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Analysing Artificial Intelligence (AI) Techniques in Healthcare Industries

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ABSTRACT: The healthcare industry has seen a rise in efficiency thanks to a new technology known as machine learning. Although there have been numerous medical breakthroughs in recent history, one, in particular, has been the driving force behind the progress. Machine learning has made significant progress, but human brains are still the most powerful machine learning tool in medicine. Even though machine learning has made significant progress, this is still true. There is widespread concern among healthcare workers that artificial intelligence will eventually take over as the dominant force in the industry. A relatively new and challenging form of technical application, machine learning has quickly become a trend in this industry. Despite its relatively short history, it has become a household name in the United States.

KEYWORDS: SVM; Machine learning; healthcare; Artificial intelligence.

I. INTRODUCTION

The implementation of machine learning has aided in quickening the rate at which scientific discoveries are being made, which has been beneficial to many different fields, including medicine, which is just one of many that have benefited from this development[1]. Machine learning has the potential to improve a wide variety of medical applications, such as language processing tools that can speed up research and prediction algorithms that can alert medical personnel to the impending onset of a heart attack. These are just two examples of the kinds of applications that have the potential to be improved by machine learning[2]. These are just two examples of the different kinds of applications that could potentially benefit from the enhancements that machine learning could bring. These are just two examples of the various kinds of applications that are examples of the different kinds of applications that could potentially benefit from the enhancements that machine learning could bring. These are just two examples of how machine learning may be able to improve the effectiveness of medical care in the future. There likely are many more[3].Those who work in the healthcare industry have a healthy amount of scepticism regarding the efficacy of artificial intelligence and machine learning. This is because of the pervasive "solutionism" culture surrounding these two technologies. It is not difficult to understand why someone might think in such a manner[4]. This scepticism stems from the idea that in the not-too-distant future, advances in technology will, at some point, find solutions to all of the issues that bedevil humankind[5]. The diagnosis of breast cancer and the estimation of the likelihood of developing sepsis are two examples of healthcare applications that use artificial intelligence (AI) to find a solution to a specific problem. Both of these applications are used in the field of medicine. Patients can benefit from having both of these diagnoses and estimates performed on them. Both of these applications can be found to be used in the field of medicine at various points in time[6-8]. These are just two examples of how research into the potential applications of artificial intelligence in the field of medicine is currently taking place right now. It will be difficult, if not impossible, for businesses that implement these AI solutions out of the box to customise their models to fit their particular requirements. This is because the solutions were not designed with this in mind. This is due to the fact that the solutions did not consider this when they were designed. This is because the solutions have already been pre-built before being implemented[9-11].

II. LITERATURE SURVEY

Because there are so many different capture systems on the market, the most recent generation of image processing software places a greater emphasis on the process of fusing multiple images into a single composite[12]. Image fusion refers to the process of creating a single composite image by aligning significant information from a number of different sensors using a number of different mathematical models. This is accomplished through the

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process of image fusion[13]. The process of fusing images is used so that complementary multi-temporal, multi-view, and multi-sensor data can be combined into a single image with improved image quality while maintaining the integrity of critical features. This is accomplished through the use of the process of image fusion. This pre-processing step plays an essential role in a wide variety of applications, including robot vision, aerial, satellite, and medical imaging, and the navigation of robots or vehicles[14-17].

The fundamental concept that underpins supervised machine learning is the instruction or directing of users toward data, knowledge, or learning experiences that are pertinent or significant for the purpose of solving a particular problem. supervised machine learning to analyse the data or information, participants in this method make use of the data or information after it has been processed by artificial intelligence. For instance, a classifier could be used to differentiate between the fundamental uses of data that help maintain the data or the information[18]. This could be done in order to preserve the data or the information. Because unsupervised learning does not involve the training of data or information that is related to the solution of a difficult problem, no one can predict or analyse the data module in an uncomplicated manner. This is because unsupervised learning does not involve the training of data or information[19].This brand-new machine learning technology can be used by healthcare organizations that use open-source data science in a variety of ways, such as the processing of audio and visual data[20]. One example of such a way is described in the following sentence: The medical industry is one of the most important applications for this technology, but it has a number of other important applications as well. Imagine that data scientists want to distinguish themselves from the other professionals working in their field and become more visible to the general public. How would they go about doing this? In this scenario, they have the opportunity to set themselves apart from their rivals by developing bespoke applications by making use of open-source technologies. These applications need to improve patient care in a variety of settings while also adhering to the stringent standards that are required by the healthcare information technology industry[21-25].

