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A Survey On Ai In Different Application Domains

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Abstract: Artificial Intelligence (AI) is a branch of computer science that investigates computational models of problem solving, where the problems to be solved are of the same complexity as those solved by humans. Artificial intelligence is the study of how to make computers do things that people currently do better. It is machine intelligence and the branch of computer science that seeks to create it. Artificial Intelligence is another concept for both the study and design of intelligent agents. AI's central issues include reasoning, knowledge, planning, learning, communication, perception, and the ability to move and manipulate objects. The aim of this paper is to study artificial intelligence technology in all fields related to engineering in view of its applications.

Keywords: Artificial Intelligence, Health care, Cyber Security, ChatBot, Software Engineering

1. INTRODUCTION

Artificial intelligence (AI) is the most in-demand field in computer science, dealing with the simulation of intelligent behavior in computers. AI techniques are easily identifiable as product features. These techniques operate in the background, improving the system's overall performance.

Artificial intelligence attempts to explain all aspects of human intelligence through a computation process. It can interact with its surroundings using sensors and make decisions without the need for human intervention. In its most basic form, artificial intelligence (AI) is machine learning. Intelligence can be viewed as a distinct individual property or quality distinct from all other characteristics of an individual. Artificial intelligence can also be seen in actions or the ability to complete specific tasks. Classical AI, also known as symbolic AI, is the earliest approach to artificial intelligence. Artificial intelligence is only useful when it

contributes to society. AI has raised the bar for credit-scoring by enabling automation, high accuracy, and speed through the use of both big data and AI algorithms.
Artificial intelligence is generally classified as either strong or weak. Strong Artificial Intelligence is a system that can solve problems on its own. Modern working applications are examples of poor or weak Artificial Intelligence.

History of AI
In 1956, John MC Carthy is regarded as the father of artificial intelligence at the [1] Dartmouth Conference. The origins of AI can be traced back to ancient Egypt, but with the advancement of technology,In 1941, the first electronic computer was built, and the technology was eventually commercialized available to create machine intelligence comparable to human intelligence. Artificial intelligence (AI) is the biological motivation of the human brain. AI grew because of cognitive thinking and natural language. The first artificial intelligence programme, known as "The Reasoning Theoretician "Allen Newell, J.C. Shaw, and Herbert wrote it. Simon was born in 1956 [1]. The paper is organized as follows: Section 1 contains the introduction to the Artificial Intelligence, Section 2 contains related work, Section 3 provides the conclusion and future work to be carried out.

2. RELATED WORK

In Medical field
Apoorva et al. [2] proposed a simple neural network model that, using preliminary CBC test report data, can detect whether a patient has dengue. The patient information was obtained from a hospital. The system correctly classified the unseen test cases, as observed. The proposed system has a high test set accuracy of nearly 95%. Because time is critical in the treatment of dengue, the proposed system has the potential to assist doctors in saving many more lives in a short period of time. As a future research direction, more pattern recognition techniques for the classification procedure and introduction of localities' specific factors can further enhance the system to create a broadly reproducible model.
Shyama et al., [3] proposed cancer prediction based on Artificial Intelligence. New techniques are currently needed to diagnose and predict cancer diseases accurately. The model proposed is based on the prediction of the Artificial Neural Network. Data from patients with bladder cancer are provided in this article. Three different ANN networks train this model. This model uses the two methods of averaging and voting. This model performance is analysed using sensitivity, precision, and so on. The results show that the ANN methods perform better than other methods such as regression models.
Intelligent heart disease prediction system suggested by Parthiban et al., using the CANFIS and Genetic algorithms [4] Genetic Algorithms (GA), CANFIS, Heart disease, Member Function are all algorithms used in this document (MF). In order to analyse the existence of heart disease, CANFIS is combined with genetic algorithm. CANFIS has a huge potential to predict heart disease. By using this system, costs are reduced. The disadvantage is that CANFIS needed adequate database volume to construct the model.
Srinivas et al. Data Mining Applications in Health Care [5] introduced smart and smart methods of heart attack prediction, with significant patterns extracted from heart disease data stores. If the weight of frequent patterns exceeds the threshold value, those values will be chosen for prediction of a heart attack. Nave Bayes, ODANB and NCC2 are the main algorithms used here. The system's disadvantage is that the unstructured data in the health care database cannot be processed.

