

ANALYSIS OF CONTEMPORARY METHODS OF INTEGRATING EMOTIONAL INTELLIGENCE INTO ARTIFICIAL INTELLIGENCE SYSTEMS: ADVANTAGES, DISADVANTAGES, AND PERSPECTIVES

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ABSTRACT

Artificial Intelligence (AI) has started to dominate the technological sector in recent years. It began by offering us a fresh perspective on developing and organizing the rapidly evolving technology trends. It provided us with several answers to the issues we confront and enhanced the effectiveness of the solutions we have already accomplished and are still overcoming. It still goes through the process of becoming flawless, though, because it can still acquire knowledge and develop into the cognitive abilities of humans. Through observation and experience, AI may be able to respond more quickly than a person, however, as of right now, this ability is limited to specific domains. Even if this intelligent agent has a great influence on society now, it might be more compassionate if it had emotional intelligence built into it. We can enable AI to expand its domains of expertise and offer more sophisticated answers to challenging issues with its use of emotional intelligence. The gap between a person and a computer may disappear if we can create Emotional Artificial Intelligence. This may assist in a variety of professions, including medicine, consulting, education, and more, and it can open new chances by treating everyone equally. The article will discuss the role that emotional intelligence plays in AI, its applicability across a range of fields, and its potential effects on society.

Keywords: *Artificial intelligence, Emotion Intelligence, Fields, Advantages, Disadvantage, Integration.*

1. INTRODUCTION

The process of demonstrating human-like tasks in robots through a variety of techniques is known as artificial intelligence (AI). Machine learning and the processing of natural languages, which enable applications like self-driving vehicles and computers that can play chess, are the most common examples of AI. AI's functions include creating and executing better analyses to yield data and analytical outcomes that are more accurate [1].

The application of deep learning has been a major factor in the evolution of AI in the modern world. Machine learning techniques such as Deep Learning may also be used to teach a computer to do things that a person would do. Predictions and voice pattern recognition are two examples. Another is the

addition of sound to silent films. AI will never remain the same without deep learning [2].

“With Artificial Intelligence we are summoning the Demon.” -Elon Musk

“The development of full Artificial Intelligence could spell the end of the human race.” -Stephen Hawking

Emotional intelligence, or EI, is the capacity to identify and respond to one's own and other people's behavioral tendencies. The ability to recognize, understand, and control our own emotions is the primary goal. Recognizing, understanding, and affecting other people's emotions is the second goal. Because EI deals with behavioral attributes, it is more equipped than IQ. These characteristics affect one's ability to solve issues, make decisions, and think positively and negatively [3].

The phrase "Emotional Intelligence" was coined by Peter Salovey and John D. Mayer in the 1990s. Salovey and Mayer went on to create other metrics to determine its importance. According to one such research, participants who scored highly on emotional clarity healed more rapidly after seeing an unpleasant movie. The capacity to recognize and label a feeling that is being experienced or has already been experienced is known as emotional clarity. According to a different study, those with greater ability scores to effectively sense, understand, and judge others' emotions were also more adept at problem-solving, adapting to their social environment, and creating supportive social networks [2].

A. Problems solved by AI [4]

1) Inequalities and discrimination

One specific problem that has existed is discrimination. The unfair treatment of various groups of people, particularly based on ethnicity, sexual orientation, age, or culture, is known as discrimination. When AI is combined with EI, it may be trained to be emotionally neutral and to treat everyone equally when given the proper guidelines and care.

B. Mental illness

The current generation is experiencing an increase in mental illnesses, which pose a threat to human life due to their erratic patterns. An individual's ability to carry out everyday chores might be negatively impacted by their inability to regulate their thoughts or emotions, which can also affect other people. Nonetheless, an EI agent can identify trends, evaluate information, and occasionally offer precise answers to enhance the person.

C. Counseling

A real-time, emotionally aware method of human-machine connection that can assist anyone in resolving their life's issues. Depression, marital problems, family problems, peer pressure at school, and the need for personal growth and development are a few examples.

D. Insufficient Education

Injustices in education continue to exist throughout society. Not everyone who wants to go to school is granted the necessary privileges. Certain issues emerge because of factors including age, gender, place, status, religion, and personal

priorities. By giving all committees equal rights, AI can resolve this problem. As a result, society will alter in every way.

