

Extraction on Recent Trends in Artificial Intelligence

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Abstract: Artificial Intelligence is all about making machines more intelligent so that they can think and work like humans to make their work easy. The fundamental principle of employing a technology to model smart action with minimal user interaction is known to simply "AI." Perhaps most importantly, human intelligence served as the core model for early automation initiatives. The objective was to mimic smart person conduct in machines by discovering and replicating the intellectual systems that underlying individual intelligence. The manuscript closes with a concise assessment of persuasive associations and recent concerns confronting the field.

Index Terms---Artificial Intelligence, Imitation, Deep Learning, Neural Network, Nautral Language Processing

I. INTRODUCTION

The Imitation of human intelligence processed by technology, especially done by computer systems. It is because of Curiosity, human needs, laziness, development etc. that humans invent things that would make their lives easier. They came up with a great breakthrough in artificial intelligence [1]. After COVID 19 due to not involvement in physical activities for more than a year or isolation people become lazy. Many people don't want to do anything. That is why many try to work too much in their 20's and retire before their 40's and many work on how by using AI their work can be done easily so no have to work anymore hence the need for AI comes Artificial Intelligence research is increasing day by day. AI is becoming more popular day by day. Earlier also the need for AI was there but now the main cause of growing AI is the day by day increase of data volumes, advanced algorithms and better ways of computing power and storage [2, 3]. Therefore, the research or use of AI has become more prominent. AI is about making technologies work in a smarter way like after implementing the examples we have of self-driving cars and using social media and Ott platforms which completely rely on AI. The human race is at risk. Development is directly proportional to destruction. Laziness can follow wisdom, as to Albert Einstein, which reportedly said, "I do never understand with whatever weaponry World War III will be fought, but World War IV will be waged with clubs and stones [4]. In Silicon Valley there was a launch of new innovative technology and many IT experts were there they seem to have lost their expressions like whenever the speaker makes excellent point their face remains the same, it appears they are transformed into robot. Interesting thing robots are turning into humans and vice-versa. AI affects many issues like unemployment and not to mention the machine becomes more intelligent that they take over humans' threat. There's a famous quote of a singer Dolly Parton "If you want to see rainbow You have to face little rain". If we want to enjoy this innovative technology, then we have faced the fact that there is possibility of AI turning into evil [5, 6].

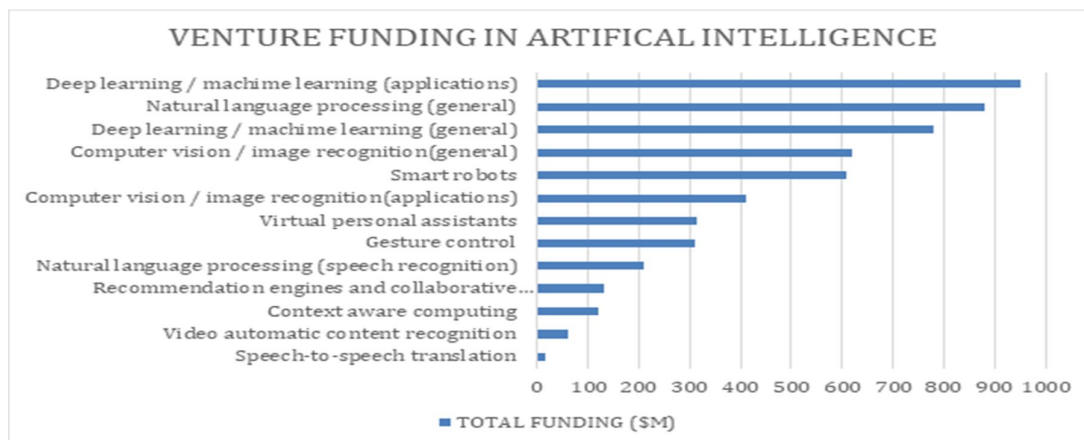


Figure 1. Venture Funding in Artificial Intelligence [4]