The review of the heart disease prediction system by hybrid smart and data mining techniques was recommended by Chithra et al.,[6]. States that offline neural network training is good for prediction of early-stage diseases and good performance can be achieved using pre-processed and normalised data. The study was based on ANN, an intelligent hybrid algorithm. The benefit of using a smart hybrid algorithm with feature subset selection is greater precision. The downside is that it is very complex to choose an algorithm for reducing features and a high training time.

Soni et al. proposed [7] a predictive medical diagnosis data mining technique. 15 cardiac analysis attributes are listed. The results of predictive data mining methods show that the decision tree performs better, and Bayesian classification also sometimes gives the same performance. Other predictive methods such as Clustering classification, Neural networking, Nearest Nearest Neighbor are not necessary. The accuracy of the Tree and Bayesian classifications is improved following the application of genetic algorithms.

Data Mining based early heart disease prevision was submitted by Methaila et al., [8]. Various experiments are conducted on various classifiers to identify heart disease patients in this system. The CART, ID3 and DT classifier have been used. This results in CART being more accurate than ID3 and DT. But priority associated algorithms for long item sets cannot be scaled.

The Data Mining Algorithm used to diagnose cardiovascular diseases was worked by Deepali [9]. This algorithm illustrates how the selection of features and information can be used in combination with the neurofuzzy adaptive inference system to diagnose patients. This research was based on ANFIS algorithms, such as Data Mining, K-NN, and good accuracy. However, the classification speed was low and the computing costs were high.

Sundar et al.,[10] proposed the system for the performance analysis for data mining classification technique in Heart Disease Database, using WAC, Naive Bayes, DMX query language, etc. Sundar and others. It creates, trains, predicts and uses the DMX query language for accessing the content. The model is evaluated for precision against test data sets before deploying the model in HDPS. Classification matrix methods are used to assess the efficacy of the model. The downside is that the system proposed only uses categorical methods.

Patel et al.[11] proposed a classification mining system using fewer attributes to predict cardiopathy. Here the Nave Bayes, Clustering Classification and the Decision Tree for prediction are compared. It shows that the decision-making tree works well in comparison with two more other techniques. It also demonstrates that the Nave Bayes performance is consistent. The result indicates that Clustering's performance in contrast to other techniques was poor.

Ishtake et al., [12] proposed a data mining system used to predict cardiovascular diseases that extracted encrypted information from one pre-existing heart disease database. DMX query operations can be used for building but rather retrieving model data. Five mining goals are analyzed based on business intelligence and data exploration. The trained models are used to assess the objectives. The models can respond with high accuracy to challenging problems. This provides good precision, but the dimensions of the dataset used are very small and only categorical.

A systems for the prediction of heart disease by Data Mining techniques were proposed by Taneja et al.[13]. Three unique supervised machine learning algorithms like the Nave Bayes, J48 classifier and Multilaying Watch have been built into the model. The result shows that the J48 rating is the most efficient of the three with a precision of 95,56%. All data mining objectives have been met by the J48 decision tree algorithm. Greater ANN performance and

less run-time were achieved. However, the rating consistency was indeed extremely low and cannot predict unique diseases such as heart diseases.
Amin et al. [14] proposed a data mining-based system for Heart Disease diagnosis, prediction, and treatment besides clinical decision support systems. The system is being developed in order to improve patient safety and reduce medical errors. The paper compares six CDSS systems using various data mining methods such as DT, Nave Bayes, ANN, Apta-CDSS-E, and support vector machines. Because medical data lacks performance and completeness, there's a need to highly specialized data mining methods for efficient methods. This provided good performance and accuracy, but it was unreliable and expensive. The system was not recommending treatment options to patients.