2. WHAT'S EMOTIONAL INTELLIGENCE IN AI

To recognize, impact, and fully understand the input of feelings, EI is a collection of abilities that combine a sensible inference with a precise visual of an entity. It combines the expressions and feelings in oneself and others, using these emotions to plan as needed and achieve excellence in one's life [5].

Table 1: categorization of Emotion

Appraisal and Expression of Emotions	<ul style="list-style-type: none"> ● Self ● Other
Regulation of Emotions	<ul style="list-style-type: none"> ● In self ● In other
Use of Emotions	<ul style="list-style-type: none"> ● Flexible planning ● Creative Thinking ● Redirected Attention ● Motivation

Research done in the 1990s revealed people's reactions to various social situations. The study has demonstrated that people's emotions have a significant impact on their decision-making. It demonstrates how watching an emotionally charged movie with a troubling or bad topic may cause people to lose their emotional clarity, which makes them appear depressed. Conversely, there is greater emotional clarity among individuals who are capable of understanding their feelings and perceiving the idea from their point of view. The capacity to recognize and label a feeling that one is experiencing is known as emotional clarity [5].

2.1 EI in AI

The ability of machines, computer, or software program to think and behave like a person is known as AI. The AI should be able to reason like a person and possess a human-like intellect. An AI system that possesses EI can better grasp human perspective from that of an individual to that of society by making human-machine parallels greater. Numerous research on the addition of EI to three different categories of beings [6]:

- Embodied agents that aren't humanoid.
- humanoid agents; and
- virtual agents
- In the context of regular job fields: Assistance in comprehending emotions such as rage, impatience, and happiness.

These tests demonstrate how vitally critical it is to react to the emotions that both humans and the system display. Ruud Hortensius claims that the purpose of his research is to change the views of individuals and create emotions in a computer through human observation. Furthermore, emotions have the power to cause in machines a range of reactions, both conditionally positive and conditionally negative, depending on the machine itself or the social context. Aggression and empathy are examples of such conditionally positive and conditionally negative emotions. For instance, research was conducted on a human subject to teach a robot how to do different things, and the robot displayed three different facial expressions: irritated, pleased, and delighted. As the training ended, the subject's rating increased, and the human participants reported feeling more content and at ease since the machine could read their facial expressions. Therefore, a crucial component in the computerized identification of emotions is the evaluation of facial and body expressions. Body language conveys emotional condition, but facial expressions convey mental status. AI acquires information not only by watching but also by copying what it sees. A machine reacting with another machine, a machine responding to a person, and many more scenarios are possible examples. The addition of EAI may have an impact on several academic disciplines, including physics, culture, and healthcare [7]

As per Allerin, is an organization that provides business solutions and works on many software kinds including AI, Blockchain, IoT, Big Data, and cloud-based systems. It demonstrates the significant influence that EI in AI can have on society. By incorporating emotional intelligence with AI, which will advance in several domains like education and employment, society may gain a great deal [8].

- Physicians and nurses: to assist and provide care for clients and patients.
- Sales Supervisor: Chat panels may facilitate customer-service interactions more effectively, which boosts both sales and customer support.
- Students: Help them with their academic struggles and maximize the areas in which they excel.

In the next five years, a lot of companies and businesses, like Google, Amazon, and Microsoft, plan to invest in EAI to incorporate personality into their technologies. They are expected to develop into a multibillion-dollar sector of the economy, able to lead by example and carry out morally sound initiatives that have a global influence [9].

2.2 Development of EI in AI

Following the development of AI, the field of EAI emerged. Realizing that increasing the presence of emotions in AI would raise the likelihood of parallels between humans and machines. Additionally, it will comprehend humans and be more likely to identify the root cause and impact of an issue. There is a lot of artificially intelligent equipment in our bedrooms and kitchens that assist us with daily duties, but they lack EI and cannot adjust to meet our needs. An AI system that is desired should be capable of adjusting to the mental state of the person using it. The MIT laboratory is developing a wide range of technologies. There is a technology that uses the way someone sits to determine whether they find their depiction interesting. Other technologies include the ability to identify emotions based on physiological changes. Wearable systems, such as smartwatches and trackers, are capable of sensing changes in temperature, skin conductance, heart rate, and muscle tension. By monitoring these changes, these systems can track an individual's emotional and cognitive stress [10].