Artificial Intelligence research is increasing day by day. AI is becoming more popular day by day. Earlier also the need for AI was there but now the main cause of growing AI is the day by day increase of data volumes, advanced algorithms and better ways of computing power and storage [2, 3]. Therefore, the research or use of AI has become more prominent. AI is about making technologies work in a smarter way like after implementing the examples we have of self-driving cars and using social media and Ott platforms which completely rely on AI. The human race is at risk. Development is directly proportional to destruction. Laziness can follow wisdom, as to Albert Einstein, which reportedly said, "I do never understand with whatever weaponry World War III will be fought, but World War IV will be waged with clubs and stones [4]. In Silicon Valley there was a launch of new innovative technology and many IT experts were there they seem to have lost their expressions like whenever the speaker makes excellent point their face remains the same, it appears they are transformed into robot. Interesting thing robots are turning into humans and vice-versa. AI affects many issues like unemployment and not to mention the machine becomes more intelligent that they take over humans' threat. There's a famous quote of a singer Dolly Parton "If you want to see rainbow You have to face little rain". If we want to enjoy this innovative technology, then we have faced the fact that there is possibility of AI turning into evil [5, 6].

II. METHODOLOGY

This study focuses on exploring the literature of development and transformation in AI. AI become popular these days due to more data availability and many breakthroughs in these days for example, LAMDA — short for "Language Model for Dialogue Applications" — can engage in smooth and fluent way which appear to be any type of topic, an expertise that can help more ways of mingle with technology and may unlock different types of new applications [7]. LAMDA had to be taken offline from public access because people can suck. The moral code, or what-have-you was intentionally corrupted (think teens teaching toddlers to curse), and baby LAMDA needed a break in a safe, stable environment to relearn manners/morals. There are many areas in which AI proved to be very useful like healthcare, automobiles, governance, defense, computation, etc.

AI research is being conducted in both academic and industrial settings, with many large tech companies investing heavily in AI development. Research labs at universities and research institutions are also making significant contributions to the field. Some of the key areas of AI research and development include computer vision, natural language processing, robotics, and autonomous systems.

GPT-3: In 2020, OpenAI released the third iteration of their Generative Pre-trained Transformer (GPT-3) model, which is a language model that can generate human-like text. With 175 billion parameters, GPT-3 is the largest and most powerful language model to date. It has the ability to perform a wide range of natural language processing tasks, such as language translation, question-answering, and even writing articles and poems. This breakthrough has significant implications for industries such as journalism, marketing, and customer service.

A. Data

The heart of AI is the data just like fuel works for cars. Good quality of data for AI gives good results with higher accuracy [8]. Data sharing in different sectors can be beneficial for development and increase the flow and data accuracy. In this section, we focus on how data is the main component of AI. As without data there is

nothing to process or without fuel cars don't work. In the modern world, data has become one of the most valuable resources. It is often referred to as the "new oil" due to its ability to fuel growth and innovation. The availability of large amounts of data has opened up new possibilities for businesses, scientists, and policymakers. In this review paper subtopic, we will discuss the attractive, genius, and game-changing aspects of data. One of the most attractive things about data is its potential to provide insights that were previously impossible to obtain. With the help of big data analytics, businesses can analyze large datasets and identify patterns and trends. These insights can be used to improve operations, optimize marketing strategies, and make more informed decisions. The genius of data lies in its ability to improve the accuracy of predictions and forecasts. By analyzing historical data, scientists and researchers can build predictive models that can help to forecast future events. This is particularly useful in areas such as weather forecasting, where accurate predictions can help to prevent disasters and save lives.

