

ARTIFICIAL INTELLIGENCE DEVELOPMENTS: PRESENT PATTERNS AND UPCOMING PATHS

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ABSTRACT

The field of computer science known as artificial intelligence (AI) studies the intelligence of machines. An intelligent agent is a system that makes decisions to increase its chances of success. The study of concepts is what makes computers capable of doing actions that give the impression of intelligence. Reasoning, knowledge, planning, learning, communication, perception, and the capacity to move and manipulate objects are among the fundamental ideas of artificial intelligence. It is the engineering and science of creating intelligent devices, particularly computer programs. It is said that the domains of management sciences, educational technology research, and operational research are seeing an increase in the use of artificial intelligence. Most people understand that intelligence is the ability to gather information in order to solve complex problems. Intelligent machines will soon outperform humans in a number of sectors. Artificial intelligence is the study of intelligent machines and software that can think, learn, gather data, communicate, operate, and see objects. Computer scientist John McCarthy used the term "human-computer interface" to refer to this field of study in 1956. Studying computation enables one to perceive and behave rationally.

Keywords: Artificial Intelligence(AI), Neural Networks(NN), Chat GPT, Human-Computer Interface, Computer Programs.

Introduction

Artificial Intelligence (AI) is a branch of Computer Science which refer to the simulation of Human intelligence process with the help of machines basically a computer Systems.AI technology plays role in different sectors such as Diagnosis and treatment, Fraud detection, Traffic Management, Quality Control, Inventory Management, Precision Farming , Threat Detection. Intelligence Compromise of range of abilities which enable Individuals or Systems to adapt, Learn, and Engage Effectively with their Environment. There are so many Examples of Artificial Intelligence(AI) Such as follows:

- **Virtual Assistant:** Virtual Assistant Such as Siri, Alexa.
- **Google Assistant:** Theses AI powered assistant can answer questions, Control Smart Home Devices.
- **Image and Face Recognition:** Image and Face Recognition system such as Social Media Tagging.

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- **Recommendation Systems:** Recommendation Systems Like Netflix and Spotify.
- **Self Driving Cars:** Self Driving Cars Like Tesla Autopilot is another Example.
- **Healthcare Diagnostics:** Like IBM Watson Health.

The foundation of all computer learning and the future of all complicated decision-making is artificial intelligence (AI).

Although recent pandemics have demonstrated the usefulness of AI technology, this does not imply that it will always be advantageous. Instead, attention should be paid to its advancements and applications while keeping ethical issues in mind. The foundation of all computer learning and the future of all complicated decision-making is artificial intelligence (AI). Although recent pandemics have demonstrated the usefulness of AI technology, this does not imply that it will always be advantageous. Instead, attention should be paid to its advancements and applications while keeping ethical issues in mind. Some people think that even while AI in education may have good intentions, this does not necessarily mean that it is ethical. The main ethical concerns and issues with AI are innovation costs, consent issues, and misuse of personal data. Criminal and malicious use, loss of freedom and autonomy, and human decision-making issues including privacy and security. Human decision-making is lost, and people become lazy.

Literature Review

In This Paper, We will Study Evolution of AI, Chatbot, Chat GPT Evolution, Artificial Intelligence Methods And applications of AI in many different Fields, How AI use in so many different Field, study provides an organized method to a full literature evaluation. Although a large body of material has been produced about AI in some form or another, there is no comprehensive analysis of what is known about AI. This is especially important given the current inconsistency in definition of AI.

Evolution of Artificial Intelligence Definition

The Journey of AI had started in 1950's with the pioneering work of Alan Turning, Who Lodged the Turing Test to examine that if a machine Could mimic Human Intelligence. Early AI System Fascinated on Symbolic Reasoning and Rule Based System, Which Gain Access to the development of system in the 1970's and 1980's.

The 1990's saw a Shift in Focus Toward machine learning and data driven techniques, owing to increase digital data availability about Computing Power developments. This time saw the emergence of neural networks and support vector machines, which Enabled AI Systems to learn from data, resulting in improved Performance and Adaptability. In the 2000's, AI research extended into new areas such as natural language processing, Computers Visions, and Robotics, Laying the Groundwork for today's AI Revolution.

