| **S.no** | **Database conference/ Journal** | **Paper name** | **Authors name** | **Year of Publication** | **Objective** | **Proposed methodology** | **Merits and Demerits** | **Metrices** | **Inclusion Criteria** | **Research Gap** |
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| 1 | Journal of Information & Communication Technology -JICT Vol.10 Issue.2 | A Survey on Optical Character Recognition System | Noman  Islam  ,  Zeeshan Islam  ,  Nazia Noor | 2018 | Optical Character Recognition (OCR) is a piece of software that converts printed text and images into digitized form such that it can be manipulated by machine.Unlike human brain which has the capability to very easily recognize the text/ characters from an image, machines are not intelligent enough to perceive the information available in image. Therefore, a large number of research efforts have been put forward that attempts to transform a document image to format understandable for machine.OCR is a complex problem because of the variety of languages, fonts and styles in which text can be written,and the complex rules of languages etc. | Acquisition, Pre-processing, Segmentation, Feature extraction, classification | The latest software can recreate tables and the original layout but If the original document is of poor quality or the handwriting difficult to read, more mistakes will occur | Fig:- Performance Analysis  Of different OCRs. | It teaches us about the major phases of OCR like image acquisition  etc | Could have included a  few more methods of solving problems regarding OCR. |
| 2 | International Journal of  Applied Mathematics,  Electronics and Computers | A Detailed Analysis of Optical Character Recognition Technology | Karez Abdulwahhab Hamad  ,  Mehmet Kaya | 2018 | Optical character recognition is an active research area that attempts to develop a computer system with the ability to extract text from images automatically. The objective of OCR is to achieve modification or conversion of any form of text or text-containing documents. In this paper we investigate OCR in four different ways. We give a detailed overview of the challenges that might emerge in the state-of-the-art of the field. We highlight developments and main applications and uses of OCR. A brief OCR history is also discussed. The paper provides a comprehensive review of the state of the art of the OCR field. | Google Goggles is an Image Detection System which identifies the content of an image and provides desired results to the user  . It also uses Tesseract OCR to detect textual data in images and extracts the text into editable format. But, one of the limitations of Goggles is that it isn’t able to classify the data present, and considers it to be in raw form. Optical Character Recognition (OCR) is used in converting PDF files into editable  e DOC files. | Processing of OCR information is fast. Large quantities of text are often input quickly. A paper based form has often become an electronic form which is straightforward to store or send by mail. There is a need for a lot of space required by the image produced.The quality of the image can be lost during this process.Another limitation is that the text present in images of PDF files aren’t extracted into editable format. | Fig-  Performance of different OCR available for free | Includes applications and phases of OCR | Text detection and recognition by open source OCR could have been included. |
| 3 | IEEE | Monitoring System for Patients Using Multimedia for Smart Healthcare | ATIF ALAMRI | 2018 | Due to the increased precision of the systems involved in the framework, the use of multimodal inputs in a smart healthcare framework is promising. We propose a user satisfaction detection system in this paper that uses two multimedia contents: speech and image. Satisfied, dissatisfied, and indifferent are the three levels of satisfaction. The user's speech and facial image are captured, transmitted to the cloud, and then analysed in the proposed system. The relevant stakeholders are then informed of the satisfaction decision. The cloud is used to extract some features from these two inputs. | Multimodal input signals are  processed, namely, speech and image signals. A microphone  records the speech from the user while a video camera  captures the facial expressions. | Merits -  SVM works relatively well when there is a clear margin of separation between classes.  Demerits -  SVM does not perform very well when the data set has more noise i.e. target classes are overlapping. | Figure - Accuracy of the proposed system with speech input and two types of SVM kernels. | Classification,processing of Speech and image signals with SVM based classifier | Could have achieved better accuracy with any other classifier and experimental setup could have consisted of more data. |