Neuromarketing is a field that uses neuroscience techniques to better understand consumer behavior and decision-making. By studying the brain's responses to various stimuli, such as advertising, packaging, or product design, marketers can gain insight into what drives consumer preferences and choices. Neuromarketing methods include brain imaging, eye-tracking, and skin conductance measurements. These techniques can help businesses optimize their marketing strategies by identifying which stimuli are most effective in capturing consumers' attention and generating positive emotional responses. However, it is important to note that ethical considerations should be taken into account when using neuromarketing, such as ensuring that participants provide informed consent and that the results are interpreted accurately and not exaggerated. At last, data is a valuable resource that has the potential to transform businesses, industries, and society as a whole. Its ability to provide insights, improve accuracy, and fuel innovation makes it an attractive and game-changing resource. As the world becomes more data-driven, the importance of data literacy and data management skills will only continue to grow.

B. Natural Language Processing

Natural Language Processing (NLP) is a branch of artificial intelligence that focuses on the interaction between computers and human language. It involves the use of algorithms and statistical models to analyze and understand the meaning of natural language text and speech. NLP has become an increasingly important field in recent years, with numerous innovations and successful startups emerging in the space. In this article, we will explore NLP in detail, including notable innovations and successful startups. Grammarly is an NLP startup that offers a writing assistant tool that helps users improve their writing skills. It uses NLP algorithms to analyze text and provide suggestions for grammar, spelling, and punctuation.

OpenAI is a research organization that focuses on developing AI technologies for the betterment of humanity. It has made significant contributions to the field of NLP, including the development of GPT-3 and other language models.

Despite the progress made in AI research, there are also significant challenges and limitations that need to be addressed. One of the biggest challenges is developing AI systems that are explainable and transparent. Many AI models are complex and difficult to understand, making it challenging to identify errors or biases in the decision-making process. This is particularly important in applications such as healthcare, where decisions made by AI systems can have life-or-death consequences.

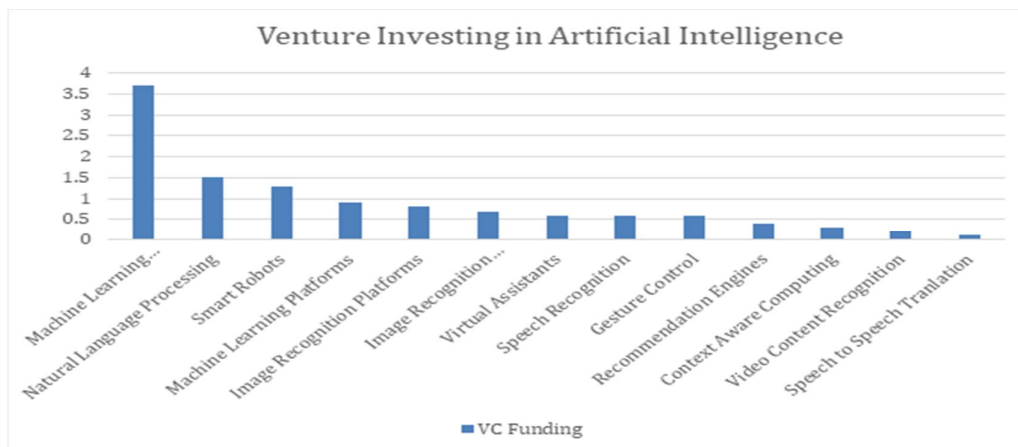


Figure 2. Venture Investing in Artificial Intelligence [8]

III. RELATED WORK

In this study "AI in mobile communication," authors Yingchi Mao, Andri Pranolo, Leonel Hernandez, Aji Prasetya Wibawa, and Zalik Nuryana show that AI influences proactively systems, self-aware, self-adaptive, predictive, efficient, and cost-effective operation and optimization. Researchers provided examples of how AI tools including fuzzy logic, neural networks, and reinforcement learning were used to mobile communication [7, 8]. The difficulties handling big data, data analytics, higher frequency transmission, device-to-device communication, the reliable architecture, ultra-dense network, Massive MIMO, 3D Beamforming, V2X, Drone Base Station, Multi-Access Connectivity, mm-wave, Cloud-RAN, Edge Network, and Micro Base Station are also mentioned. Issues with the fifth generation (5G) of mobile networks and whether that six generations (6G) of cellular network would be developed to produce reliable network and services kinds on large mobile devices and information are the obstacles.