AI Concerned with how to achieve goals in settings when the available Information is Complex. The Approaches that must be employed are relevant to the difficulty given by the situation and are same weather the problem solver is human, Martin, or Computer Program(Mc Carthy, 1988).

With so many different perspectives on what AI's the absence of consensus on a Standard Evolution (i.e, Criteria, Benchmark tests, milestones) Makes it extremely difficult for the field to continue healthy growth(Hern'zandez-orallo,2017).

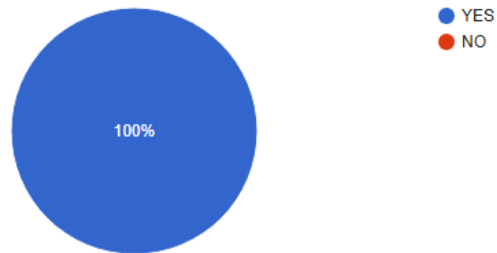
To better grasp the principles of AI we have created group of 11 Students and Ask them Few Questions On AI Below is the Result Of Our Data Analysis, we investigated and studied publications organized by year, publishing channel, research techniques used, and contribution to Our research. Prior to beginning this endeavor, we had to address the issue that concepts of artificial intelligence were widely different and imprecise.

Following are the sample Questions?

- Q 1. Are You Familiar with Artificial Intelligence..??
- Q 2. Does Advances in Artificial Intelligence and Robots Influence your decision to choose a specified carrier..?
- Q 3. Do You Feel AI will have a significant impact on the future of technology and society..?
- Q 4. Doe AI has ability to transform healthcare and improve patient outcomes..??
- Q 5. Do you believe that government should Develop explicit restrictions for Ethical use of AI Technology.??

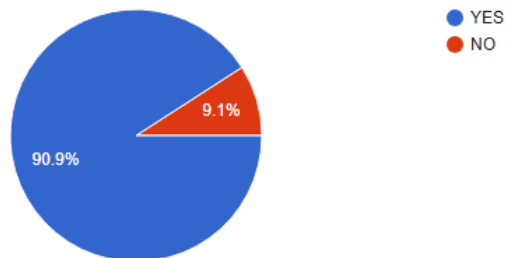
Q.1 Are you familiar with artificial intelligence?

11 responses



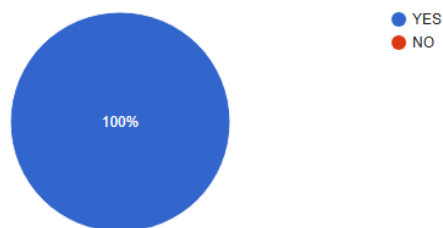
Q. 2 Does advances in artificial intelligence and robots influence your decision to choose a specialized career?

11 responses



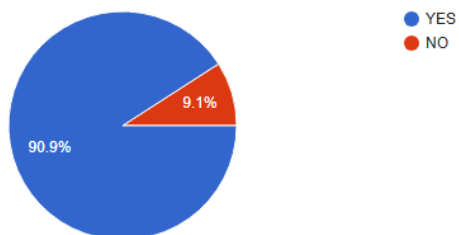
Q.3 Do you feel AI will have a significant impact on the future of technology and society?

11 responses



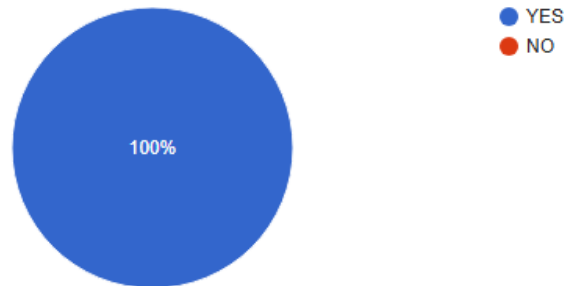
Q 4. Does artificial intelligence have the ability to transform healthcare and improve patient outcomes?

11 responses



Q 5. Do you believe that governments should develop explicit restrictions for the ethical use of AI technology?