In the current era of EAI, several top businesses have integrated the concept of AEI into numerous AI systems. Among the several technologies are:

- Humanoid Machines/Robots
- Virtual personal Assistants
- Hardware of EAI
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1) *Humanoid Machines/Robots*

"Sofia," the most sophisticated humanoid robot available today, is an advanced robot with AEI. Sophia was created by the Hong Kong-based company Hanson Robotics to be the most personal robot ever. She has abilities to sense motion, including the movement of her eyes, facial expressions, and the motion of its metallic exoskeleton. She can also detect and convey emotions. Sophia's architecture also incorporates

deep neural network-generated robotic motions and emotional recognition. As far as Artificial General Intellect (AGI) goes, Sophia is the most comparable approach to having human-like intellect, or human-equal intelligence. With small servomotors and Bowden wires beneath her skin, it can make over 60 different facial expressions. She can visualize anything she sees via cameras in her eyes. She can converse both orally and nonverbally and has algorithms to recognize and track faces. Along with grief and happiness, she also develops humor. She mirrors similar behaviors by expressing her feelings with specific facial gestures. Decision trees, which are the same technique used in chat boxes, always provide her replies. Say you ask for X, and it responds with Y. Sophia, the first humanoid, has established numerous goals for herself, including learning, observing, and being aspirational about the world. From a humanitarian standpoint, our goal is to determine if an AEI may have a life distinct from its own, they have the potential to address the most pressing issues of our day [11].

2) *Personal Virtual Assistant (PVA)*

Virtual personal assistants may be found in many devices, including refrigerators, computers, cell phones, and televisions. These artificially intelligent agents, known as personal assistants, aid us with daily chores including goal setting, reminders, and informational support. Siri was the initial PVA ever created. The iOS operating system has an artificially intelligent assistant called Siri. Siri can do standard tasks like identifying human voices and obtaining information about anything the user requests, just like the other assistants available today. Being among the earliest aides, Siri has aided the public by being simple to use. Google Assistant entered the globe by integrating itself into the Android operating system as virtual assistant technology advanced. This has achieved some noteworthy advancements in ways that Siri and other entry-level assistants were unable to carry out [12].

Through user engagement, Mitsuku is continuously learning new things about people and the outside environment. It asserts that it is learning more about itself regularly and that it has the most intimate human-like interactions with emotions. The use of VA in the current world has made life simpler for all people. With the support of VA like Mitsuku, Google Assistant, and Siri, they significantly contribute to technology and its development. These assistants, which are easily accessible by their users, productive, and well-organized, have assisted in keeping things moving forward. Its customers now

find it more efficient because of features like location tracking, application integration, and easily available information. These virtual helpers exhibit a range of feelings, including joy, happiness, rage, and remorse. By analyzing the user and their conversations, these assistants can use emotional intelligence by determining the user's tone of voice or text and responding appropriately [13].

3 USING EMOTION ARTIFICIAL INTELLIGENCE (EAI) WITH HUMAN EMOTIONS

The use of AI is supposed to make it possible for robots to think like people. The development of mechanical capabilities to expand human capabilities is known as "extended intelligence." This involves employing advanced technologies to support decision-making as well as utilizing creativity to improve decision-making and communication. Stated differently, extended intelligence refers to the application of AI to enhance human intellect. The benefits and drawbacks of the two forms of intelligence are combined in extended intelligence. AI's computing power is guided by the human intellect through enhanced understanding and free association. Additionally, human intellect is highly proficient in abstract cognition, free association, understanding, and processing of sensory input. AI excels in the areas of analysis, prediction, processing, and memory. Artificial and human intelligence may complement each other's strengths and balance each other's shortcomings, despite their disparities. Computers can do billions of operations per second, however, humans have difficulty with scale [14]. Therefore, it is more important to comprehend how people view artificial intelligence and the emotions it arouses as human-robot interactions grow more frequent. Emotion is described as "a complicated pattern of responses, involving experiential, behavioral, and physiological elements" by the American Psychological Association (APA). "People respond to issues or circumstances that they consider personally significant through their emotions" [15]. Anger, contempt, fear, happiness, and sorrow are the feelings that scientists have studied the most. They encounter an extensive variety of other emotions in everyday life, even though these five are essential, according to current studies. Additionally, Huang highlights and proposes the distinction between conditionally positive and conditionally negative emotions [16].