The "AI-SEAL" classification is presented by Robert Feldt et al. [7] Application was divided under groups based on its point of application of AI (process or product), the kind of AI technologies utilized, & the permitted level of automated. "Symbolist AI, for example, inverse deduction; Connectionist AI, for example, backpropagation; Evolutionary AI, for example, genetic programming; Bayesian AI, for example, probabilistic inference; and Analogizer AI, for example, kernel machines out of the 44 papers submitted to past RAISE workshops [7], 17 papers (or 33% of the total) dealt on the use of AI to software engineering. Eight of them identify as analogizers, five as symbolists, two as evolutionary, and two as connectionists. Many of these are only moderately automated.

Tahira Iqbal [8] and co-workers conducted a survey of the literature to have a general understanding of how ML is used in requirements engineering (RE), which encompasses requirements elicitation, requirements analysis, requirements documentation, and requirements verification. This is how the essay is summed up. Various types of study employ mining, ML, and recommending systems throughout the required elicitation and discover phase to categorize needs into those that need improvement or not, those that are bugs, features, or garbage, and to find connected and evolving requirements.

I.J. Good [9] noted that creating an intelligence machine that is smart is a difficult endeavor in and of itself. The development of these technologies may lead to an information explosion that would leave human intellect far behind. We may be able to end war, sickness, and poverty by creating super intelligent systems through the invention of radical new technology. However, unless humans manage to match our objectives with those of artificial intelligence, the development of such a potent AI system could also be the last. We can't foresee how an AI would act since we know it has the potential to become more intelligent than any human has ever been. Due of our vulnerability to being outwitted, whether consciously or unconsciously, we won't be able to leverage earlier technological advancements.

An illustration of this is the study conducted by Frantz [10]. The application of Intelligence as a foundation for comprehending intuition is the main topic. His research demonstrates how Herbert Simon's views on intuition were impacted by the overlaps in his work, particularly his work on AI. Hebert Simon made significant, related discoveries to the areas of organizational theory, psychology, behavioral science, and AI. Franklin (2003) [11] also uses AI-inspired concepts to address the encoding of context. One need to consider insights from AI on ways to express contextual precisely in as to go above broad assumptions regarding the importance of a background in judicial thinking or natural language comprehension. A library of information on how to express context in AI systems has been created via work on topics like prior probabilities, the theory-lateness of observation, encyclopedia data for clarification in speech translation, and pathogenic textual diagnosis.

Castelló et al. (2021) conduct a bibliometric study to investigate gender differences in artificial intelligence research. The authors analyze publications in the Web of Science database and find that women are underrepresented in AI research. They also identify several research topics that are more commonly studied by men or women, such as machine learning and natural language processing.

Sharma et al. (2020) provide a review of the past, present, and future of artificial intelligence in healthcare. The authors discuss the various applications of AI in healthcare, including diagnosis, treatment, and drug discovery. They also explore the ethical, legal, and social implications of AI in healthcare and provide recommendations for future research.

Cao et al. (2020) conduct a bibliometric review of the use of artificial intelligence in finance. The authors analyze publications in the Web of Science database and identify research trends and hotspots in the field. They

find that the most commonly studied topics include financial forecasting, risk management, and investment decision-making.

Yoo and Kim (2020) explore research trends and hotspots in artificial intelligence education. The authors conduct a bibliometric analysis of publications in the Web of Science database and identify the most commonly studied topics, including AI in education, intelligent tutoring systems, and gamification. They also discuss the challenges and opportunities of AI in education and provide recommendations for future research.