10 responses



CHAT BOTS

AI's most useful tool for businesses It's critical to comprehend how AI chat bots operate and the reasons for their influence on enterprises. AI chat bots respond instantly, giving clients the impression that their time is valued and that they are being heard. Wait times can be significantly decreased by taking advantage of customers' preference for online chat over waiting on hold. Conversion rates are also skyrocketing, especially for customers who require immediate assistance or access to their personal data.

"I see you're trying to access your information; let me help you get there," an AI Chatbot would say, for instance.

AI chatbots provide customers with the information they require without the inconvenience of waiting for an email or customer support agent through a sequence of guided chats. AI chatbots, on the other hand, can save workers time by taking over repetitive jobs.

Additionally, AI chatbots can help e-commerce companies recommend products based on a user's demographics, past purchases, and browsing history. Because these bots don't require vacation days or days off, businesses are able to offer 24/7 customer care at a reduced cost.

Additionally, they can take care of time-consuming jobs like locating the delivery, freeing up live operators to address more interesting requests and enhancing staff engagement.

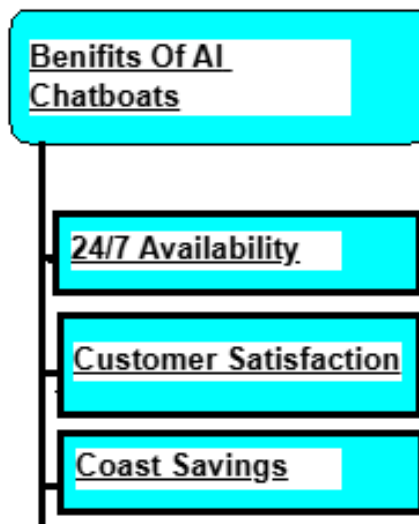


Fig .1: Benefits of AI Chatbots

A chatbot is an automated conversational artificial intelligence (AI) system that responds via a web or mobile application while posing as a human and performing preprogrammed actions in response to particular triggers. These bots offer assistance to users in a manner similar to that of a human conversation, much like virtual assistants. You can use this technology's special capacity to mimic a two-person conversation to increase efficiency and convenience.

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However, adding artificial intelligence programming can make the chatbot even more realistic and believable. In order to identify trends in conversations, sophisticated AI-based bots use a database, deep learning, machine learning, and natural language processing. This enables them to interact with users in a human-like manner and react genuinely!

By using an AI-driven algorithm that effectively searches customer support documents and previous discussions for language patterns resembling the initial query, chatbot systems aim to satisfy clients. This enables it to promptly and precisely provide the most relevant response.

Three notable instances of ground-breaking chatbots driven by sophisticated generative algorithms are Google Assistant, Alexa from Amazon, and Siri from Apple. Bots can intelligently respond to any question thrown at them by using pre-existing interactions and certain rules

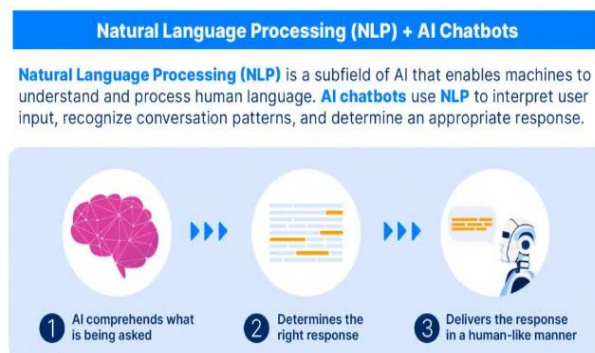


Fig. 2 : Natural Language Processing

The Evolution of ChatGPT

Here is a quick overview of the evolution of ChatGPT over the years:

- June 2018: GPT-1, one of the first massive language models, debuted with 117 million parameters. This model established the fundamental architecture for further advances in generative AI.
- February 2019: GPT-2 was introduced, considerably improving the model with 1.5 billion parameters. This update increased text generating capabilities, allowing for the construction of more coherent and nuanced text.
- June 2020: GPT-3 was released, representing a significant advancement in AI technology with its 175 billion parameters. It was used for a variety of tasks, including email drafting, article writing, poetry composition, and code generation, demonstrating its versatility.

