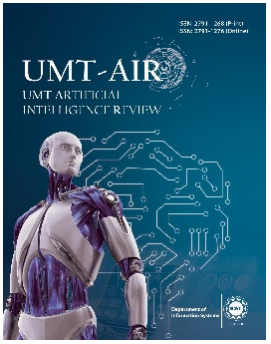


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# A Literature Review of Artificial Intelligence

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**ABSTRACT:** Artificial Intelligence (AI) has gained significant importance during the last decade. It has also made significant contributions to practically every science discipline and field of life. It has revolutionized how human beings communicate and transformed how they look toward the future. This study conducted an updated literature review on AI to investigate the workings of new and old AI technologies. Much literature work has already been published in the domain of artificial intelligence, its techniques, and applications. However, this research intends to overview diverse AI techniques that can be implemented to preclude cyber assaults and AI and its uses in various fields. Furthermore, this literature review outperformed previous literature review publications in many aspects. It may aid scientists and readers in comprehending the technologies, fields, uses, and applications of AI.

**KEYWORDS:** Artificial Intelligence (AI), Artificial Neural Network (ANN), cyber security, fuzzy logic

## I. INTRODUCTION

Artificial intelligence (AI) performs a progressively imperative role in management sciences and operational research. Intelligence is generally described as having the cognitive capacity to absorb information and use it to unravel complex dilemmas. According to researchers, intelligent machines will soon overtake human competencies.

Intelligent machines and software that can think, assimilate, accumulate information, interact, control, and discern objects are known as artificial intelligence. In 1956, John McCarthy came up with the term to define a new computer science field that aims to make machines act like human beings.

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The computational analysis enables us to understand the diverse behavior of different AI algorithms. Unlike psychology, AI focuses on computation, whereas computer science focuses on interpretation, thinking, and execution. AI processes boost the intellectual prowess and versatility of machines. Generally, these processes use artificial neurons (artificial neural networks) and mathematical theorems (if-then statements and logics). AI technology has advanced to such an extent that it can presently have real-world advantages and be used in various applications. Expert systems, natural language processing, speech understanding, robotics and sensory systems, computer vision and scene recognition, intelligent computer-aided instruction, and neural computing all seem to be paramount artificial intelligence domains.

Expert system is an emerging technology that significantly influences several fields. Artificial intelligence approaches include Neural Networks, Fuzzy Logic (FL), Evolutionary Computing, and Hybrid Artificial Intelligence [1].

Artificial intelligence is more effective than natural intelligence since it is more enduring, reliable, less costly, demonstrable, and convenient to replicate and propagate. It is also capable of handling specific processes better than humans. Alan Turing (1950) posited the Turing test, which was created to ascertain whether a machine can think or not.

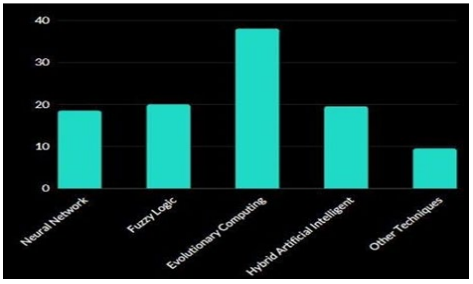


Fig. 1. Various Artificial Intelligence Techniques have been reported in articles [2].

The test comprises a human inquirer who engages with both humans and machines to assess who is a human and a machine. After asking a few written questions, the machine passes the test if the inquirer cannot discern whether a written answer is from a person or a machine [1].

Further, many Researchers in such a diversity of disciplines sought to make funding and specific other investment for forecast financial patterns, analyze financial and

shareholder conduct, assess priorities, monitor balance sheets, cost capital raising, ascertain the level of earnings, and pinpoint symmetries in security trading volumes, anticipating deficits and bankruptcies [3]-[14]. In this regard, various approaches have been used. Such approaches may be categorized into parametric statistical methods (which include discriminant analysis and logistic regression), non-parametric statistical methods (including special k nearest neighbor and decision trees), and soft computing techniques (for instance, rough sets and artificial intelligent algorithms). Artificial intelligence approaches, especially ANN, have recently become one of the most amazing tools in financial markets [15].