| 4 | Journal of Emerging Technologies and Innovative Research (JETIR) | INFORMATION EXTRACTION FROM IMAGES  USING PYTESSERACT AND NLTK | AkashV Pavaskar  ,  Akshay S Accha  ,  Anoop R Desai,  Darshan K L | 2018 | To extract textual data from images & automate the process of storing contact details and storing reminders.  Extraction of text and other forms of data from images and using them for particular use. To extract URLs from the image and allow  user to browse directly from the app using Android System Web View | Using computer vision (Pytesseract) to extract useful information like text, contact details and hyperlinks from images. The android based app would allow user enable storing the contact details, provide summary of the content ,opening of links directly from the app without needing to type the URL  inside the browser. Optical Character Recognition (OCR) is used in converting PDF files into editable DOC files. Another limitation is that the text present in images of PDF files aren’t extracted into editable format. | Most well known and full NLP library with many 3rd extensions supports the largest number of languages compared to other libraries. Difficult to use and learn and too slow. |  | Usage of Pytesseract to extract text from images and then classifying it using NLTK | A more detailed process and research could be shown how pytesseract is being used for extraction purposes, etc. |
| 5 | International Journal of Computer Applications (0975  – 8887) | Optical Character Recognition by Ope  n Source OCR  Tool Tesseract: A Case S  tudy | Chirag Patel, Atul Patel  , Dharmendra Patel | 2018 | Optical character recognition (OCR) method has been used in converting printed text into editable text. OCR is very useful and popular method in various applications. Accuracy of OCR can be dependent on text preprocessing and segmentation algorithms. From the vehicle number plate they tried to extract vehicle number by using Tesseract and Transym. | An image with the text is given as input to the Tesse  ract  engine that is command based tool.Then it is processed by Tesseract  command as Tesseract command takes two arguments: First  argument is image file name that contains text and  second  argument is output  text file in which extracted text is stored.  The output file extension is  given as .txt by Tesseract, so no  need to specify the  file extension while specifying the output file name as a second argument in Tesseract command | It is cheaper than paying someone amount to manually enter large amount of text data. Moreover it takes less time to convert in the electronic form. The latest software can re-create tables as well as original layout. Quality of the final image depends on quality of the original image.  All the documents need to be checked over carefully and then manually corrected. | Fig : - Accuracy on different number of images | History, architecture and working of Tesseract and OCR of colour and grayscale images | Too many reference papers about license plate have been referred but there is not a single mention about license plate in the paper. |
| 6 | International Journal  l of Advanced Computer Science and Applications | Computer  ized Drug Verification System  :  A  Panacea for Effective Drug Verification | Oketa Christian Kelechi, Alo Uzoma, Rita  Okemiri, Henry Anaya  ,Richard Nnabu Nneka Ernestecia,  Achi Ifeanyi Isaiah,  Chinazo I, Chima, Afolabi Idris Yink, Mgbanya  Praise Chimney | 2019 | Computerized Drug Verification System (CDVS) is a research work geared towards establishing the means of identifying authentic authentic drugs in Nigeria. The project is based on the National Agency for Food and Drug Administration Control (NAFDAC) number. The app can be used to verify the authenticity of drugs in the country in partnership with Mobile authentication Service (MAS) . | Using a mobile app NAFDAC VERIFY drug verification shall take place and it works on both iOS and android. | The proposed and confirmed benefits of drug verification system include enhanced patient safety, reduced drug costs, increased access to patient prescription records, and improved pharmacy workflow.  Although drug verification system eliminates certain errors, it potentiates new errors and reintroduces problems similar to those encountered with written prescriptions. Omitted or inaccurate information, such as incorrect drug selection, wrong patient, and incorrect directions, accounts for most errors associated. Given the initial resistance and lack of acceptance on the part of providers and pharmacists, many studies have been conducted to determine the accuracy of this system |  | A mobile and a web app which will be using a verification pin for manufacturers registration, drug registration. | Accuracy and failure ratio of both these things should have been focused on. |