In Cyber Security
Anitha et al. [15] introduced a model that can defend itself from intrusion detection and various network attacks in Cyber Defense Using Artificial Intelligence. The primary goal of this system is to develop a framework for mapping a variety of multitasking processes. AI techniques are used to detect intrusions. The artificial immune system identifies security threats to wireless sensor networks (WSN). The system's advantage is that it detects any suspicious activity on the server and reduces the server's network load. The disadvantage with this is that the sensors have limitations in terms of design, storage and functional limitations like communication and processing.
Amandeep et al. [16] proposed using artificial intelligence to improve cyber awareness. This paper demonstrates how intelligent the toolagent that can be used in the prevention of cyber-attacks can be. Cyber-attacks have a significant impact on the information technology industry. Because web applications are widely used for critical and basic tasks, they have become a popular target for security attacks. To achieve high performance in this experiment, a combination of Genetic Algorithms and Fuzzy Logic is used. The heart of this experiment is a 3 programme that implements a DSDV routing protocol. This programme includes three threads. Each thread state is denoted by a different colour.
Making Use of Artificial Intelligence Techniques Merat et al. [17] suggested that to maximise the objective function, a pattern of high index threads must be decided to attend to and handled throughout the planned zone. In order to improve performance, a low priority index thread should be ignored by the process's overreaction. The SHOWMAN analogy is used to describe a multitasking initiative. To achieve the desired state, traffic and future process loads are calculated. Because synchronised threads and many attempted threads are unable to disengage, there may be some out of margin penalty and poor performance. As a result, the switching time is reduced to zero.
Artificial Intelligence in cyber security proposed by Dr. Pranav [18] presents a survey on computing the applications in cyber security, and analyzes the probability of enhancing the capabilities of cyber security by suggesting necessary changes in the intelligence of security systems. He made use of Standard mounted algorithm. It concludes that the helpful applications belong to the applications of artificial neural networks in the field of perimeter security and some other cyber security areas.
Yakubu worked on the role of Cyber Security and Human-Technology Centric for Digital Transformation which focuses on the study of models of security [19] management to guide the maintenance of security on existing cyber infrastructures. He gave a method for the practical and theoretical analysis based on the security management models that are selected. The proposed model does the evaluation of the analysis that is used to get the insights into the configuration and also specifies desired and undesired configurations. In addition, framework model that is presented, allows the evaluation of changes in the configuration in dynamic and

agile cyber infrastructure environments with respect to the properties like expected availability or vulnerabilities. A review on various methods of IT security model management was also given.

In Chatbot

Sumit Wailthare et al. developed one approach to the concept of executing a web-based AI chat-bot to be users' personal assistant, which speeds up the setting and beginning of customer client meetings while using the algorithm of matching patterns [20].

Vibhor Sharma et al. proposed two methods for popular chatbot systems, ELIZA and ALICE, as well as their applications [21]. It describes the method of implementing a domain-specific information system to provide an answer to FAQs in a University Setting.

Anirudh Khanna et al. implemented one database as the chatbot's brain, as well as the performance of simple AI systems, Turing tests, and their flaws [22]. The term "partially intelligent systems" refers to systems that are only partially intelligent.

Nahdatul Akma Ahmad et al. had done work on overview of chatbot design and techniques. It goes over AIML, pattern matching, language tricks, chat script, parsing, SQL, and relational databases in detail [23]. The Markov Chain is a technique that works by recognising the probability of letter or word occurrence in a similar textual data set.

Kedar S Chikorde and colleagues discussed about the open source packages available for building chatbots, such as Apache's OpenNLP [24]. There are useful frameworks available, such as Google's API. AI, Amazon's Alexa, and a slew of other technologies more on the Internet that can be used directly in the application.

G.Tascini et al. represents an architecture that consists of multiple levels with non-linear operations, such as neural nets with many hidden layers. It explains the relationship between NL and NN [25]. Chatbots that were having difficulty with tasks were able to overcome them by Deep Learning techniques are being introduced.

Sarthak V. Doshi and colleagues developed the two modes of communication, text and voice. The response generation process is divided into two stages: pattern matching preparation and pattern matching execution behaviour that is similar Add-ons such as Wikipedia and weather prediction help the chatbot learn more Forecasting departments, sports, news, and so on are all used [26].

Prof.D.S.Thosar and colleagues proposed a mood sensing approach for classical music based on acoustic data [27]. In a song, a hierarchical framework is used. According to the user's response, this same system sends a few web pages and links.

Kshitij V.Wadanka et al. discussed chatbot design, implementation, comparison, and the future scope of chatbots [28]. Applets are used because it is difficult to create an exchange box for the conversation between the client and the bot.

In Software engineering

Hany M Ammar et .al. discussed how machine learning techniques such as KBS, CBR, Fuzzy logic, and automated programming tools help to overcome the problems associated with traditional software development in one‘s paper on the Current iteration and open troubles in the Software Engineering using artificial intelligence[29].

Certain unresolved issues, such as SBST, necessitate additional research. Mark Harman proposed a method with SBSE, Fuzzy, probabilistic methods, classification learning, and prediction can help the software engineering community, as well as the challenges that lie ahead in AI for SE [30].