AI breakthroughs have significantly affected our contemporary world. The notion of machines exhibiting the human form of comprehension used to be a distinctive research area of computer science and mathematics; however, it has proliferated and evolved in recent years to become a robust and prevalent industrial tool. Since the last few decenniums, researchers have paid substantial attention to notable Machine Learning (ML) approaches, now reforming entire economies. Due to the increased use of AI in various tasks, such as natural language processing, information representation, automatic reasoning, computer vision, and robotics. Initial spacecraft configuration to mission operations, from route planning enlightenment and control algorithms to the prognosis of the mechanism's motion, classification of celestial phenomena, and optimization of faraway discerning data, are a few applications [16]. Various fields are increasingly using AI due to its efficacy in dealing with dilemmas that humans or conventional computing systems cannot resolve. The continuous improvements and broad range of applications of AI also result in increased use [17]. 30.7 % of the global inhabitants are deeply involved in the agricultural sector, with 2781 million hectares of agricultural land. From the sowing phase to the reaping one, farming can be a difficult task and is not without its impediments. It is essential to curb plague and disease

outbreaks, inappropriate chemical application, and inappropriate sewerage and sprinkling and manage weed growth, yield prognosis, and other agricultural issues [18].

AI originally stood for artificial intelligence for vehicles. It seeks to execute both realistic and sophisticated AI techniques so that the vehicles can self-drive in a human-like manner [19]–[21]. For instance, deep neural networks are algorithms trained within enormous data sets to conduct divergent processes and thus are programmed to replicate the functioning hypothesis of the mind. Intelligent vehicles amalgamate AI approaches, including environmental consciousness, map creation and navigation mechanisms, and multi-scale supplementary driving facilities [19]-[21] to enable vehicles to make intelligent choices.

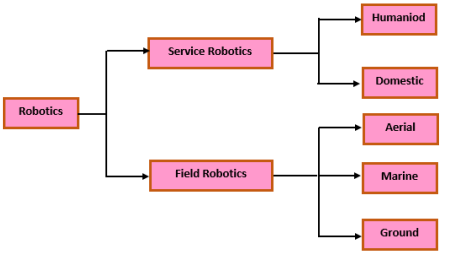


Fig. 2. Taxonomy of Robotics.

At present, firms and institutions across the globe are contemplating capital partnerships in AIVs [22], [23]. The AV processes affect environment consciousness, perceptual chart, route scheduling, and tactic management [24]-[26]. The main job is to grasp how to teach the machines to act the same as humans. Multisensory high data, orientation technology, optimum path scheduling, executive regulation innovations, human-computer collaboration, and resilience mitigation innovations are now based on artificial intelligence algorithms. Deep reinforcement learning approaches have become prominent in [27], [28].

AI is a computer science component encompassing robotics's reasoning and organizational aspects. By utilizing AI methods, robotics has evolved exponentially, granting numerous prospects for simulation activities in various application fields, namely household utilities, aerospace expeditions [29], [30], diagnostic interventions, and combat activities. It also aids in accumulating data based on air pressure, weather, atmosphere, wind, and other parameters [29]-

[31]. Due to these advancements, robots can operate at the workplace and in residences and enterprises, performing numerous hazardous and tedious activities. As per Figure 2, robots can be split into service robots and field robots. The field of robotics has created tremendous repercussions on divergent socioeconomic facets of our community. Intelligent robotics seeks to build machines that can perceive, interpret, and behave exactly as humans do. Hence, intelligent robotics is self-instructed; Figure 2: Taxonomy of Robotics [29], self-arranged [32]-[34], and self-replicating [35], [36].

In the past 15 years, many computer-based diagnostic systems have been postulated to assist nuclear power plant (NPP) crews amid abnormal plant circumstances. Alongside the breakthroughs in cognitive science and computer science disciplines relevant to artificial intelligence, computer systems for detector and device malfunction prognosis have been posited. Computer-based systems diagnostics pursued the area of artificial intelligence, which is progressed by expert systems in the initial and mid-1980s towards artificial neural networks (ANNs) and via binary logic towards multivalued or fuzzy logic [37].