| 7 | JOURNAL  OF  MEDICAL  INTERNET  RESEARCH | Bloc  kchain  in Health  Care  Innovation:  Literature  Review and  Case Study  From a Business  Ecosystem  Perspective | Shuchih  Ernest  Chang,  YiChian  Chen, | 2020 | Blockchain technology is leveraging its innovative potential in various sectors. Research interest has focused on medical and health care applications. However, knowledge about the impact on the healthcare ecosystem is limited.This paper explores  a potential  Paradigm shift  And ecosystem  Evolution in health  Care utilizing  blockchain  technology. | A literature review with case study on a pioneering initiative was conducted and along with a systematic life cycle analysis, this study sheds light on the evolutionary development of blockchain in health care scenarios and its interactive relationship among stakeholders | Ease of access: Easy patient access digitized records in terms of emergency. Using the latest digital technology, patient medical records can be backed up on the cloud or sever systems. A physician can easily access the patient files from location in any emergency, even outside the patient's primary treatment center.This would go a long way in saving the lives of the patient. Saves cost:.This will also allow a larger volume of transactions to be handled by the network. Data breach: As there is easy access to patient files from an authorized source, there may be a key breach of data privacy. As healthcare is a very sensitive industry whose code of conduct is governed by strict laws relating to confidentiality, this could pose a serious regulatory risk and outweigh the disadvantage of easy access in terms of emergency. |  | phenomenon of coevolution within the health care ecosystem has been explained | Relation between block chain and supply chain could have been explained |
| 8 | Journal of Machine Learning Research 21 (2020) | Exploring the Limits of Transfer Learning with a Unified Text-to-Text Transformer | Colin Raffel, Noam Shazeer, Adam Roberts, Katherine Lee,  Sharan Narang, Michael Matena, Yanqi Zhou, Wei Li, Peter J. Liu | 2019 | Transfer Learning, where a model is first pre-prepared on an information  rich assignment before being adjusted on a downstream undertaking, has  risen as an amazing method in common language handling (NLP). The  adequacy of move learning has offered ascend to a variety of approaches,  system, and practice. In this paper, we investigate the scene of move  learning methods for NLP by presenting a bound together structure that  changes over all content based language issues into a book to-message  design. Our precise investigation analyzes pre-preparing goals, models,  unlabeled informational indexes, move draws near, and different  components on many language getting undertakings. By consolidating the  bits of knowledge from our investigation with scale and our new ''Colossal  Clean Crawled Corpus'', we accomplish cutting edge results on numerous  benchmarks covering rundown, question replying, text order, and that's just  the beginning. To encourage future work on move learning for NLP, we  discharge our informational collection, pre-prepared models, and code. | Attention Model  T5 Transformers  Seq2Seq Model  Neural Networks  LSTM  RNN | Parallel Computing  11 billion parameters.  Can be exploited  Slow  All parameters are not available  Still in development phase | Fig :Training Loss  Compared with database size | Can be used for making high-performing chatbots | Can include another version of transformers to show the performances |
| 9 | JMIR Res Protocol  . | Blockchain Technology for Detecting Falsified and Substandard Drugs in Distribution: Pharmaceutical Supply Chain Intervention | Patrick Sylim 1, Fang Liu 1, Alvin Marcelo #2, Paul Fontelo | 2018 | 30% of inspected drug stores in 2003 were found with substandard/spurious/falsely-labeled/falsified/counterfeit drugs. The economic burden on the population drug expenditures and on governments is high. This study aims to develop a pharmacy surveillance blockchain system and test its functions. | Using Distributed Application (DApp) that will run on smart contracts, employing Swarm as the Distributed File System (DFS) | Decentralization: It allows for decentralized storage of data. Since all files are stored in a single format electronically and digitally, treatment centers will no longer have to be bothered with the task of storing patient data since there’s a public database that can be accessed with a private key. Expensive: The installation of blockchain technology poses a high cost that small and medium corporations and establishments may not afford. |  | In this paper Forty-three studies were reviewed to profile and organize the current intellectual capital | role of cognitive computing in healthcare could have been mentioned |