Farid Meziane and Collegue discussed the current state of Artificial Intelligence in Software Engineering and its future prospects [31]. They work on testing as well as the other phases of software development.
Farah Naaz Raza explained in her paper "Artificial Intelligent Technique in Software Engineering (AITSE)" that by using AI-based systems with the help of an automated tool or an automated programming tool, one can eliminate the risk assessment phase, saving time in software development [32]. AITSE also helps to reduce development time in software development.
Parveen Ranjan Srivastava et.al., used Genetic Algorithms in Software Testing [33]. From this, clearly states that the GA is used to improve the efficiency of software testing.
Mark Harman et.al., developed Search-based software engineering, which explains how search-based techniques can be used to develop software measures [34].
Jonathan Onowakpo Goddey Ebbah presented a paper on Deploying Artificial Intelligence Techniques in Software Engineering [35]. The purpose of this paper is to review AI techniques from the standpoint of their application in software engineering. It focuses in particular on artificial intelligence techniques that have been developed (or are being developed) and can be used to solve problems associated with software engineering processes.

3. CONCLUSION AND FUTURE WORK

The aim of the literature survey is to give its various disciplines a wide range of insights into key technologies and issues. The area of AI offers huge promises such as solutions and optimization of various types of problem statements. AI nevertheless sets out key ethics and administration issues that play a key role in expanded technological acquisition. AI undertaking some stress between the efficiencies and the objection that those advocating greater consideration may be inappropriate in their acceptance, the important thing here is to find the conflicting points, so that we are able to review and, if need be, build new legal and regulatory arrangements.
The AI will create threats and opportunities for the future of the work. The creative work will remain the same as people are more creative than machines. Machines can be supported in the future by focusing more on creative work and working alongside machines that create unknown opportunities and new professions. Today, AI and machine learning algorithms are more precisely used in the medical field. Given that the old lives are no longer applicable, it is important for the government to act in a more common manner as AI.

4. REFERENCES

[1] https://en.wikipedia.org/wiki/John_McCarthy_(computer_scientist)
[2] T. Nitin, S. Apoorvaa, S. Himanshi, and T. Krishna, ―Diagnosing dengue: A faster, artificial intelligence based hack,‖ International Journal Of Engineering And Computer Science, vol. 6, no. 7, pp. 21 895–21 915, 2017.
[3] A.-A. Shayma M and A. Maysam, ―Prediction of cancer behavior based on artificial intelligence.‖
[4] L. Parthiban and R. Subramanian, ―Intelligent heart disease prediction system using canfis and genetic algorithm,‖ International Journal of Biological, Biomedical and Medical Sciences, vol. 3, no. 3, 2008.

[5] K. Srinivas, B. K. Rani, and A. Govrdhan, ―Applications of data mining techniques in healthcare and prediction of heart attacks,‖ International Journal on Computer Science and Engineering (IJCSE), vol. 2, no. 02, pp. 250–255, 2010.
[6] R. Chitra and V. Seenivasagam, ―Review of heart disease prediction system using data mining and hybrid intelligent techniques,‖ ICTACT journal on soft computing, vol. 3, no. 04, pp. 605–609, 2013.
[7] J. Soni, U. Ansari, D. Sharma, and S. Soni, ―Predictive data mining for medical diagnosis: An overview of heart disease prediction,‖ International Journal of Computer Applications, vol. 17, no. 8, pp. 43– 48, 2011.
[8] A. Methaila, P. Kansal, H. Arya, P. Kumar et al., ―Early heart disease prediction using data mining techniques,‖ Computer Science & Information Technology Journal, pp. 53–59, 2014.
[9] D. Chandna, ―Diagnosis of heart disease using data mining algorithm,‖ International Journal of Computer Science and Information Technologies, vol. 5, no. 2, pp. 1678–1680, 2014.
[10] N. A. Sundar, P. P. Latha, and M. R. Chandra, ―Performance analysis of classification data mining techniques over heart disease database,‖ International journal of engineering science & advanced technology, vol. 2, no. 3, pp. 470–478, 2012.
[11] S. B. Patel, P. K. Yadav, and D. Shukla, ―Predict the diagnosis of heart disease patients using classification mining techniques,‖ IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS), vol. 4, no. 2, pp. 61–64, 2013.
[12] S. S. Ms. Ishtake SH, ―Intelligent heart disease prediction system using data mining techniques,‖ International J. of Healthcare & Biomedical Research, vol. 1, no. 2, pp. 94–101, 2013.
[13] A. Taneja et al., ―Heart disease prediction system using data mining techniques,‖ Oriental Journal of Computer science and technology, vol. 6, no. 4, pp. 457–466, 2013.
[14] S. Amin, K. Agarwal, and R. Beg, ―Data mining in clinical decision support systems for diagnosis, prediction and treatment of heart disease,‖ vol. 2, pp. 2278–1323, 01 2013.
[15] A. Anitha, G. Paul, and S. Kumari, ―A cyber defence using artificial intelligence,‖ International Journal of Pharmacy and Technology, vol. 8, no. 4, 2016.
[16] K. Amandeep and C. Deepti, ―Cyber awarness improvement using artificial intelligence,‖ International Journal For Technological Research In Engineering, vol. 4, no. 9, pp. 2347– 4718, 2017.
[17] S. Merat and W. Almuhtadi, ―Cyber-awareness improvement using artificial intelligence techniques.‖ International Journal on Smart Sensing& Intelligent Systems, vol. 8, no. 1, 2015.
[18] Dr. Pranav Patil ―Artificial intelligence in cybersecurity,‖ International Journal of Research in Computer Applications and Robotics, vol. 4, no. 5, pp. 1–5, 2016.
[19] Yakubu Ajiji Makeri ―The Role of Cyber Security and Human- Technology Centric for Digital Transformation‖ vol.6, pp 53-59 12 2018.
[20] Sumit Wailthare, Tushar Gaikwad, Ketkee Khadse and Pooja Dubey,― Artificial Intelligence Based Chat-Bot. International Research Journal of Engineering and Technology,5(3),pp.1060-1062,2018.
[21] Vibhor Sharma, Monika Goyal , Drishti Malik, ― An Intelligent Behaviour Shown by Chatbot System. International Journal of New Technology and Research,3(4),pp.52-54,2017.
[22] Anirudh Khanna, Bishwajeet Pandey, Kushagra Vashishta, Kartik Kalia, Bhale Pradeepkumar and TeerathDas,― A Study of Today's A.I. through Chatbots and