One of the many advantages that machine learning has the potential to bring to the field of healthcare is the ease with which patterns can be recognised. This is just one of the many potential benefits of ML.A person cannot recognise patterns and data with the same level of precision that can be achieved through machine learning. This level of accuracy can only be attained through the use of machine learning. This capability of a person cannot even begin to be compared to the capability of a machine to learn.Processing an infinite number of data patterns and information sets can be done in a matter of milliseconds, thanks to advances in computing power.A second advantage that comes with the utilisation of electronic health records is keeping track of one's own health (Smart Health Records)[26-30].

The ability to keep track of health data is becoming significantly simpler thanks to developments in machine learning, which helps reduce the amount of time and effort required to do so. In machine learning, researchers are currently working to develop cutting-edge technologies to preserve the intelligence of digital data records.

The importance of people in machine learning is drawing less and less attention as time goes on.Machine learning is being used to make the process easier and less labour intensive because keeping accurate health records can be a time-consuming and laborious task. This is because keeping accurate health records can sometimes be challenging. Machine learning is the name of the cutting-edge technology used in keeping today's smart data records up to date[31]. This cutting-edge technology is what is known as a "machine learning system." One of the more recent areas of research in the field of computer science is this particular subfield of the field.Investigations in the field of medicine, as well as the boundaries of computerized learning. Machine learning is a process that requires the collection of a significant number of data sets and patterns that occur repeatedly. This is a prerequisite for the process. The reason for this is that the algorithms that are utilized in machine learning need to have the appropriate levels of training applied to them. It is essential for this report that the information be accurate, up to date, and comprehensive regarding the subject matter[32].

Learning new things and adapting to changes in one's surroundings both require time, which is why time is important.It is essential to allow sufficient time for the machine learning algorithms to learn and adapt to the patterns and data that they are presented with before producing accurate results. If this is not done, the results will not be accurate. For the results to be reliable, these steps must be carried out. It is impossible to accomplish this objective other than by giving them access to an adequate amount of time. For it to function correctly, it will require the availability of additional computing resources; therefore, you should make sure that you have those resources available.It has a high propensity to make poor decisions almost always because it has a poor decision-making ability. Machine learning is susceptible to error when there is insufficient data to train it on because it requires a significant amount of data to function appropriately. When there is insufficient data to train it on, it can make errors. If you give the machine inaccurate data to process, there is a chance that it will produce a result that is not what you would want it to produce. This is because the machine will process the data in the order that it was given[33].

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III. MACHINE-LEARNING APPLICATIONS IN HEALTHCARE

a. The Art of Expressing Yourself

Because of the need to improve patient-provider communication, cutting-edge communication tools have become an increasingly important part of the healthcare industry[34].Artificial intelligence (AI) and machine learning are expected to play a significant role in the rapidly expanding telehealth industry in the future.Artificial intelligence-driven chatbots are already increasing patient engagement, which is a promising development. According to one study, participants who used chatbots experienced significantly fewer instances of depression symptoms as a result of using the software. As an added benefit, AI-based communications can assist patients in locating the most appropriate treatment options without the additional expense or inconvenience of speaking with a doctor or nurse in person. The patient does not have to interact with a doctor or nurse in real time to accomplish this. To achieve this goal, the patient does not need to have a face-to-face conversation with a doctor. With the help of artificial intelligence, Buoy Health's symptom checker ensures that patients receive the right treatment and avoids them from needlessly visiting the ER.
Aside from that, remote patient monitoring is made possible thanks to the use of machine learning. There are already companies like PhysIQ that have the ability to learn a patient's baseline, recognize minute changes, and create focused insights from massive amounts of patient population data.

b. The Executive Branch[35]

There is a great deal of potential in the use of learning machines in the healthcare industry to reduce costs and improve the quality of care for patients. The management of healthcare facilities is just as important to the overall quality of medical care as the actual provision of medical care and the treatment and prevention of illness. No matter how you slice it, it costs a lot of money for the US healthcare system. The United States spends twice as much per capita on administrative expenditures as other high-income countries, despite having usage rates that are identical to those of those countries. Because the United States has more people, this is the case. An example of how machine learning can improve the efficiency of healthcare administrative tasks is through medical coding. According to estimates from the Centers for Medicaid and Medicare Services, an estimated portion of incorrect Medicare payments in 2019 were due to medical code errors. Many factors led to this conclusion, among them: (CMS). The healthcare industry has used coders for decades to comb through electronic health records (EHRs) and convert every procedure, diagnosis or service into a complex alphanumeric code for accounting, invoicing, and billing purposes.Because of the inherent flaws that come with being human, the typical turnaround time for a task like this one is several days or more, making it difficult for humans to complete[36-39].

