

Artificial Intelligence in Education

Dr. R. Senthil Kumar

Assistant Professor, Department of Curriculum Planning and Evaluation, Tamil Nadu Teachers Education University, Chennai - 600097

Abstract: Artificial intelligence is rapidly changing and developing several sectors, such as IT, banking, services, etc. but on implementing these AI technologies we face many issues. This article focusses mainly on how artificial intelligence is implemented in education, how to integrate education through AI, the merits and the demerits when you implement AI in education.

Keywords: Artificial Intelligence, Integrated Education.

1. Introduction

Artificial Intelligence includes computer science, machine learning and deep learning. The main focus of AI is to make an intelligent system, a system that can do reason, learn and act autonomously for solving a wide range of problems, understanding natural language, writing creative content, making moral judgments etc. AI system can understand and process complex data; for example, AI systems are already being used to understand and process complex data, such as medical images, financial data and social media.

According to Stanford AI Index 2023 report, several world countries are investing in billions of dollars for AI in various departments such as Education, Law, Service etc. India is in the sixth place (US \$7.73 billion) in the investment of AI technology.

Educational Applications of AI

Personalized learning: AI system can be used to personalize learning by adapting the content and pace of instruction to each student's individual needs; this can help students learn more effectively by ensuring that they are always keeping pace but are not overwhelmed.

Real - time Feedback: AI system can be used to provide real - time feedback to students on their work. This can help students identify and correct their mistakes early on which can lead to better learning outcomes.

Within the few months of its launch, the AI chatbot ChatGPT has more than 100 million active users.

Automated tasks: AI can be used to automate tasks that are typically done by teachers such as grading papers and creating lesson plans. This can free up teachers' time so that they can focus on more important tasks such as providing individual attention to students.

Adaptive Learning Platforms: Adaptive Learning Platforms use AI to personalize the learning experience for each student. These platforms track student progress and adjust the difficulty of the content based on each student's individual's needs.

Some of the Adaptive Learning Companies:

Knewton, Pearson, Khan Academy, Dreambox Learning etc.

Virtual Tutors: Virtual tutors use AI to provide one - on - one tutoring to students. These tutors can answer student questions, provide feedback on assignments and help students learn new concepts. Some of the virtual tutors are the following:

- Overall: Chegg Study,
- Budget: Learn To Be,
- Variety: Princeton Review,
- for Language Learning: Preply.
- Homework Help: Skooli.
- for Writing Improvement: Pearson's Smarthinking.
- Test Prep: TutaPoint.
- for Math Tutoring: Mathnasium.

Robotics: is a field of engineering that deals with the design, construction, operation and application of robots. Robots are used in a wide variety of industries, such as manufacturing, healthcare and logistics.

Some of the new AI systems and their uses worldwide, are given below:

- **DeepMind:** Releases AlphaCode, an AI system that writes programs at a competitive level.
- **Make - A - Scene:** Released by Meta AI, it is a text - to - image AI model that enables users to generate images through text.
- **Make - a - video:** Released by Meta AI, make - a - video is a system that allows users to create videos from short text descriptions.
- **PaLM: (Pathways Language Model)** Released by Google AI, PaLM is one of the world's largest language models. Made up of 540 billion parameters, PaLM reinforces the belief that researchers can improve performance on large language models by simply training them on more data.
- **ChatGPT:** Launched by Open AI, ChatGPT is an impressive, publicly usable chatbot capable of writing university - level essays, theses, dissertations
- **Face Detection and Recognition:** AI Systems to identify faces or individuals in images or videos.

Threats of AI

With the technologies required for the AI system not yet fully created, all the systems and the various AI applications currently available are only in the experimental phase (For example, Google's chatbot Bard).

Moreover, when you ask any query in the prompt box of a chatbot (such as ChatGPT or Bard), it provides human - like

answers; when you prompt for a thesis on a particular topic, a ready - made thesis is given instantly. ChatGPT has been temporarily banned in Italy for this reason. Also, there is evidence that voice - to - text systems are less accurate at transcribing.