Aside from the advancements in cyber security and artificial intelligence, there are myriad integrative correlations that still need to be uncovered. AI technologies, such as deep learning, can be applied in cyber security to create shrewd models for malware recognition, intrusion prevention, and intelligent threat detecting. AI models would be susceptible to many cyber assaults undermining their sample, training, and choices. To counter antagonistic machine learning, maintain machine learning confidentiality, and secure federalized learning, AI models must have distinctive cyber security prevention and preservation technologies [38].

In the subsequent years, the disciplines of AI and, specifically, deep learning have garnered much attention in radiology [1]-[3]. These methods have predominantly been utilized in visual activities, such as image recognition (that is, chest X-ray prognosis) as well as autonomous fragmentation of

concerned areas within an image (for instance, tumor tissue can be segmented during a brain MRI) [39], [40]. Mainstream media channels have highlighted these concerns by reiterating the argument that such algorithms could ultimately outclass human radiologists in detecting pneumonia. Even before these breakthroughs, many influential personalities (including Geoffry Hinton, a discoverer in artificial neural networks) speculated that radiology is a prestigious area and could be supplanted in the future by sophisticated algorithms capable of analyzing images. In this regard, distinguished radiologists and scientists were contacted by worried tenants and undergrad students at scientific conferences and on the social network. The tenants and students were worried that their radiology education was an incorrect career path [39]-[41].

This paper overviewed diverse AI techniques which can be implemented to preclude cyber-assaults. Moreover, we also examine the field of AI and its uses in various disciplines. We provided an updated literature review of AI towards diverse domain-specific, not comprehensive shortcomings in artificial intelligence as previously explained in [42], [43]. Section II examined diverse AI techniques which can be implemented to preclude cyber-assaults. Section III highlights AI and its uses in a variety of fields. The conclusion is illustrated in sections IV and V; future directions are given.

## II. Discussion of How Diverse AI Techniques Can Be Implemented to Preclude Cyber Assaults

In this section, I discussed diverse AI techniques which can be implemented to preclude cyber-assaults.

### *A. Application of Techniques*

#### a) Application of Intelligent agents

Intelligent agents are self-contained computing devices that correspond with one another to transmit insights and anticipate and enact adequate replies during the prompted event. Intelligent agent technology effectively combats cyber-attacks, regardless of their maneuverability and resilience. Intelligent agents were also employed to retaliate against

Distributed Denial of Service (DDoS) attacks. To resolve inevitable legitimate and business hitches, it should be feasible on such a fundamental level encompassing intelligent agents as mentioned in [44]-[46]. Facilities utilizing AI technology must be configured to assist the movement and collaboration of the agent, so it is impenetrable to adversaries. Multi-agent equipment, including neural network-based intruder prevention and hybrid multi-agent techniques postulated in [47]-[55], are necessary for a comprehensive operational representation. In [56], there is a definite exhibition of an agent based on the distributed intrusion detection system.

**b) Application of Neural Nets**

Since Frank Rosenblatt's discovery of the perceptron in 1957, the history of neural nets commences – an artificial neuron that was addressed among the essential elements of neural nets [57]. By engaging small groups, perceptions can be determined and tracked. Nonetheless, neural nets have an immense amount of artificial neurons. Neural nets have the privilege of dynamically simultaneous learning behavior. Further, their utilization incorporates pattern identification and the selection of intrusion responses [58]. They can also assist with software or hardware configuration. Neural nets are utilized to diagnose and protect intrusion [59]-[63]. Hence, it was suggested that neural nets should be used for DoS recognition, malware categorization, phishing identification, zombie recognition, computer worm recognition, and forensic probes [64]-[66]. However, their rising pace is possibly significant in cybersecurity whenever mounted in hardware neural nets. Emerging technologies in neural nets technology have been recognized, such as 3G neural nets, in which neural nets wisely follow biological neurons, but diverse application initiatives have not been discussed.

