optimization:** The neural network is trained to minimize the loss between the two images by adjusting the style of the content image to match the style of the style image.
- **Output:** The optimized content image is generated, combining the content of the original content image with the style of the style image.



Fig. 4. illustration of style transfer source open ai

### III. LIMITATIONS OF CHATGPT AND DALL E

Limitations of chatGPT:

- There are several limitations to ChatGPT, a language model developed by OpenAI. One



limitation is that the model may sometimes provide incorrect or nonsensical answers, which can be difficult to fix due to the lack of a "ground truth" during reinforcement learning training and the potential for supervised training to mislead the model.

- Another limitation is that the model can be sensitive to small changes in the wording of a prompt and may give different responses to similar prompts. The model may also be excessively verbose and repeat certain phrases due to biases in the training data and over-optimization.
- Additionally, the model is not able to ask clarifying questions when a user's query is ambiguous, but instead must make an educated guess about what the user meant. Finally, while efforts have been made to prevent the model from responding to inappropriate or harmful requests, it may still exhibit biased behavior or respond to such requests unintentionally.
- The Moderation API is being used to identify and block potentially unsafe content, but it may have some false negatives and positives. We welcome user feedback to help us improve the system and address these limitations.

#### Limitations:

- It is uncertain whether DALL·E 2 is a flawless model at this time, as artificial intelligence and machine learning models are still evolving and improving. There is the possibility that incorrect data labelling could lead to false results, similar to a person learning the wrong word.
- Additionally, if DALL·E 2 is presented with text that it has not seen during training, it may attempt to generate similar results, but the output may not be accurate due to its lack of familiarity with the specific text. However, it is exciting to observe the progress and development of DALL·E 2 over time and to see how it can be applied to new areas using its existing knowledge.
- DALL-E 2 has experienced difficulties with certain types of images, such as faces and site plans or mazes, as well as with text. One specific issue is that the system is unable to process negations, leading to responses that contradict the input. For example, if the input is "A spaceship without an apple," DALL-E 2 will produce an image of a spaceship with an apple. Another limitation is that DALL-E 2 can only accurately represent and count up to four objects, with accuracy decreasing when trying to count higher numbers. It is worth noting that DALL-E 2 excels at representing and counting individual objects, such as two apples.
- The quality of the output generated by DALL-E can be influenced by the quality and specificity of the input provided. If the input is ambiguous or incomplete, the generated image may not fully capture the desired concept.

## IV. ADVANTAGES AND DISADVANTAGES

The advantages of Artificial intelligence applications & Tools are immense and can make far-reaching changes in any professional sector. Some of them are:

### A. Available round the clock

Nonstop and perpetual working is only capabilities of these AI tools & application as an average human can work for 6-8 hours a day excluding the breaks. Human should have weekly offed to manage personal life and even they get bored but unlike humans using AI we can make ongoing work round the clock.

For example Hospitals, Helpline centers, Online shopping companies and many more are getting many issues and queries resolved by AI effectively.

### B. Highly competent and efficient

AI can perform tasks faster and more accurately than humans. Humans make mistakes but computers do not make mistakes if they are programmed and trained properly. By gathering previous information and using set of algorithms AI takes decision, so reduction in error and degree of precision and accuracy increased.

Example: Weather Forecasting – using AI, predicting almost accurate weather.

### C. Takes risks and increased safety

This is one of unsurpassed advantage of AI. Human overcame many risky by inventing AI which takes risks instead of humans in dangerous environment where human is not safe such as nuclear power plant, mining for coal and oil, defusing a bomb, exploring the deepest of oceans and exploring space or mars.

Example: Using AI of GRU-AE, Light GRM and SHAP used in making a reliable intelligent assistant for nuclear power plants. The AEGIS, AI-based Mars rover, is already on mars.

### D. Digital assistance enhanced experiences and interactions

Many organizations and companies use digital assistants to interact with their customers and to provide the information and resolve their queries. Some chatbots or Voice bot designed which help customers and interact with them so enhanced customer experiences. Daily applications are used for searching a location, making phone calls, taking a selfie and many more.

Example: OK Google, Siri, and Cortana are used in our daily life. Chat GPT, a chatbot used by humans daily.

### E. Greater Productivity by helping in Repetitive jobs

While doing repetitive tasks human get bored and losses productivity. AI can handle and perform repetitive works, allowing human to focus on more creative, complex and impactful work.

Example: Using AI Banking or AI cognitive automation bank can speed up the verification process of documents in banks.

## Disadvantages of Artificial Intelligence:

With a lot of bright sides AI also has a darker version as it has some disadvantages. Some of disadvantages are:

### 1. Increasing rate of unemployment

Every organization is trying to replace the minimum qualified employees with AI robots to do majority of repetitive works which causing a major problem in the employment standards.