Rediscovery of Machine Intelligence. International Journal of u- and e- Service, Science and Technology,8(7),pp.277-284.,2015

[23] Nahdatul Akma Ahmad, Mohamad Hafiz Che Hamid, Azaliza Zainal, Muhammad Fairuz Abd Rauf, Zuraidy Adnan,— Review of Chatbots Design Techniques. International Journal of Computer Applications,181(8),pp.7-10,2018.

[24] Kedar S Chikorde and Pankaja B Patil,— Natural Language Processing Based Chatbot for IoT Dashboards. International Journal of Current Engineering and Scientific Research,4(8),pp.87 -90,2017.

[25] G.Tascini,—AI-Chatbot: Elderly Aid. International Conference of Aritificial Intelligence,pp.339-344,2018.

[26] Sarthak V. Doshi, Suprabha B. Pawar, Akshay G. Shelar, Shraddha S. Kulkarni,— Artificial Intelligence Chatbot in Android System using Open Source Program-O. International Journal of Advanced Research in Computer and Communication Engineering,6(4),pp.816-821,2017.

[27] Prof. D.S.Thosar, Varsha Gothe, Priyanka Bhorkade, Varsha Sanap, — Review on Mood Detection using Image Processing and Chatbot using Artificial Intelligence. International Research Journal of Engineering and Technology,5(3),pp.539-542,2018.

[28] Kshitij V.Wadanka, Rahul Y. Waghulde, Uma Taru, — Chatbot:An Application of AI. International Journal of Research in Engineering, Science and Management,1(9),pp.139-141,2018.

[29] Hany H Ammar, Walid Abdelmoez and Mohamed Salah Hamdi, — "Software Engineering Using Artificial Intelligence Techniques: Current State and Open Problems" – ICCIT 2012.

[30] Mark Harman, — "The Role of Artificial Intelligence in Software Engineering" ACM computing surveys, 2011.

[31] Farid Meziane, Sunil Vadera, —" Artificial Intelligence Applications for Improved Software Engineering Development: New Prospects" DOI: 10.4018/978-1-60566-758-4.ch014. 2010.

[32] Farah Naaz Raza, — "Artificial Intelligence Techniques in Software engineering-International multiconference of Engineers and computer scientists 2009 , ISBN 978-988.17012-2-0 Vol 1 – IMECS 2009.

[33] Parveen Ranjan Srivastava, and Tai-hoon Kim, — Application of Genetic Algorithm in Software Testing, International Journal of Software Engineering and its Applications.Vol. 3, No.4, October 2009.

[34] Mark Harman, Bryan F. Jones, — "Search Based Software Engineering"- Elsevier science, 2001.

[35] Jonathan Onowakpo Goddey Ebbah "Deploying Artificial Intelligence Techniques In Software Engineering, American Journal of Undergraduate Research, March 2002.