Haynes [12] analyzes the movement in European culture from chemistry to synthetic cognition in a different study. The current mythos of knowledge has been weakened owing to a fear of that power transfer which technology represents, that leaving numerous individuals thinking confused and impotent. Without any fresh information that would seem to jeopardize societal order, Kit reappears in the media, most frequently going by the moniker "Frankenstein." This phenomenon is not brand-new. There are few clichés of excellent scientists, and they are rare, from ancient tales of alchemists to modern movies about computer hackers. These archetypes provide simple shorthand for authors and filmmakers, a grid into which to place modern researchers and their endeavors, reducing the problems. Like any myths, they seem straightforward but symbolize intricate concepts and repressed anxieties that cut over time, space, and race.

Holte, Choueiry and Zucker's additional contributions to broad research on AI deserve recognition. These authors developed the AI abstraction idea. Holte and Choueiry [13] made two contributions to the objectives of the particular issue on abstraction. The first is to demonstrate that there are strong justifications for the usage of abstractions in AI which is solely computational.

Zucker [14] utilized abstractions for explain how utilization of several detailed level in a particular representational language and its capability to switch between levels while maintaining beneficial features. In issue solving, theorem proving, data modeling (especially for spatial and chronological reasoning), and machine learning, abstractions has primarily been investigated.

In a further study, Kim [15] analyzes the prospective applications or consequences of Godel's discoveries for AI studies as much as how or not they challenge the legitimacy of the AI thesis. Even if Godel's constraints are demonstrated to not exclude either the feasibility or difficulty of the AI thesis, the author shows that they have provided and will continuing to offer important knowledge into the development of the field.

A. Pros and Cons

If we focus on the pros then in above paper many things are covered like how AI helps make us our life easy like many technologies based on AI has shown many useful results like if we take example of COVID 19 pandemic then we managed in much easier way as compared to earlier pandemic like swine flu etc. Many areas where it could take days to get results of tests, With the help of many AI based technologies we able to get the data and results in lesser time [16, 17]. A coin always has two sides and if we look at the other side of AI it must be seriously considered like after COVID 19 humans become much more dependent on machine than earlier and result of which is great explained in above paper how by using too much of AI people will be more dependent on AI and become lazier and would not want to work anymore and results in losing sense of living and scientists mentioned that this could be the reason for human extinction [18].

Now some may say the solution to this is easily done as the government will provide many schemes related to this and some may argue that there are many areas where not even smartphones are available. How those will be addicted to this then the environmental factors like COVID 19 have more effect on rural areas. And it has been said that if machines become much more intelligent then it could take over humans, now humans using machines if they become intelligent to a level then machines will use humans. Fig. 3 and Fig. 4 shows the trajectory and distorted view of AI and tells that the trajectory of recent history frequently states distorted section. Another concept of AI which is very beneficial for the society are metaheuristic algorithms, which solves efficiently more complex problems [19, 20].

Artificial Intelligence (AI) is a rapidly developing field with the potential to revolutionize various industries and aspects of human life. However, like any other technology, AI also has limitations and potential risks associated with its development and implementation. In this article, we will explore the worst-case scenarios and limitations of AI. One of the most significant concerns about AI is the potential for mass unemployment as AI systems replace human workers in various industries. With the ability to automate repetitive and mundane tasks, AI systems could make human labor unnecessary in certain fields, leading to a significant reduction in the workforce. AI systems can be biased due to the data used to train them, leading to discrimination against certain groups of people. For example, a facial recognition system may perform poorly on people with darker skin tones because of the lack of diversity in the data used to train the system. This can have serious consequences, such as incorrect criminal convictions, denial of loans or housing, and other forms of discrimination. AI systems can

pose significant security risks if they are designed or programmed with malicious intent. For example, an AI system designed to hack into computer systems could wreak havoc on global networks, leading to massive data breaches, financial losses, and other security threats.

AI systems can collect and analyze vast amounts of data about individuals, including their personal information, online behavior, and other sensitive data. This raises significant concerns about privacy, as individuals may not be aware of the data being collected and how it is being used.