| 10 | Journal of Machine Learning Research | BERT: Pre-training of Deep Bidirectional Transformers for  Language Understanding | Jacob Devlin, Ming-Wei Chang, Kenton Lee, Kristina  Toutanova | 2019 | Not at all like late language portrayal models, BERT is intended to pre-train  profound bidirectional portrayals from unlabeled content by mutually molding on both left and right settings in all layers. Accordingly, the  pre-prepared BERT model can be adjusted with only one extra yield layer to make cutting edge models for a wide scope of undertakings, for  example, question noting and language derivation, without significant errand explicit design changes.  BERT is adroitly basic and exactly incredible. It acquires new best in class results on eleven normal language handling undertakings, including pushing the GLUE score to 80.5% (7.7% point supreme improvement),  MultiNLI exactness to 86.7% (4.6% outright improvement), SQuAD v1.1 question noting Test F1 to 93.2 (1.5 point total improvement) and SQuAD v2.0 Test F1 to 83.1 | BERT Transformer  Seq2Seq Model  Attention Model  RNN  LSTM  GRU | It's described as a “groundbreaking” approach for natural language processing (NLP), due to the fact it is the first-ever bidirectional and absolutely unsupervised approach for language representation. It's open-sourced and may be without difficulty utilized by all of us with machine learning experience.  Principal drawbacks of the use of BERT and different large neural language fashions is the computational assets had to train/fine-song and make inferences | Fig : - Graph between training steps and accuracy | Can be used for making chatbots as it contained detailed explanation of BERT training | Could have included the other usage of BERT and could have explained why it is better than other transformers |
| 11 | IEEE Xplore | Rethinking the Inception Architecture for Computer Vision | Christian Szegedy,Vincent Vanhoucke,Sergey Ioffe,  Jonathon Shlens | 2018 | Convolutional networks are at the center of most cutting edge PC vision answers for a wide assortment of assignments. Albeit expanded model size  and computational cost will in general mean quick quality increases for most errands (as long as enough marked information is accommodated  preparing), computational proficiency and low boundary tally are as yet empowering factors for different use cases, for example, versatile vision and enormous information situations. Here we are investigating  approaches to scale up networks in manners that target using the  additional calculation as effectively as conceivable by appropriately  factorized convolutions and forceful regularization. We benchmark our  strategies on the ILSVRC 2012 grouping challenge approval set show significant increases over the best in class: 21.2% top-1 and 5.6% top-5 mistake for single edge assessment utilizing an organization with a  computational expense of 5 billion duplicate includes per surmising and with utilizing under 25 million boundaries. With a troupe of 4 models and  multi-crop assessment, we report 3.5% top-5 blunder and 17.3% top-1  Mistake | CNN  Tensorflow  CV2  Python3  Pandas  Imutils | With the advantage that each one filters on the inception layer are learnable. The maximum trustworthy manner to enhance overall performance on deep mastering is to apply extra layers and extra data, googleNet use 9 inception modules. The hassle is that extra parameters additionally approach that your version is extra vulnerable to overfit. | Fig : Accuracy with two activation layers (Relu and Linear) | Its pretrained model can be used for scanning text from handwritten image for prescription and aadhar card | Could have explained properly the model and the datas that has been used to trained . |
| 12 | Research Gate | An Overview On Web Scraping Techniques And Tools | Anand V. Saurkar, Kedar G. Pathare , Shweta A. Gode | 2018 | As we offer and store information on the web, another issue emerges is how to deal with such information over-burden and how the client will get or get to the best data in least endeavors. To illuminate this issues, specialist spotout new method called Web Scraping. Web scratching is an extremely basic method which is utilized to produce organized information based on accessible unstructured information on the web. Scaping produced organized information at that point put away in focal data  set and investigate in spreadsheets. Customary reorder, Text graping and  ordinary articulation coordinating, HTTP programming, HTML parsing, DOM parsing, Web scratching programming, Vertical accumulation stages,  Semantic explanation perceiving and Computer vision website page  analyzers are a portion of the regular strategies utilized for information  scratching. Presently a days, there are bunches of programming are  accessible in the market for web scratching. Our paper is centered around  the review on the data extraction procedure for example web scratching,  various procedures of web scratching and a portion of the ongoing devices  utilized for a web scraping. | Web Scraping.  Parse Web Page Content for | It gives us a way to scrape the web and which modules to use |  | It was used to scrape medicine information site for all medicine names and details | They could have shown an example of how it works or provided some links to make it easier for the users. |