**c) Application of Expert Systems**

Expert systems, as mentioned previously, are prevalently deployed in AI mechanisms. It is a computer program that explores the responses to queries offered by a user or some computer program. In multiple domains such as accounting, healthcare prognosis, and virtual worlds, direct decision-making application has been

observed. Expert systems have been employed in various dimensions and configurations spanning from compact prognostic systems to enormous effectual hybrid systems to overcome intricate glitches.

An expert system's infrastructure incorporates the knowledge base that holds expert knowledge. This also encompasses an inference engine for implying responses relying on the latest knowledge and the additional information regarding a scenario. The expert system shell constitutes a hollow knowledge base and inference engine; however, knowledge should be embedded. Expert system shell should always be used by applications that include the information inside the knowledge base to be augmented with software for user collaboration and other incorporated software, such as hybrid expert systems. The expert system is designed to strengthen cyber security in cyber defense since it offers protection and recommends optimum utilization of restricted resources. The usage of expert systems in intrusion prevention is extensively documented [67], [68].

**d) Application of Learning**

Machine learning entails analytical techniques for amassing novel knowledge and the latest competencies and methods for documenting existing knowledge. Learning problems vary in complexity spanning from rudimentary parametric learning to intricate aspects of symbolic learning, including learning of ideas and sometimes, Behaviour, syntax, and features. It is plausible to utilize both supervised and unsupervised learning.

Unsupervised learning is effective when coping with a large amount of data. It can be seen in cyber security, where enormous data can be accumulated. AI's unsupervised learning conceived the notion of data mining. Unsupervised learning, particularly of Self-Organizing Maps (SOM), effectively applies neural nets [69]. Parallel learning algorithms are another learning method; they operate using parallel hardware. Such learning techniques utilize genetic algorithms as well as neural nets. For instance, genetic algorithms and FL were employed in the threat detection systems [70].

In [71]-[73], authors has deployed few specific applications.

#### e) Application of Learning

When evaluating the extension and deployment of AI approaches in cyber-attack protection, it is imperative to comprehend the differences between immediate objectives and long-term perspectives fully. Several AI approaches work effectively against cyber-attacks; however, there are still numerous existing cyber-attack predicaments that require more effective solutions.

It is permissible to witness the emergence of wholly new criteria for decision-making. Scalable and centralized information architecture is embedded into certain principles of decision-making technology. Automated information analysis guarantees swift assessment of the situation. Expert systems are reportedly implemented in a myriad of applications. Nevertheless, their involvement within an application and tools, such as security initiatives and management tools, are occasionally concealed.

## III. EXPLORE THE ARTIFICIAL INTELLIGENCE AND ITS USES IN A ND ITS USES IN A VARIETY OF FIEDS

In this section, I explored AI and its uses in various fields.

### *A.* Fields of Artificial Intelligence

#### a) Language Understanding

AI can "comprehend" natural language and react appropriately. It can also transform spoken languages into written language and transform one natural language into another.

a) Speech Understanding
b) Semantic Information Processing (Computational Linguistic)
c) Question Answering
d) Information Retrieval
e) Language Translation

Fig. 3. Language understanding [1]

a) Cybernetics
b) Concept Formation

**b) Learning and Adaptive System**

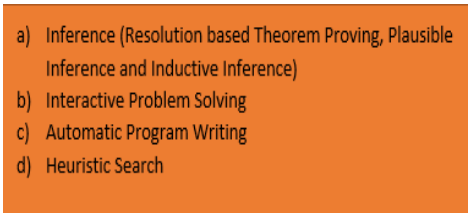


Fig. 4.Learning and adaptive system [1]

It has the tendency to adjust actions based on prior experience. It can also formulate specific principles about the environment based on that experience [1].

**c) Problem Solving**

It has the potential to deal with dilemmas logically, draw up solutions, and determine when and how specific knowledge is necessary [1].


Fig. 5. Problem Solving [1]

**d) Perception (Visual)**

By contrasting it to an internal model that embodies the perceptual organism's "reality awareness." This finding provides a formal collection of interactions among the individual's elements [1].

**e) Modeling**

It can construct an internal interpretation and collection of rules that can be applied to anticipate the actions and associations of a group of experienced elements [1].