The entire revenue cycle for healthcare providers is slowed when they are forced to delay billing patients. Medical coders who have the proper education and training are also in short supply in this industry. As opposed to manual medical coding, which costs time and money, machine learning software now automates the process to a greater degree of accuracy and speed. While this may be one example, there are many more to choose from in the field of medical coding. Manual tasks that take time away from patients despite the shift from paper to digital administration are still a burden for healthcare workers. They are unable to provide the best possible care because of this. Machine learning-based technologies are being used to automate every step of the care delivery process. It all begins with a patient's arrival and ends with a bill. The first step is for patients to check in. Employee and provider burnout is reduced as a result of this improvement, which is good for the revenue cycle as a whole. In order to speed up the process of registering patients and determining whether or not they are eligible, Notable employs an algorithm that learns from machine data

c. Care

When it comes to healthcare, there is an enormous amount of data that can significantly impact the treatment and outcomes of individual patients. Soon, healthcare professionals' ability to process and evaluate data using the methods that have been standard practise for a very long time will be overwhelmed by the volume of data. Approximately one trillion terabytes of data will soon be stored in the United States' national healthcare system. Data storage capacity is used to make this prediction[40].

In addition, the healthcare system in the United States is currently confronted with a wide range of challenges in various areas. There is an ever-increasing demand on the time of doctors. According to the findings of that study, more than half of the doctors surveyed in a recent study admitted to experiencing burnout. Patients only get fifteen minutes of attention on average from doctors, nurses, and other healthcare workers. Consequently, spotting even the tiniest similarities in a patient's medical records that could lead to an important realisation or diagnosis becomes more difficult. Could lead to an important discovery or diagnosis.

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Computers' ability to analyse digital images has grown thanks to recent advances in applying convolutional neural network (CNN) deep-learning algorithms, a significantly subcategory of machine learning. Deep learning is a subset of machine learning, which is why this is the case.Research in the medical imaging field that is based on machine learning is growing rapidly, and commercial applications are beginning to emerge. All the way through the MRI process, machine learning is being used in some way, from image acquisition to illness prediction. It was significant that the FDA approved GE Healthcare's AIRx, an automated and deep learning software tool for brain scanning, in the month of May 2019. (FDA).

d. Uses for Artificial Intelligence in Administrative Tasks[41-42]

The New England Journal of Medicine published the results of a survey conducted last year, in which 83% of respondents stated that physician burnout was a problem in their organisation. According to half of those who participated in the survey, physicians' ability to spend more time with their patients could be improved by "off-loading administrative responsibilities," according to half of those who participated in the survey. These administrative duties are devoted to ensuring that electronic health records are current and accurate (EHRs). Electronic health records (EHRs) are used by the vast majority of medical facilities in the United States, including clinics and hospitals. First and foremost, the time required to maintain electronic health records (EHRs) must be significantly reduced. Methods based on natural language processing (NLP) can benefit situations like this.