On November 30, 2022, ChatGPT was released with GPT-3.5 and soon got popular. Its capacity to interpret and generate human-like writing drew in millions of people around the world, demonstrating generative AI's practical potential.

ChatGPT Plus, a premium membership service, was introduced on February 1, 2023, and provided users with additional benefits such as reduced downtime and early access to new capabilities.

- March 14, 2023: GPT-4 was added into ChatGPT, increasing the chatbot's dependability and originality. This integration signified another big step forward in the model's evolution.
- May 2024: The release of GPT-4o, the latest and most powerful GPT model, added new features and capabilities, cementing OpenAI's position at the forefront of AI advancement.

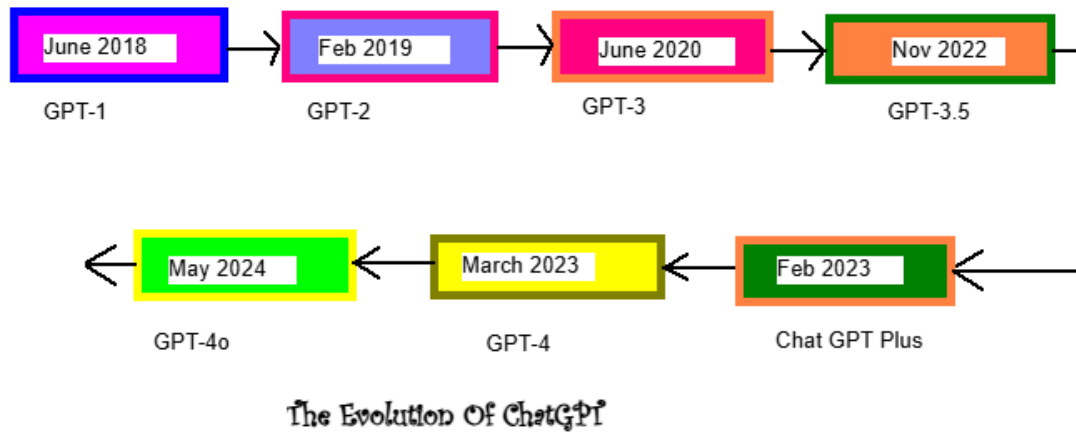


Fig. 3: Evolution Of ChatGPT

Artificial Intelligence Methods

- **Learning by Machines**

It's one of the AI applications where machines naturally learn and get better with experience rather than being specifically taught to do specific jobs. A branch of machine learning called "deep learning" uses artificial neural networks to analyze data in order to make predictions. Numerous machine learning algorithms exist, including Reinforcement Learning, Supervised Learning, and Unsupervised Learning. The algorithm in unsupervised learning does not act on classified information without supervision. The training data, which is a collection of an input item and the intended output, is used in supervised learning to infer a function. Machines utilize reinforcement learning to determine the optimal course of action to pursue in order to maximize the reward.

- **Processing Natural Language (NLP)**

The way that computers are programmed to process natural languages is through their interactions with human language. Natural language processing uses machine learning, a dependable technology, to extract meaning from human languages. In NLP, a machine records the audio of a human conversation. The audio-to-text exchange follows, and after that, the text is processed to turn the data into audio. The machine then reacts to people using the audio. Natural language processing is used in word processors like Microsoft Word to check text for grammar errors, IVR (Interactive Voice Response) programs used in contact centers, and language translation programs like Google Translate. But given the nature of human.

- **Robotics and Automation**

The goal of automation is to have machines complete repetitive and boring jobs, increasing productivity and yielding more economical and effective outcomes. Graphs, neural networks, and machine learning are used in automation by many enterprises. By employing CAPTCHA technology, such automation can stop fraud problems during online financial transactions. Robotic process automation is designed to carry out repetitive, high-volume activities that can adjust to changing conditions.