Humanized AI is anticipated to possess social, emotional, and cognitive intelligence as well as awareness of how it communicates with people, according to Kaplan, A., and Haenlein, M. (2019); this AI system has not yet been implemented. EI and behavioral and cognitive skills are all present in human-inspired AI. This AI system can interpret human language and incorporate feelings into its decision-making. Moreover, philosophy, mathematics, economics, neurology, the field of psychology, computer science, and linguistics are only a few of the fields in which artificial intelligence is entwined [17].

In general, AI technologies make life as well as work easier by using a variety of programs to carry out basic and constrained activities. It can now, however, recognize emotions. AI can mimic emotions and identify them from voice and facial cues. Certain AI systems may need speech input to interpret human emotions; they may also be able to detect emotions by examining minute facial expression changes. Emotional AI analyzes raw facial expressions to understand and predict human behavior using optical detectors or webcams [18].

4 INTEGRATING OF EI INTO AI

The field of human-computer interaction is concerned with identifying IT strategies and tactics that benefit people. This field is connected to several technologies, including biometrics, chatbots, voice, face, and speech recognition. Chatbots are computer programs that use pre-programmed keywords and text- or audio-based cues to mimic interactive human interaction. They are often employed in marketing and customer support systems. They are also accustomed to handling shipments and orders by giving status updates. They might work in sales assistance, responding to inquiries from potential clients. Moreover, operators can use this technology to get performance feedback during training. A program that automatically recognizes or authenticates persons from digital photos or video frames is known as facial recognition software. Primarily, it serves as a safeguarding security mechanism and authenticates employee actions, including attendance and computer usage, in safe work settings [19].

Speech recognition is a technology that allows specialized systems and software to recognize, differentiate, and verify the speech of a single speaker. The capacity of electronic equipment to comprehend spoken words is known as speech

recognition. A voice recording device records an individual's speech, and circuitry transforms that signal from analog to digital audio. Last but not least, biometrics is a biology-based identification technique that verifies safe access using biological characteristics of people, such as DNA or fingerprints. [20]. Because these technologies do not require passwords or badges, they can increase the security of manufacturing facilities. Employee presence and working hours can be automatically recorded using fingerprint or retinal control systems [21].

4.1 Immersive environments

Virtual simulations that fill the user's field of vision and provide the sensation of a physical presence are called immersive environments. Diverse levels of user awareness and sensory immersion are present in immersive settings within digital reality. Virtual reality, augmented reality, simulated reality, a combination of reality and extended reality, digital twins, holograms, and gamification are some of the technologies that rely on immersive settings. A representation of the actual world that is enhanced with digital images, audio, or other technological components is known as augmented reality [22]. Highlighting physical world characteristics, deepening our comprehension of them, and drawing conclusions that translate to the actual world are some of its goals. Businesses can utilize augmented reality, for instance, to provide new marketing initiatives or to advertise goods and services. Additionally, it may superimpose directions and instructions on things to help with component assembly or maintenance. Operators might receive step-by-step instructions and training while using smart eyewear. It may be used to find flaws and increase accuracy during inspection throughout the product's quality control phase [23].

Users of virtual reality are submerged in a whole new environment created by computers. Users have the option to fully submerge themselves in an animated environment or a captured real-world location. Engineers may emulate product attributes by using 3D models that they can develop. This encourages lower costs and more precise design. By simulating manufacturing layouts, this technique makes it possible to identify inefficiencies and possible logistical issues [22]. While expanded reality refers to both the real and the virtual worlds created by computer systems and wearable devices, the term mixed reality is a hybrid system that combines both virtual and physical aspects [24].

They are better able to comprehend the improvement tactics that need to be implemented and visualize machine KPIs. Furthermore, distant picture and video sharing as well as remote collaboration are made possible by immersive technology [13].