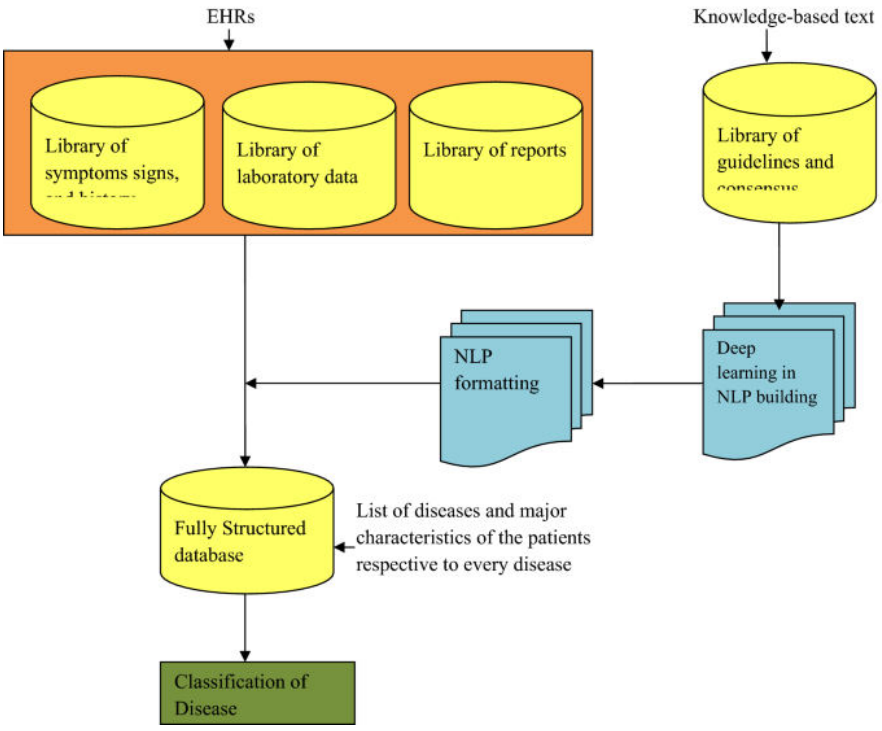

Fig. 1. Disease classification

When a doctor goes to see a patient, they can use natural language processing (NLP) technology to transcribe their notes into the electronic health record that the patient keeps (EHR). Because of NLP technologies, medical professionals and patients will no longer have to sift through patient notes and test results in order to get an accurate picture of a patient's overall health. If doctors had to spend less time keeping their electronic health records up to date, they would have more time to spend with their patients, which would benefit the patients.

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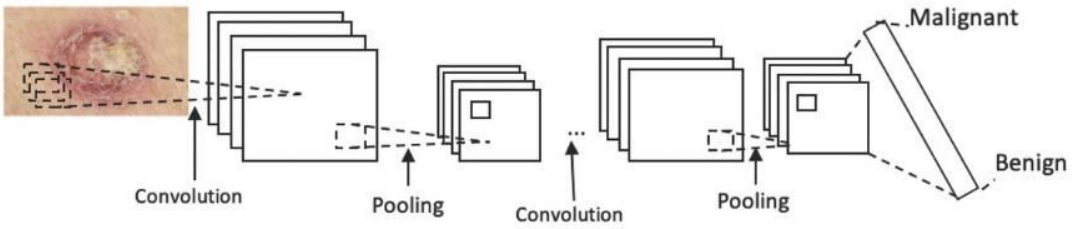

Fig. 2. Convolution layer of proposed model

e. Determination of the Patient's Potential Dangers

Tools derived from machine learning models have been used by medical professionals worldwide to develop anomaly detection algorithms, which have been used to anticipate heart attacks, strokes, sepsis, and other potentially life-threatening problems. Because of this, these medical professionals can now provide their patients with higher-quality care. These systems combine information from patients' medical records, daily evaluations, and real-time readings of vital signs such as heart rate and blood pressure to alert staff members to potential patient concerns in real-time. These concerns may include the patient's safety or comfort. This enables staff members to take immediate action if it is required.

The El Camino Hospital is a good illustration of this concept. The researchers working for this organization devised a strategy for predicting patient falls that makes use of electronic health records, information from bed alarms, and details from nurse call systems. This cutting-edge device sounds an alarm and notifies the staff when a patient is in imminent danger of falling. This allows the staff to take the necessary safety measures to prevent the patient from hurting themselves. They were able to prevent 39 percent of the total number of falls that took place. A fall-related injury to an in-patient results in an average cost of $14,000 and adds 6.3 days to the length of their hospital stay, as reported by the Joint Commission for Transforming Healthcare. The Sepsis Sniffer Algorithm (SSA) that the Mayo Clinic developed illustrates this concept. The Social Security Administration (SSA) analyses demographic data and readings of vital signs to determine whether or not an alert should be issued when there is an increased risk of developing sepsis. This results in a 72 percent reduction in the total amount of time spent manually screening patients.

f. Accelerating the Pace of Medical Research and Increasing Our Understanding

Researchers and clinicians cannot stay abreast of developments in specific subfields of medical research without reading and analysing an overwhelming number of papers and studies. The evaluation and study of medications was the subject of nearly 342,000 individual articles that were published by researchers between the years 2007 and 2016. In the years to come, the application of NLP techniques and neural networks to the analysis of previously published medical research will prove to be beneficial to the medical field as a whole.