Fig.7. Modeling [1]

**f) Robots**

It can maneuver across the territory and regulate devices, as well as an amalgamation of any of the competencies above [1].

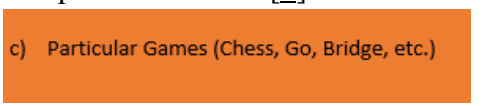


Fig.8. Robots [1]

**g) Games**

There is a structured series of principles besides games like Chess, Go, Kalah, Checkers, and other games. It also can transform these principles through a depiction or a framework that encourages analytical and cognitive aptitudes to be included in attaining an optimal rate of progress [1].

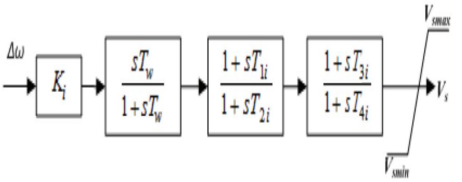


Fig. 9: Games [1]

It also prohibits steady-state variations from amending the terminal voltages. The phase reimbursement blocks containing time constants T1i – T4i provide the applicable phase traits to reimburse the phase lag among the input and output signals. Figure 10 depicts PSS's most implemented structure [1], [2].

In power systems, regulation machine functions are frequently conducted and upgraded in response to transformations. AI has the potential to deal with the high non-linearity of realistic devices. ANN, FL, and ES are some of the tools being employed to overcome PSSs optimization glitches [1], [2].

### *B.* Artificial Neural Network (ANN) in PSS

A multilayered feed-forward network is applied in various ANN applications in power systems. Along with a single hidden layer, feed-forward neural networks are postulated within those neural adaptive PSSs that comprise two sub-networks, adaptive neuro-identifier and responsive neuro-controller. The former monitors the plant's adaptive attributes, and the latter dilutes minimal frequency fluctuations. There seem to be three layers in a radial basis function network (RBFN): input layers, hidden layers, and output layers. By implementing an unsupervised learning algorithm, the hidden layer uncovers the cores and dimensions of the radial basis functions besides the specific pattern units. The output layer determines the balance between the pattern and output units. To ameliorate the system response of power systems, which utilize both the governor and the AVR, a recurrent neural network (RNN) stabilization controller is posited. The mooted controller's mass is balanced in real-time. For vibrational power, the very first signal output of RNN is consolidated alongside the PSS signal output. The governor mechanism utilizes the signal output of RNN as a stabilizing signal. Hence, ANNs are learning-based cognitive controllers that can plausibly handle discontinuities and

time constraints in nonlinear, adaptive systems [1].

### *C.* Fuzzy Logic in PSS

In 1964, Lotfi Zadeh introduced Fuzzy Logic (FL) to solve the imprecision and ambiguity prevalent in engineering dilemmas [2]. A power system with a layout tactic for a fuzzy logic-based PSS (FLPSS) was envisioned. The synchronous generator's pace variance and variant are incorporated using FLPSS as input signals. Five generator power systems were employed to assess the reliability of FLPSS, and a standardized sum-squared variance chart was constructed. Unique input signal based on FLPSS was implemented in a multi-machine environment [1].

## IV. USE OF ARTIFICIAL INTELLIGENCE TECHNIQUES IN NETWORK INTRUSION DETECTION

Several AI approaches were utilized by intrusion detection systems (IDS) to shield devices and data infrastructure against interlopers. These systems are also utilized by the mechanism of tracking network traffic and spotting indications of encroachment is reputed [1].

### *A.* Artificial Neural Network in IDS (Intrusion Detection System)

An artificial neural network (ANN) is a computational paradigm that comprises a network containing artificial neurons that manipulate information. Throughout IDS, ANNs are utilized to simulate divergent input-output associations and locate similarities in the data. In this scenario, the neuron magnifies input through weight. The outcome is passed on to the next neuron. The ANN has been reported in [1], [74].

$$y_i = f\left(\sum_k w_{ik} x_{k+} \mu_i\right) \qquad (1)$$

Fig.11: ANN has been reported in [1],[74]

Under which $w_{ik}$ is the input weights, $x_k$ seems to be the neuron i's inputs, i is indeed the threshold, f (•) becomes a transfer function, and $y_i$ is the neuron's output [1], [74].