A virtual representation of a procedure, item, or service is called a digital twin. This merging of the virtual and real worlds allows the analysis of data and systems management to anticipate issues before they arise, minimize downtime, create new possibilities, and even use simulations to plan operations for the future. A photographic projection produces holograms, which are visuals that appear as a multidimensional depiction of a two-dimensional item. Ultimately, gamification relies on using game design concepts to enhance user engagement with non-gaming activities. Games are used to simulate real-world activities and inspire individuals to reach their goals. Companies use gamification, for example, to strengthen their consumers' engagement with the brand or to promote a passion for a product or service [25].

4.2 Internet of Things (IoT)

The term "Internet of Things" (IoT) refers to a computing paradigm that includes any devices that may connect to a network but does not include desktop and server computers. These gadgets have network-based data identification, transmission, and reception capabilities [26]. Wi-Fi, LoRa (Long Range), and 5G connections are examples of different network connection types [27]. Production systems are using these technologies more often for workplace safety, predictive maintenance, product traceability, process optimization, and process monitoring. They shorten the time to control operations by facilitating quicker communication between highly reliable and low-latency equipment. Multiple distant operators can collaborate in real-time with this kind of link [28].

Smart gadgets that are network-connected are part of the Internet of Things. Smart sensors allow a variety of "things" to communicate with one another across a network, including wearables, home security systems, refrigerators, and thermostats. One goal of the Internet of Things is to have real-time communication between devices to increase productivity and guarantee more information without the need for intervention by humans [29]. Businesses are gaining a competitive edge from the deployment of smart gadgets. For instance, a business might drastically save expenditures overall

by keeping an eye on data regarding inventory levels and energy utilization. With the aid of mobile gateways and industrial wearables (such as smart shoes, gloves, glasses, helmets, and belts), To bridge the gap between the real and digital worlds, a system can offer an interesting and dynamic environment. Potentially dangerous circumstances, such as excessive temperatures or the presence of harmful chemicals, can be identified using intelligent sensors and portable sensing, guaranteeing an appropriate working atmosphere for staff members. Still, there are privacy problems that require attention. Furthermore, there may be regulatory issues because technology is developing far more quickly than regulations [30].

4.3 Proximity technologies

The foundation of proximity technologies is proximity sensors, which can identify nearby objects even in the absence of direct physical touch. They are employed in collision avoidance and warning systems to identify targets within a predetermined range. It may identify a target via electromagnetic fields, sound, light, or infrared radiation. proximity detectors can be used in production systems to identify the arrival of materials or components during assembly. They can also be used to automatically activate or deactivate devices or equipment based on the presence of things in particular regions [31]. This category includes the following technologies: Bluetooth, near-field communication, QR code, RFID, data matrix, beacons, and motion detectors. Beacons are tiny gadgets with a limited range that can pinpoint an exact position. Since they offer more precise information, they are frequently utilized for internal location. By alerting operators when they are entering a hazardous region, they can increase workplace safety. Electrical gadgets called motion detectors use a sensor to find motion in the area [32].

RFIDs automatically identify each entity and trace its physical position using a wireless connection between the object and an interrogating device. They are employed in the product traceability process. Products may be equipped with RFID tags that hold data including the product's characteristics, date of manufacturing, and identification code [33].

Smartphones are intended to scan codes such as QR and data matrix codes. Links, text, and other types of information may be provided in plenty by these technologies since they can carry a wide

variety of data. According to Kalinić, Zoran, et al 2021, they may be used for quality control, effective inventory management, and product traceability [34].

Bluetooth is an unlicensed wireless technology standard that allows mobile and stationary electronic devices to send data over short distances. For instance, operators can utilize Bluetooth technology on their cell phones to monitor machinery. Finally, Debnath B, Dey R, and Roy S (2019) describe Near Field Communication (NFC) as a wireless technique that enables a device to gather and analyze data from a different gadget nearby. An NFC device, for example, can be used to send setup files or configuration parameters to a production unit quickly. As a result, setup time is decreased and efficiency is increased because there is no longer a requirement to manually enter settings [35].