For instance, a group of researchers from the United States and Ireland collaborated on a study on Adverse Drug Events (ADEs) that analysed vast databases of medical literature and social media posts for comments related to the adverse effects of drugs by utilizing text mining, predictive analytics, and neural networks. This was done as part of the study on Adverse Drug Events (ADEs). As part of the investigation into ADEs, this was carried out. After reviewing more than 300,000 articles from medical publications and more than 1.6 million comments on social media, the researchers used data visualization techniques to demonstrate the correlations between medications and side effects. This was done after reviewing both sets of information.

g. Natural language processing (NLP)

Natural language processing (NLP) is also being used in electronic health records (EHRs) to extract information from unstructured data, such as the results of an electrocardiogram (ECG) or copies of handwritten notes that were uploaded to a patient's record but the corresponding form fields were left blank. Examples of this type of data include the results of an electrocardiogram (ECG) and the results of an electrocardiogram (ECG). The Mayo Clinic, Boston Children's Hospital, and a number of other institutions collaborated on an open-source natural language processing (NLP) project called cTAKES to develop a tool that can extract insights from unstructured data found in electronic health records. cTAKES is a tool that can extract insights from unstructured data found in electronic health records (EHRs).

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h. Processing of Visual Information for the Identification of Cancerous Growths

Over the course of the last few years, there has been a discernible rise in the quantity of work that patients expect radiologists to complete. The findings of a number of studies indicate that for a typical radiologist to keep up with the demand, they need to perform an analysis on an image every three to four seconds. Researchers have developed deep learning algorithms that were trained on previously collected radiography images in order to detect the early growth of cancer in the lungs, breasts, and brain, among other locations. These algorithms can also detect cancer in its earliest stages in other parts of the body. Radiographic imaging can provide data that can be used to teach computers how to recognise complex patterns, and this data can be put to good use. They are able to identify breast cancer with a high degree of accuracy by utilising mammography in their screening process. The Houston Methodist Research Institute has created a programme for the detection of breast cancer in its earlier stages. This piece of software can read mammograms with an accuracy of 99 percent and provide diagnostic information 30 times faster than a person. The use of invasive procedures like biopsies is reduced thanks, in part, to the availability of these tools. The vast majority of radiologists believe that these tools assist them in providing superior care to their patients.

i. The Use of Convolutional Neural Networks (CNNs) in the Analysis and Diagnosis of Skin Cancer

CNNs are effective image recognition and classification techniques. Researchers have been able to construct machine learning models for the diagnosis of skin cancer that have an accuracy ranging from 87 to 95 percent by making use of open-source technologies such as TensorFlow, scikit-learn, and keras, amongst others. A number of researchers has utilised these models. When it comes to identifying melanomas, however, dermatologists have an accuracy rate ranging from 65 percent to 85 percent. For the purpose of training models, thousands of photographs showing benign and cancerous skin lesions are used. On the website Github, for instance, there is a project that is also open source and is available to the general public. This website serves as an example. Researchers are currently utilising CNNs to develop diagnostics for a wide variety of illnesses in addition to skin cancer diagnostics. Some of these illnesses include tuberculosis, heart disease, and Alzheimer's disease.

The function of the convolution layer is to evaluate the output of the neurons that are linked to the local region at the input. This evaluation is the responsibility of the convolution layer. The computation is performed by multiplying the weights of each neuron by the regions to which they are linked. This is done in order to obtain the final result (the activation mass). The pooling layer's primary function is to subsample the input picture in order to reduce the amount of computational work that must be done, the amount of memory that is required, and the number of parameters (overfitting). The neural network will become less sensitive to variations in the position of the pictures as the size of the input image gets smaller.