### *B.* Fuzzy Inference System (FIS) in IDS (Intrusion Detection System)

Since creating IDS, Sampada et al. [75] postulated Two machine-learning frameworks: ANNs and Fuzzy Inference Systems. However,

after the training procedure of the system, they utilized SNORT to undergo real-time traffic inspection and packet logging around an IP network. After evaluating the learning rules and the Neuro-Fuzzy learning process, they created a signature template server. Subsequently, they employed DARPA Intrusion Detection Evaluation Data from 1998 and raw TCP dump info to appraise and verify the models. A maximum of 24 assault forms were specified in the data collection. The four most notable assaults were Denial of Service (DOS), Remote to User (R2U), User to Root (U2R), and Probing. The Fuzzy Inference System was identified to be speedier in preparation, consuming merely a couple of secs, whereas ANNs drove diverse minutes to aggregate. In a broad sense, both approaches performed marvelously, but Fuzzy Inference System outperformed ANNs in terms of recognition precision. The significance of selecting features was also demonstrated in their analysis since both approaches were inadequate when all parameters were implemented despite the selection. A subset (approximately 40%) of the parameters was considered significant and fantastic, as explained in [75].

## V. USE OF ARTIFICIAL INTELLIGENCE TECHNIQUES IN MEDICAL AREA

Artificial intelligence techniques have been incorporated into almost all disciplines of the medical industry.

### *A.* Artificial intelligence in medicine

Fuzzy logic is a computational technique that qualifies for uncertainty and is specially engineered for medical purposes. It efficaciously encompasses and implements the idea of fuzziness from a conceptual standpoint. To a minor degree, medical prognostics and biological system characterization are by far plausible domains of application due to this particular hypothesis [76]. For simulation, fuzzy expert systems utilize a set of “if-then” rules [1], [77].

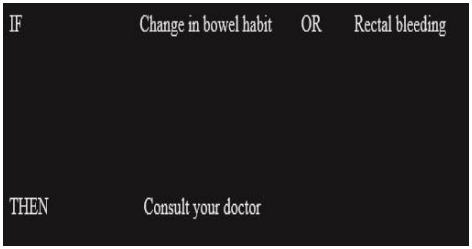


Fig. 12. A classic fuzzy rule system [1], [77]

Fuzzy logic approaches have been utilized and implemented in many medical procedures. While using precancerous variants to assess lung cancer, fuzzy logic is used in umpteen logistic regression evaluations. Fuzzy logic is also utilized to determine prostate cancer, breast, and stomach cancer and guesstimate clinical longevity throughout the breast cancer scenario. They can also distinguish MRI images of cerebral cancers and scanned photos of the breast. Therefore, fuzzy logic controllers have been utilized to implement vasodilators in the peri-operative phase to stabilize pulse rate [1].

**a) Evolutionary Computation in Medicine**

The expression "evolutionary computation" corresponds to a cohort of computational techniques derived from natural evolution, which simulates natural selection through sustainability among the smartest is still a severe challenge. Genetic algorithms (GA) [78] are the most deployed evolutionary computation method concerning medical applications. The most adopted mechanism of evolutionary computation in medical applications involves genetic algorithms, which rely on natural biological evolution. Within severely ailing sufferers, the philosophies of genetic algorithms (GA) have been reported to anticipate performance. Generally, evolutionary computing is designed to classify neuro cancers onto MRI to assess the effectiveness of therapeutic interventions. They have been involved in the microcalcification evaluation of automated screening mammography.

**b) Utilizing AI to Ameliorate Hospital Inpatient Care: Clinical Decision Support Systems (CDSS) is among the First Prevalent AI Implementations, relying on Patient Care**

A patient's manifestations and statistical specifics by way of the prognosis of his or her circumstance are described in [79]. In 1970, Mycin, a rule-based expert system, was constituted by CDSS for medical prognosis. It distinguished harmful bacteria pathogens and

prescribed antibiotics to cure them. In a like manner, Pathfinder, a venture that employed Bayesian networks to assist forensic scientists, pinpointed lymph node maladies quite reliably. AI was also used for computer-assisted cancer recognition within medical images. Generally, these methods assist in monitoring diverse cancers and inherited cardiac abnormalities [1].