4.4 Robotics

The study of robots that can carry out manual activities for people in an autonomous or semi-autonomous manner is known as robotics. Generally, robots carry out jobs that humans cannot safely complete due to their repetitive nature or high risk. Depending on how they operate, robots may be classified into several categories. A self-driving robot in a production system can navigate autonomously through its surroundings by utilizing a complex network of sensors and computing to determine its path and make independent movements in space. They can carry out handling duties and move goods and materials along manufacturing lines [36].

Vehicles that are autonomous, or driverless, operate without the assistance of a human operator. To map the surroundings and identify the presence of cars and people, sophisticated actuators and sensors are utilized. Cobots are robots that assist or guide people while they are working on a task. They are made and programmed to react to commands and actions from people. They facilitate group activities including material processing, lifting large objects, and component assembly, which lightens operators' workloads and boosts output. A robotic system utilized in production is called an industrial robot. They can move on at least three axes, are programmable, and automated. Robots are commonly used in welding, palletizing, creating art, picking and placing, assembly, disassembly, packing, labeling, product inspection, and testing [37].

Except for industrial applications like surgery to remove tumors or implant new prostheses in patients, a service robot can carry out beneficial duties. Drones and other unmanned vehicles are utilized for a variety of tasks when working with a human operator might be hazardous or uncomfortable. They can be used for security inspections and facility monitoring [38].

A wearing robot is a wearable gadget that enhances a person's mobility and physical capacity. To enable certain movements, devices or sensors may receive behavioral, verbal, or other inputs. They might be employed to lessen the physical strain that human workers must endure when doing physically hard activities. Lastly, computer-assisted systems (AS/RS) can retrieve things or store them in designated areas. Production and transportation operations are accelerated by these technologies [39].

4.5 EI in the medical field

A. - Role of Robotics and Automation in Surgery

The paper examines robots and automation's role in surgery critically, emphasizing both new and existing technology. The study design used in the research is cross-sectional and descriptive, and secondary data is gathered from official citations and published studies. The results show that robotic surgery is becoming increasingly popular for routine treatments. Its advantages include high precision, fewer incisions, better sight, less tiredness for surgeons, and the ability to do challenging procedures more readily [40].

B. - Robotics and Automation's Drawbacks

The research does note several disadvantages, though, including increased expenses, a process of learning for surgeons, restricted availability in some environments, technological challenges, less tactile input, extended operating durations, reliance on technological advances, and more time and effort required for setup and maintenance [41].

C. Developments in Surgical Robotics and Moral Issues

Highlighted are developments in automation and surgical robots, including FDA-approved systems and upcoming platforms. The study also discusses the moral issues surrounding the application of AI in surgery, emphasizing

algorithmic transparency, prejudice, and data privacy [42]. The study concludes that while automation and robots have the potential to improve surgical results, further research, education, and regulation are needed to guarantee their responsible and effective use in surgical practice [43-45].

4.6 Impacts of Generative AI on Higher Education

The landscape of higher education is already changing due to generative AI. Recently, a plethora of applications utilizing the technology have surfaced, and several others are still under development. Administrators, teachers, and students will all utilize these technologies, changing the way they operate and posing hazards as well as opportunities. The effects of AI synthesis on higher education [46].

Through automation, generative AI may assist administrative personnel in scaling student services and academic assistance, expanding the amount and variety of support that educational institutions may provide to their students. However, these same apps run the danger of dehumanizing student-staff interactions, which are vital to the success of a lot of kids. Similarly, employing generative AI to assess candidates may increase the efficiency of admissions offices' labor, but it also increases the possibility of biased judgments that penalize certain [47].

Teachers may employ generative AI technologies to help with curriculum development, research support, and student work evaluation. By doing this, you may be able to cut down on some of the more tedious and repetitive parts of academic work, like formatting bibliographies and indexes, making a lot of assessment items (Image created using <https://www.midjourney.com>), or giving feedback on common mistakes made by students. Teachers may use these new tools to supplement their work in the beginning, but as time goes on, humans may be more involved in reviewing AI-generated content, and in the end, robots may prove to be more dependable than people. The ridiculous spectacle of teachers grading essays that students compose with AI writing assistants using AI evaluation devices might occur because students will also employ generative AI to help with generating their work [48].