IV. CONCLUSION

Because it made use of convolutional neural networks(CNN), the system developed for this study automatically differentiated between skin cancer and benign tumor lesions. Organizations can simplify their procedures if they are able to extract useful information from the ever-increasing volume of data available to them. Because it is the only industry in which increased productivity can directly lead to preserving human life, the healthcare sector is perhaps the best illustration of this principle. The healthcare sector is the only industry in which increased productivity can directly lead to the preservation of human life. The healthcare industry is undergoing a profound transformation due to applications that use machine learning. One of the applications of machine learning is finding patterns in medical data, and it also has an excellent ability to predict illness. We investigate a wide variety of machine learning strategies within the scope of this research to develop practical decision assistance that can be utilized within applications related to the healthcare industry.

REFERENCES

1. Velammal, M. Navaneetha, Tamilarasan Ananth Kumar, M. Steffi Anto, and A. Andrew Roobert. "Design of High-Speed Nanoscale Adder Logic Circuit for Low Power Consumption." In 2021 IEEE Pune Section International Conference (PuneCon), pp. 1-6. IEEE, 2021.
2. Manju Bala, P., S. Usharani, T. Ananth Kumar, R. Rajmohan, and M. Pavithra. "Blockchain-Based IoT Architecture for Software-Defined Networking." In Blockchain, Artificial Intelligence, and the Internet of Things, pp. 91-115. Springer, Cham, 2022.
3. Meraj, Talha, Wael Alosaimi, Bader Alouffi, Hafiz Tayyab Rauf, SwarnAvinash Kumar, RobertasDamaševičius, and Hashem Alyami. "A quantization assisted U-Net study with ICA and deep features fusion for breast cancer identification using ultrasonic data." PeerJ Computer Science 7 (2021): e805.

| ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 7.54|

| Volume 5, Issue 5, May 2022 |

| DOI:10.15680/IJMRSET.2022.0505022 |

4. El Hussein, S., Chen, P., Medeiros, L. J., Wistuba, I. I., Jaffray, D., Wu, J., & Khoury, J. D. (2022). Artificial intelligence strategy integrating morphologic and architectural biomarkers provides robust diagnostic accuracy for disease progression in chronic lymphocytic leukemia. *The Journal of Pathology*, *256*(1), 4-14.
5. Kumar, S. A., García-Magariño, I., Nasralla, M. M., & Nazir, S. (2021). Agent-Based Simulators for Empowering Patients in Self-Care Programs Using Mobile Agents with Machine Learning. Mobile Information Systems, 2021.
6. Kumar, S. A., Nasralla, M. M., García-Magariño, I., & Kumar, H. (2021). A machine-learning scraping tool for data fusion in the analysis of sentiments about pandemics for supporting business decisions with human-centric AI explanations. PeerJ Computer Science, 7, e713.
7. Suryaganesh, M., Arun Samuel, T. S., Ananth Kumar, T., &NavaneethaVelammal, M. (2022). Advanced FET-Based Biosensors—A Detailed Review. *Contemporary Issues in Communication, Cloud and Big Data Analytics*, 273-284.
8. Thiruvikraman, P., Kumar, T. A., Rajmohan, R., & Pavithra, M. (2021). A Survey on Haze Removal Techniques in Satellite Images. *Irish Interdisciplinary Journal of Science & Research (IIJSR)*, *5*(2), 01-06.
9. Mostafa, A. M., Kumar, S. A., Meraj, T., Rauf, H. T., Alnuaim, A. A., &Alkhayyal, M. A. (2022). Guava Disease Detection Using Deep Convolutional Neural Networks: A Case Study of Guava Plants. Applied Sciences, 12(1), 239.
10. Simsek, E., Badem, H., &Okumus, I. T. (2022). Leukemia Sub-Type Classification by Using Machine Learning Techniques on Gene Expression. In *Proceedings of Sixth International Congress on Information and Communication Technology* (pp. 629-637). Springer, Singapore.
11. Kumar, S. A., Kumar, H., Dutt, V., &Soni, H. (2021, February). Self-Health Analysis with Two Step Histogram based Procedure using Machine Learning. In 2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV) (pp. 794-799). IEEE.
12. Kumar, S. A., Kumar, A., Dutt, V., & Agrawal, R. (2021, February). Multi Model Implementation on General Medicine Prediction with Quantum Neural Networks. In 2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV) (pp. 1391-1395). IEEE.
13. Aof, A. M. B., Awad, E. A., Omer, S. R., Ibraheem, B. A., & Mustafa, Z. A. (2022). A Computer-Aided Diagnoses Program for Leukemia Detection Using Blood Samples. *Journal of Clinical Engineering*, *47*(1), 44-49.
14. Kumar, S. A., Kumar, H., Swarna, S. R., &Dutt, V. (2020). Early Diagnosis and Prediction of Recurrent Cancer Occurrence in a Patient Using Machine Learning. European Journal of Molecular & Clinical Medicine, 7(7), 6785-6794.
15. Glorindal, G., Mozhiselvi, S. A., Kumar, T. A., Kumaran, K., Katema, P. C., &Kandimba, T. (2021, July). A Simplified Approach for Melanoma Skin Disease Identification. In *2021 International Conference on System, Computation, Automation and Networking (ICSCAN)* (pp. 1-5). IEEE.
16. Kumar, S. A., Kumar, H., Dutt, V., & Dixit, P. (2020). The Role of Machine Learning in COVID-19 in Medical Domain: A Survey. Journal on Recent Innovation in Cloud Computing, Virtualization & Web Applications [ISSN: 2581-544X (online)], 4(1).
17. Kumar, K. S., Radhamani, A. S., Sundaresan, S., & Kumar, T. A. (2021). Medical Image Classification and Manifold Disease Identification through Convolutional Neural Networks: A Research Perspective. *Handbook of Deep Learning in Biomedical Engineering and Health Informatics*, 203-225.
18. Kumar, S. A., Kumar, H., Dutt, V., &Swarnkar, H. (2020). COVID-19 Pandemic analysis using SVM Classifier: Machine Learning in Health Domain. Global Journal on Application of Data Science and Internet of Things [ISSN: 2581-4370 (online)], 4(1).
19. Suresh, K. K., Sundaresan, S., Nishanth, R., & Ananth, K. T. (2021). Optimization and Deep Learning–Based Content Retrieval, Indexing, and Metric Learning Approach for Medical Images. Computational Analysis and Deep Learning for Medical Care: Principles, Methods, and Applications, 79-106.
20. Kumar, S. A., Kumar, H., Dutt, V., & Dixit, P. (2020). Deep Analysis of COVID-19 Pandemic using Machine Learning Techniques. Global Journal on Innovation, Opportunities and Challenges in Applied Artificial Intelligence and Machine Learning [ISSN: 2581-5156 (online)], 4(2).
21. Kumar, Tamilarasan Ananth, Rajendrane Rajmohan, Muthu Pavithra, Sunday Adeola Ajagbe, Rania Hodhod, and Tarek Gaber. "Automatic Face Mask Detection System in Public Transportation in Smart Cities Using IoT and Deep Learning." Electronics 11, no. 6 (2022): 904.
22. Kumar, S. A., Kumar, H., Dutt, V., &Swarnkar, H. (2020). Role of Machine Learning in Pattern Evaluation of COVID-19 Pandemic: A Study for Attribute Explorations and Correlations Discovery among Variables. Global Journal on Application of Data Science and Internet of Things [ISSN: 2581-4370 (online)], 4(2).

| ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 7.54|

| Volume 5, Issue 5, May 2022 |

| DOI:10.15680/IJMRSET.2022.0505022 |

23. Das, P. K., Pradhan, A., &Meher, S. (2021). Detection of Acute Lymphoblastic Leukemia Using Machine Learning Techniques. In *Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication* (pp. 425-437). Springer, Singapore.
24. KUMAR, S. A., KUMAR, H., DUTT, V., & SWARNKAR, H. (2019). CONTRIBUTION OF MACHINE LEARNING TECHNIQUES TO DETECT DISEASE IN-PATIENTS: A COMPREHENSIVE ANALYSIS OF CLASSIFICATION TECHNIQUES. Global Journal on Innovation, Opportunities and Challenges in Applied Artificial Intelligence and Machine Learning [ISSN: 2581-5156 (online)], 3(1).
25. Pavithra, M., Rajmohan, R., Kumar, T. A., & Sandhya, S. G. (2021). An Overview of Convolutional Neural Network Architecture and Its Variants in Medical Diagnostics of Cancer and Covid-19. *Handbook of Deep Learning in Biomedical Engineering and Health Informatics*, 25-49.
26. Kumar, T. A., Julie, E. G., Robinson, Y. H., &Jaisakthi, S. M. (Eds.). (2021). *Simulation and Analysis of Mathematical Methods in Real-Time Engineering Applications*. John Wiley & Sons.
27. Kumar, A., Chatterjee, J. M., Choudhuri, A., & Rathore, P. S. (2018, November). A Collaborative Method for Minimizing Tampering of Image with Commuted Concept of Frazile Watermarking. In *International Conference On Computational Vision and Bio Inspired Computing* (pp. 985-994). Springer, Cham.
28. KUMAR, A. (2018). FACE RECOGNITION USING HOG-BOW BY INTERNET OF THINGS FOR SECURITY APPLICATIONS. *International Journal of Recent Advances in Signal & Image Processing [ISSN: 2581-477X (online)]*, *2*(1).
29. Bhargava, N., Sharma, S., Kumawat, J. R., & Pandey, A. K. (2017, October). An adaptive approach of image fusion (HSI and wavelet approaches) for information refinement in multi image. In *2017 2nd International Conference on Communication and Electronics Systems (ICCES)* (pp. 770-774). IEEE.
30. de Oliveira, J. E. M., &Dantas, D. O. (2021). Classification of Normal versus Leukemic Cells with Data Augmentation and Convolutional Neural Networks. In *VISIGRAPP (4: VISAPP)* (pp. 685-692).
31. Swarna, S. R., Kumar, A., Dixit, P., & Sairam, T. V. M. (2021, February). Parkinson's Disease Prediction using Adaptive Quantum Computing. In *2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV)* (pp. 1396-1401). IEEE.
32. Kumar, T. A., Rajakumar, G., & Samuel, T. A. (2021). Analysis of breast cancer using grey level co-occurrence matrix and random forest classifier. *International Journal of Biomedical Engineering and Technology*, *37*(2), 176-184.
33. Alam, A., & Anwar, S. (2021). Detecting Acute Lymphoblastic Leukemia Through Microscopic Blood Images Using CNN. *Trends in Wireless Communication and Information Security*, 207-214.
34. Kumar, Abhishek, SwarnAvinash Kumar, Vishal Dutt, Ashutosh Kumar Dubey, and Vicente García-Díaz. "IoT-based ECG monitoring for arrhythmia classification using Coyote Grey Wolf optimization-based deep learning CNN classifier." Biomedical Signal Processing and Control 76 (2022): 103638.
35. A.Kumar, S.Kumar, V.Dutt, S.Narang, A.Dubey "A Hybrid Secured Cloud Platform Maintenance based on Improved Attributes. Based Encryption Strategies" published in regular issue in IJIMAI, Indexed by the Science Citiation Index Expanded(Web Of Science), Universidad International de La Rioja (UNIR). ISSN 1989-1660.
36. SwarnAvinash Kumar, Harsh Kumar, Vishal Dutt, Himanshu Swarnkar, "Contribution Of Machine Learning Techniques To Detect Disease In Patients : A Comprehensive Analysis Of Classification Techniques" Vol 3 No 1 (2019): Global Journal on Innovation, Opportunities and Challenges in AAI and Machine Learning. ISSN 2581-5156.
37. SwarnAvinash Kumar, Kapil Chauhan, Aastha Parihar, "Functionality of Classification and Regression tree in Bioinformatics" Vol 5 No 2 (2021): Global Journal on Innovation, Opportunities and Challenges in Applied Artificial Intelligence and Machine Learning. ISSN 2581-5156.
38. Kumar, S.A. (2021), "Corona Recognition Method Based On Visible Light Color Using Artificial Intelligence". AusPat Application No. AU 2021103067(A4).
39. Kumar, S.A. (2021), "An Artificial Intelligence And IoT Based Method For Prevention Of Security Attack On Cloud Medical Data". AusPat Application No. AU 2021102115(A4).
40. Kumar, S.A. (2021), "IOT Based Generic Framework For Computer Security Using Artificial Immune System". AusPat Application No. AU 2021102104(A4).
41. Kumar, S.A. (2021), "IOT Enabled Wall Climbing Robot For Security". AusPat Application No. AU 2021101471(A4).
42. Kumar, K. Suresh, AS Radha Mani, S. Sundaresan, T. Ananth Kumar, and Y. Harold Robinson. "Blockchain-based energy-efficient smart green city in IoT environments." In Blockchain for Smart Cities, pp. 81-103. Elsevier, 2021.

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