## VI. Artificial Neural Network Approach to Diagnostic Science

The following section will explain how ANN is designed to characterize images across ages.

### *A.* Endosopic Images

In CAD, image categorization is a vital phase. The hybrid architecture of adaptive fuzzy inference neural network, which consolidates fuzzy systems and Radial Basis Function (RBF), was posited for the characterization of endoscopic images. Combining classifiers allocated to specific feature parameters resulted in 94.28 percent precision. Nevertheless, RBF was distinct through a substantially speedier training rate over fuzzy. Both texture and statistical features were presented in [80].

### *B.* MRI (Magnetic Resonance Imaging) Brain Tumor Analysis

The generic regression neural network (GRNN) uses a manual three-dimensional categorization approach to examine MRI cerebral cancer images. The latter approach was productive in terms of time and categorization precision. Least Squares Support Vector Machines (LS-SVM) seems an insightful identification approach mooted. It can be used to distinguish between normal and anomalous brain MRI segments. This approach outpaced most classifiers in terms of categorization precision because the false-negative rate in LS-SVM was highly negligible. A substantial analysis is currently conducted here due to automated abnormalities recognition in MR images of the brain [1].

## VII. Application of Artificial Intelligence in Accounting Database

Artificial intelligence is also under investigation as a possible solution to accounting database dilemmas. The below are among the detriments of current accounting database systems.

Accounting data does not fulfill the demands of decision-makers. The accounting software databases are too complex for humans to comprehend or manipulate. The running mechanism of devices is also intricate. Combining cognitive systems into accounting databases may facilitate the inspection of large quantities of data; consequently, the systems will probe data and aid consumers in comprehending or perceiving payments to ascertain accounting occurrences [81].

## VIII. CONCLUSION

Artificial intelligence (AI) is an essential domain related to the computer science milestone that is expected to be a vital aspect of all contemporary technology in the next decennium. In a broad sense, AI alludes to computational technologies which can perform specific activities in place of human beings. This technology is progressing at a blistering speed right now.

This study provided an updated literature review of research on artificial intelligence. It addressed diverse AI techniques, which could be implemented to preclude cyber assaults. It also overviewed applications of AI techniques, intelligent agents, neural nets, expert systems, and AI learning. Moreover, it also evaluated future challenges faced by AI technologies. Finally, this study scrutinized AI and its uses in various other fields. Subsequently, this study highlighted the use of AI in medicine and the implementation of AI in accounting databases. This literature review may aid scientists and readers in enhancing their understanding of AI technologies, fields, applications, and uses. Additionally, this literature review improved on the prior literature review publications regarding the state of knowledge, introduction, background information, related work, discussion, and future directions.

## I. FURTHER DIRECTIONS

According to the World Economic Forum news, AI will displace 85 million jobs by 2025. Though this may appear to be a frightening statistic, it should not be a cause of alarm since AI will produce 97 million additional employment opportunities by 2025.

By 2030, we think AI will have to eliminate multiple jobs. Numerous companies, especially globally, are currently reducing their staff by using robots for cooking burgers and assembling sandwiches. In the future, McDonald's may have a few employees giving out orders generated via robots. Whilst AI is emphasized in various industries, it is superfluous for document preparation and contract evaluation tasks.

Military specialists believe that upcoming battlefields will be populated by robots willing to obey commands without continual monitoring. Robots are employed extensively in combat activities with various operations, including monitoring, espionage, and plenty more. Robot surgeons are currently doing vital surgeries around the globe; therefore, it is just a couple of time until robots entirely displace humanity

Especially in pharmaceutical laboratories, robots can collaborate with researchers to provide a better working atmosphere. Further, in physical security, AI has achieved beautiful breakthroughs. Including its high-definition camera, Yelp's security robot, for instance, can examine a house. This also comes with a directional microphone and an infrared sensor to identify possible unusual actions. AI has an 84 % possibility of completely automating this profession in the future.

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