Example: Manufacturing robots, Automated financial investing and Marketing chatbots.

### 2. High Creation Cost

To keep up to date and to meet the latest requirements, AI needs to be updated every day, so the hardware and software should get updated and also needs maintenance and repairing which costs high. AI development and implementation is expensive which may make it cost-prohibitive for some organizations.

Example: The cost of health AI predicted to reach 6.6 billion Dollars.

### 3. Increasing dependency on technology and laziness

As we become more reliant on AI and its application automating work faster, we may become too dependent on technology and lose some of our problem-solving skills, critical thinking skills and hard-working habits. Humans are getting addicted to these AI and technologies so much that these can cause a problem to upcoming generations.

Example: Ok Google and Siri making us lazy and preventing us to think in our daily life.

### 4. Bias in data and have no Emotions

Team management, leadership, developing connection are essential skills only human can manifest as machines and AI system do not have the ability to feel empathy or understand the emotional states of others, which makes AI limited when require human-like emotional intelligence. AI can give output as good as the data input they are trained on. If the data is biased, the AI system will also be biased.

Example: Chatbot can manage and interact with customer but can not make team and interact with other company clients.

### 5. Lack of accountability and out of Box thinking

If something goes wrong or some error occurs with AI system, it becomes very difficult to determine and debug that error. AI can only do that much work on which they are trained on like human they never think out of box or anything more complex.

Example: Ok google gives irrelevant outputs on those tasks for which they are not designed or programmed.

## V. SHOULD AI REPLACE HUMAN JOBS?

Artificial intelligence (AI) has made tremendous strides in recent years and has the potential to revolutionize many industries. One question that has been raised is whether AI will eventually replace human jobs. This is a complex issue that raises ethical and social concerns, and there are strong arguments on both sides.

On the one hand, it is undeniable that AI has the potential to greatly improve efficiency and productivity in many fields. For example, in manufacturing, AI can perform tasks more quickly and accurately than humans, leading to increased output and lower costs. In the service industry, AI-powered chatbots and virtual assistants can handle customer inquiries and complaints, freeing up human employees to focus on more complex tasks. In fields such as medicine and finance, AI can analyze vast amounts of data to make more accurate predictions and diagnoses, potentially improving patient outcomes and investment returns.

However, the widespread adoption of AI in the workplace also raises concerns about the displacement of human workers. Many jobs that are currently performed by humans, particularly those that are repetitive or require little creativity, could potentially be automated using AI. This could lead to significant job losses, particularly in industries that are heavily reliant on such jobs. Moreover, the transition to an AI-dominated workforce could be difficult for many individuals, as they may need to retrain or acquire new skills in order to remain employable. This could lead to economic inequality and social unrest, as some people may struggle to adapt while others reap the benefits of the AI revolution.

Another concern is that AI could potentially be used to discriminate against certain groups of people. For example, if an AI system is trained on data that is biased against certain demographics, it could perpetuate and even amplify existing inequalities. This could be particularly problematic if AI is used to make important decisions, such as hiring or loan approvals, as it could reinforce and entrench existing biases.

Despite these concerns, it is worth noting that AI has the potential to create new job opportunities as well. As AI becomes more widespread, there will be a need for people to design, develop, and maintain the technology. Additionally, there will be a need for people to interpret and analyze the data that is generated by AI systems, as well as to develop strategies for using this data effectively. These new jobs will require specialized skills and knowledge, and could potentially be more highly paid than the jobs that are replaced by AI.

In conclusion, AI has the potential to greatly improve efficiency and productivity in many fields, but it also raises concerns about the displacement of human workers and the potential for discrimination. It is important to carefully consider these issues as AI becomes more prevalent in the workplace and to take steps to mitigate any negative consequences. This may involve training programs to help people acquire new skills, policies to ensure that AI is used ethically and transparently, and measures to support those who may be adversely affected by the adoption of AI. Ultimately, the decision of whether to use AI to replace human jobs should be based on a careful balance of the potential benefits and drawbacks.

## VI. CONCLUSION

On one hand, AI has the potential to automate many tasks that are currently performed by humans, which could lead to increased efficiency and productivity. This could ultimately result in the creation of new jobs that require higher levels of skill and expertise, as humans are able to focus on more complex and creative tasks. On the other hand, there is also the potential for AI to displace human workers, particularly

in industries where the tasks being performed are relatively simple or repetitive. This could lead to job loss and unemployment for some individuals, which could have negative consequences for society as a whole. Ultimately, the question of whether or not AI should replace human jobs will depend on a variety of factors, including the specific tasks being performed, the availability of new job opportunities, and the overall economic and social impact of AI adoption. It will be important for governments, businesses, and individuals to carefully consider these issues as AI continues to advance and become more prevalent in the workforce.

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