Geoffrey Hinton, regarded as the Godfather of AI and Godfather of Deep learning, recently quit from Google and after his resignation he has said that he regretted his work in AI. He added that the dangers of chatbots were 'quite scary' and warned that they could be exploited by 'bad actors'; that is, AI is a very dangerous one when not handled properly.

Misuse of AI

In March of 2022, a video that was circulated on social media and a Ukrainian news site, purported to show the Ukrainian president directing his army to surrender the fight against Russia. But it was eventually revealed that the video was a deepfake. This leads to concerns about surveillance, privacy and discrimination.

Make - a - Scene, released by Meta: It is a system in which when you give text, the system changes the text to an image; but we will not know whether the image is real or fake. Recently, a fake AI - generated image depicting an explosion near the Pentagon was shared on Twitter by a verified news account; this caused wild speculations in the stock market and a flurry of false breaking news. After investigation, the military force found out that the image was a deepfake.

Intel's April 2022 release says that it is developing a system for **Student Emotion Monitoring**. Intel has been working with an education start - up called Classroom Technologies to create an AI-based technology that would identify the emotional state of students on Zoom. The use of this technology comes with privacy and discrimination concerns; there is a fear that students will be needlessly monitored and that systems might mischaracterize their emotions.

Dangers to the environment

Carbon Emission:

AI has created many benefits but it also creates lots of dangers. One of the main threats of AI is that of 'carbon emission'. According to 'International Energy Agency', high volumes of carbon emission happened in 2022. Researchers continuously warn that carbon emissions are a major cause of global warming; also it may create new and unpredictable environmental issues. Along with the carbon emissions due to the use of search engines, there will be large increase due to use of AI systems also.

Concern over large number of Data Centres:

When we combine AI systems like ChatGPT in addition to the existing search engines, we will need a large number of data centres running 24x7. With data centres running 24x7, we will need huge power resources that will create more heat. The cooling systems that are required to reduce the heat will in turn create more carbon emission.

Ethics and Policies of AI:

We have been witnessing many AI systems which can create image from text, fact and voice recognitions, language

model etc. While using AI, we have also been facing many ethical issues. So, we urgently need a Global AI Act. Our Indian government has an IT Act 2000; in June 2023, India will be publishing amendments on the IT Act 2000 called 'Draft of Digital India Act, 2023'. This Act mainly focusses on regulation of high - risk AI systems from the perspective of user harm with a clear demarcation of 'no go areas' for these systems.

Any AI System should be constructed in all fairness and appropriately algorithmic without any bias. It should not enter into the personal life of human being. It should be there to assist only when needed.

Before framing the AI Act, considerable research, analysis and feedback should be taken from the general public as well as experts in the field; economically - developed countries (such as USA, UK, China) shall invest in doing field studies about the functioning of the existing AI systems and about the challenges that we may face in the future.

2. Conclusion

The usefulness of Artificial Intelligence consists mainly of providing human - like responses or behaviour wherever large work - force or assistance is required. But with an ever - increasing global population, every country has a duty to focus on providing for the basic needs of its people, creating employability and development of the country. Implementation of AI systems acts counter to these goals of a country, with reduction in employability being the primary issue. Therefore, before implementing AI systems, a thorough analysis of every single human factor in every single sector should be done. We need technology but it should not destroy our life.

References

- [1] "Sandford University Artificial Intelligence Index Report 2023".
- [2] [www.dailysearcher.com/2022/06/impact - of - artificial - intelligence - in.html](http://www.dailysearcher.com/2022/06/impact-of-artificial-intelligence-in.html).
- [3] [economicmatter.com/blockchain/impact - of - blockchain - how - it - is - disrupting - the - global - economy/](http://economicmatter.com/blockchain/impact-of-blockchain-how-it-is-disrupting-the-global-economy/)