For students, generative AI also has advantages and disadvantages. Like Khan Academy's AI tutor, Khanmigo, it may act as a customized educational

co-pilot by modifying materials and instructional strategies to match students' present readiness levels and assisting with their learning in the absence of a teacher. In addition to helping students synthesize material, start drafts, produce ideas, and test themselves, it may serve as a Socratic debate partner. Considering the data showing that one-on-one coaching is far more successful than group instruction, these apps might greatly enhance learning. However, these technologies can seriously impede intellectual development when they are utilized carelessly and without the student's intellectual input. Students may be strongly enticed to turn in AI-generated content as their own because of how easily they may be reminded to do pre-class assignments, surveys, quizzes, essays, and assignments. This would increase the prevalence of plagiarism and cheating while also deceiving the students themselves [49].

4.7 EAI in Consultation

Every individual undergoing rehabilitation should consult with a physician. When someone is experiencing a mental ailment, EAI can help them feel better faster. We can combine intelligent machines to improve care quality, convenience, and efficiency by utilizing EAI. Potential advantages include the ability to offer guidance, training, and support for clinical decision-making using intelligent virtual persons. AI can now recognize, evaluate, and react to emotional states because of developments in sensor technology and efficient computation. According to his book, 80 million Americans live in places where there aren't enough mental health professionals to address the demands of their communities. Engaging virtual healthcare providers that are available on mobile devices at any time and anywhere might fill this resource vacuum by answering queries about health issues, offering self-care counseling, and more [50].

5 ADVANTAGES AND DISADVANTAGES OF INTEGRATION OF EI INTO AI

Since EI is a component of AI, which is a higher form of human intellect capable of vast transformations, technological developments might reach previously unimaginable heights. Nowadays, all fields are pursuing EAI to achieve higher performance and stability levels. This is shown in several professions, including business, consulting, and healthcare. The use of EAI has several benefits, both known and unknowable. Emotional deduction is one of these uses, anticipating a person's

behavioral analysis and understanding how to respond to it. This is mostly employed in the fields of instruction and consultation since it's critical to observe and analyze behavior to draw conclusions and provide clients with better recommendations. Emotional artificial intelligence also has the benefit of being able to replicate itself, which increases the number of underlying occupations and aids in remote locations. There are various fair and unfair procedures for all age groups, and things are positioned and handled differently throughout the world. AEI can effectively address unfair practices by ensuring equal chances and outputs to advance sustainability in its entirety [51].

There are disadvantages in addition to the numerous equal benefits. The ability of certain technologies to analyze facial expressions and speech has already surpassed that of a typical person. AI can determine any facial expression or spoken emotion, including those that are played out. The primary algorithm inventors claim that human thoughts are capable of being taken over by this technology once becoming aware of its potential [52, 34, 53]. Algorithms already know your prejudices, emotional triggers, etc. based on connections, acquaintances, and other information, which is the foundation of privacy and security. Billions of people have had their personal information collected by Google and Facebook. While AEI can be extremely advantageous for society, it can also be concerning for mankind. These autonomous devices can manipulate items in their path if not employed appropriately [35, 54].

6 CONCLUSION

Compared to the current standard methods of AI, the application of EAI provides a far more thorough insight into how robots might support people. Conventional AI relies on efficiency and logic to solve problems and become experts in a short amount of time in a certain field of study, such as scientific math computations. AI can expand into new fields of study if EI is incorporated into it. Numerous fields, including healthcare, education, consulting, and even construction, are open for exploration. To provide stability for those who are struggling with emotional issues, all the sectors apply emotional bias.

It must implement the ideal AI agent outfitted with the most sophisticated EI recognition to provide superior results and accelerate the growth of AI technology across all disciplines of study. This will

resolve the issues that people deal with daily and build a relationship between people and machines to improve comprehension of difficult circumstances.

These days, AI uses virtual assistants like Sophia to represent EI. Joint movements, speech, and voice recognition can all be used to track an agent's emotions. Because these assistants acknowledge that they can identify emotions from voice tonality, the user interaction becomes more accurate. Soon, autonomous vehicles and human-like robots will be able to bring in a new era of technological advancement.

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