- **Vision of Machines**

Visual information can be captured and analyzed by machines. Here, the visual information is captured by cameras, the image is converted to digital data using analogue to digital conversion, and the data is processed using digital signal processing. The final data is then loaded into

- **Knowledge-Based Systems (KBS)**

A KBS is a computer system that uses user-provided knowledge from a human expert to deliver advice in a specific field. The separation of the information—which can be represented in a variety of forms, including rules, frames, or cases—and the inference engine or algorithm that draws conclusions from the knowledge base are two characteristics that set KBS apart.

- **Neural Networks**

NNs are biologically inspired systems made up of a layer-by-layer, highly connected network of computational "neurons." NNs can be "trained" to approximate almost any nonlinear function to the desired level of accuracy by varying the network's weights. Usually, a collection of input and output exemplars is given to NNs.

Application of AI

- **Artificial Intelligence in Astronomy**

Complex challenges in the cosmos can be solved with the help of artificial intelligence. Understanding the universe's origins, operation, and other aspects can be aided by AI technology.

- **Healthcare AI**

AI is growing more beneficial for the healthcare sector and will have a big impact on it over the next five to ten years. AI is being used by the healthcare industry to diagnose patients more quickly and accurately than humans. AI can assist physicians with diagnosis and alert clinicians when a patient's condition deteriorates so that treatment can begin before the patient is admitted to the hospital.

- **AI in Gaming**

AI has applications in gaming. The AI machines are capable of playing strategic games that require thought, such as chess.

- **Financial AI**

The banking and AI sectors are the most compatible. Automation, chatbots, adaptive intelligence, algorithm trading, and machine learning are all being incorporated into financial processes by the finance sector.

- **Data Security using AI**

Every business must prioritize data security, and cyber attacks are becoming more frequent in the digital sphere. AI has the potential to improve the security and safety of your data. Examples that are used to more accurately identify software bugs and cyber attacks include the AI2 Platform and the AEG bot.

- **Social Media AI**

There are billions of user profiles on social media platforms like Face book, Twitter, and Snap Chat, and these profiles must be efficiently maintained and handled. AI is able to plan and coordinate.

- **AI in the Automobile Sector**

AI is being used by some automotive businesses to give their users virtual assistants for improved performance. For example, Tesla unveiled TeslaBot, a clever virtual assistant. o A number of industries are now working on creating self-driving automobiles that will increase the safety and security of your travels.

- **AI in Robotics**

Makes excellent use of artificial intelligence. General robots are often programmed to carry out repetitive tasks, but with artificial intelligence (AI), we can build intelligent robots that can carry out tasks based on their own experiences without the need for preprogramming. o The best examples of artificial intelligence in robotics are humanoid robots. More recently, intelligent humanoid robots called Erica and Sophia have been created that can speak and act like.

- **Artificial Intelligence in Agriculture**

For the best results, agriculture needs a variety of resources, including labor, money, and time. AI is starting to appear in the sphere of agriculture, which is currently going digital. AI is being used in agriculture through predictive analysis, soil and crop monitoring, and agricultural robotics. Farmers can benefit greatly from artificial intelligence in agriculture.

- **Artificial Intelligence in Online Shopping**

AI is giving the e-commerce sector a competitive edge, and the industry is starting to want it more. AI is assisting consumers in finding related products with suggested brand, color, or size.

- **AI in Education By Automating Grading**

AI frees up tutors' time to instruct. An AI chatbot can act as a teaching assistant by interacting with pupils.

Conclusion

There are numerous developments going on right now, notably in the field of technology, and with this rapid growth, many people are drawn to it, especially since artificial intelligence arose. After its widespread use, where its uses are multiplied in all different fields of life such as industry, education, retail, and health care, etc., which led many to think that in the future, it could be a reason threatening the human race after what they were able to establish in the first robot based on artificial intelligence.

It is now widely employed in a variety of fields, including manufacturing and education. Despite its benefits, many people feel that humanity will face extinction in the future, especially if they can construct the first AI-based robot for a world similar to our own.

Many people now believe that artificial intelligence will take over human control. The problem began to spread as a result of incorrect thinking in movies, fiction, and scientific research, as the majority of these films focus around the premise that artificial intelligence and robots will invade the world and exterminate the human species.

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