Governments can misuse AI systems for surveillance and control purposes, leading to violations of human rights and civil liberties. For example, facial recognition technology could be used to track and monitor individuals' movements and activities, leading to a loss of freedom and privacy. As AI systems become more advanced and sophisticated, ethical concerns arise regarding their development, deployment, and use. For example, autonomous weapons that can make decisions without human intervention raise serious ethical concerns about the use of lethal force.

Looking to the future, there are several key directions that research and development work on AI is likely to take. It is the responsibility of governments, researchers, and developers to ensure that AI systems are safe, ethical, and accountable.

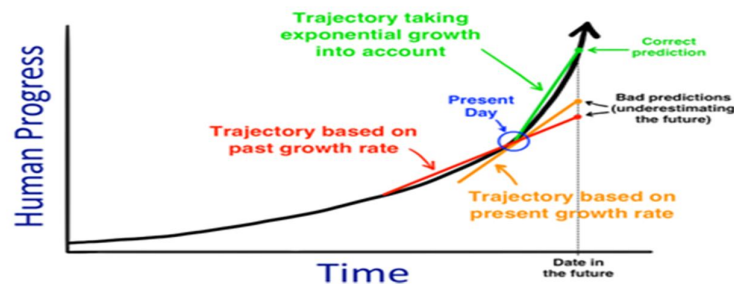


Figure 3. AI Trajectory View

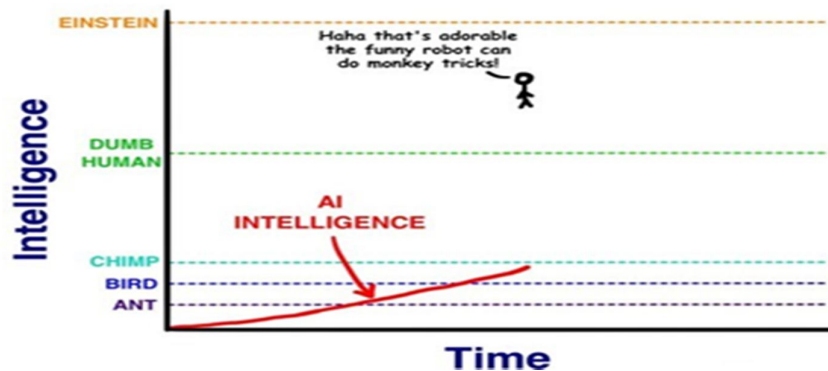


Figure 4. Distorted View of Intelligence

B. Current Stage of AI

Three categories of AI can be distinguished based on their capabilities, including:

- **Narrow AI:** It has the intelligence to carry out specific tasks. AI is now in the narrow AI stage. Narrow or weak AI refers to systems that are designed to perform specific tasks or solve specific problems. Examples of narrow AI include speech recognition systems like Siri and Alexa, recommendation algorithms used by Netflix and Amazon, and autonomous vehicles like Tesla's autopilot system. While narrow AI has been hugely successful in a number of applications, these systems are limited in that they can only perform the tasks they were specifically designed for.
- **General AI:** Artificial General Intelligence, or AGI, refers to robots that exhibit intelligence comparable to that of humans. General or strong AI, on the other hand, refers to systems that have human-like intelligence and can perform a wide range of tasks. Unlike narrow AI, which is designed to solve specific problems, strong AI is designed to be more adaptable and capable of learning new tasks on its own. At present, the

development of strong AI is still in its early stages, and while significant progress has been made, the creation of a fully functional general AI system is still considered a distant goal.

- Super AI: Self-aware AI with cognitive prowess beyond that of humans is referred to as super AI. At this point, machines are capable of performing every cognitively capable human task. Super AI refers to hypothetical AI systems that are vastly more intelligent than humans. These systems would be capable of solving complex problems that are currently beyond human understanding and would have a significant impact on virtually every aspect of society. While the creation of super AI is still purely speculative, it has been the subject of much debate and speculation among researchers and experts in the field. The type of AI that exists now, referred to as Narrow AI or Weak AI, can only carry out specific jobs. Taking autonomous vehicles, speech recognition, etc. as examples [21].

C. Myths about AI

- Super intelligence cannot exist by the year 2100:
The truth is that we can't now determine whether super intelligence exists. There is no proof, thus it might occur in the next few decades, the next few millennia, or it might never. AI experts have been asked in a variety of surveys how long they think it will take for human-scale AI to become a reality with at least a 50% possibility. These studies all reach the same result, which is that we don't know because the world's foremost experts disagree.
- AI eliminates the need for human intervention:
People mistakenly believe that AI can function without any human involvement. But the truth is that AI is not yet sufficiently progressive to make independent decisions. To pre-process the data, create the models, create a training dataset, identify the bias and variance and remove them, etc., a machine learning engineer or specialist is required. All AI model still depends on people. The model does, however, automatically perform better after preparation thanks to experience.

III. CONCLUSIONS

Nowadays, AI is being used in almost all technologies whether it is of entertainment kinds like social media and OTT platforms. If much development is already done in AI, then what comes next? Then comes the demerit part like machines become more intelligent and take over humans or human extinction as further development is like that there be robots who does all of our works think instead of us then what will be the work of humans, nothing and as we should focus on the bright side so there is no certainty as these are just possibilities. As shown in fig. 4 the graph between human progress with time is drawn by taking in consideration the revolution of AI of present times and not very long ago.

As AI models become more data-driven, the quality and availability of data will become increasingly important. Future research may focus on developing new techniques for improving data quality and availability, as well as finding new ways to extract insights from existing data sources.

To ensure that AI systems are not used for malicious purposes and to develop more robust and ethical AI systems, several steps can be taken. Here are some key considerations:

- Establish clear ethical frameworks and regulations that guide the development, deployment, and use of AI systems. These frameworks should address potential risks, biases, and privacy concerns.
- Foster transparency and explainability in AI systems, enabling users and stakeholders to understand how AI makes decisions. This helps identify biases and potential ethical issues.
- Implement robust data privacy and security measures to protect sensitive information used by AI systems. Ensure compliance with relevant data protection regulations.
- Develop techniques and tools to identify and mitigate biases in AI systems, ensuring fair and equitable outcomes across different groups of people.
- Incorporate human oversight and accountability mechanisms to monitor AI systems and ensure they align with ethical guidelines. Humans should be involved in decision-making processes and be responsible for the final outcomes.
- Regularly monitor and evaluate AI systems for unintended consequences, biases, or unethical behavior. Implement mechanisms for feedback and improvements based on real-world experiences.
- Foster collaboration between AI researchers, ethicists, policymakers, and other relevant stakeholders to address the complex ethical challenges associated with AI. Adopt an interdisciplinary approach to decision-making and policy development.

- Promote public awareness and education about AI technologies, their limitations, and potential ethical implications. Encourage informed discussions and engagement to shape AI policies and regulations.

To develop concrete AI systems, researchers and developers focus on areas such as:

- Designing and refining algorithms that are effective, efficient, and aligned with the desired objectives.
- Ensuring high-quality, diverse, and representative data for training AI models to improve their performance and reduce biases.
- Testing and Validation: Conducting thorough testing and validation processes to verify the accuracy, reliability, and robustness of AI systems
- Implementing evaluation frameworks and metrics to assess the performance and effectiveness of AI systems, taking into account their impact on various stakeholders.
- Emphasizing iterative development processes that allow for ongoing refinement and enhancement of AI systems based on user feedback, real-world experiences, and evolving ethical considerations.

At last, AI is great breakthrough that we have come up with we should not go extreme by avoiding this great technology and nor should we be much embrace it that it become boon for us. As moderation is the key to life we should use this technology in a great way and see how far we can go.

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