| 13 | Science DIrect | Blockchain Healthcare:A Systematic Literature Review,synthesizing framework and future research agenda | AnushreeTandona,AmandeeDhir,A.K.M.NajmulIslamd, MattiMäntymäki | 2020 | This study presents a systematic literature review (SLR) of research on blockchain applications in the healthcare domain. Findings indicate that blockchain is being used to develop novel and advanced interventions to improve standards of handling, sharing, and processing of medical data and personal health records. | SLRs offer readers comprehensive knowledge of the literature in a field through a holistic and organized précis that adheres to standard protocols. The current study adapted protocols which synthesized article assessment criteria from previously published SLRs. The SLR protocol consisted of three main phases, namely planning, execution, and reporting assimilated information. | The present study aimed to understand the scope of the application of blockchain the healthcare domain | . | In depth explanation of methodology being used | Role of blockchain in disease surveillance system. |
| 14 | IEEE | Attention in Natural Language Processing | Andrea Galassi , Marco Lippi , and Paolo Torroni | 2019 | Attention is an undeniably mainstream instrument utilized in a  wide scope of neural designs. The component itself has been  acknowledged in an assortment of configurations. In any case, in  light of the relentless advances in this area, an efficient outline of  consideration is as yet absent. In this article, we characterize a  bound together model for consideration structures in  characteristic language handling, with an emphasis on those  intended to work with vector portrayals of the printed information.  We propose a scientific categorization of consideration models as  indicated by four measurements: the portrayal of the info, the  similarity work, the appropriation work, and the assortment of the  information or potentially yield. We present the instances of how  earlier data can be misused in consideration models and talk  about progressing research endeavors and open difficulties in the  territory, giving the primary broad classification of the huge group  of writing in this energizing area | NLP  Sequence Model  Attention Model | It gave us a completely new understanding of a new type of NLP model that we had not done before and helped us train a much more accurate model |  | It was used to train the chatbot | It could provide us with some code examples to help us give a headstart |
| 15 | The cyber academy | Applications of Blockchain Within Healthcare | Liam Bell William J BuchananJonathan Cameron,Owen Lo | 2020 | There are several areas of healthcare that could be enhanced using blockchain technologies. These include device tracking, clinical trials, pharmaceutical tracing, and health insurance. The information gathered can then be used to improve patient safety. | Usage of patient records, drug tracking and device tracking | Blockchain technology is the smarter solution to safeguard the patient’s information. Blockchain prevents unauthorized individuals from accessing the information.  There are no rules available to address the use of blockchain in the healthcare industry. It is also uncertain as to how new policies regarding healthcare blockchain will conform to current privacy regulations like the HIPAA act. |  | Device and drug tracking have been explained well | The need of using blockchain in the Healthcare industry should have been explained in more detail. |
| 16 | Journal of Web Development and Web Designing | A Self-Diagnosis Medical Chatbot Using Artificial Intelligence | Divya S, IIndumathi, VIshwaraS,, Priyasankari M,, Kalpana Devi S | 2018 | Proposed idea is to create a medical chatbot using Artificial Intelligence. Bot can diagnose the disease and provide basic details about the disease before consulting a doctor. Certain chatbots acts as a medical reference books, which helps the patient know more about their disease. | A text-to-text diagnosis is used and provides the patient a personalised diagnosis based on the symptoms | Artificial intelligence chatbots are available 24\*7, faster service cost savings but might require regular maintenance |  | The proposed system here is explained very well with Finite state graph and functional architecture to support the text well. | A special chatbot for diabetic patients could be introduced as well. |
| 17 | Clinical Infectious Diseases, Volume 66, Issue 1 | Machine Learning for Healthcare: On the Verge of a Major Shift in Healthcare Epidemiology | Jenna Wiens, and Erica S. Shenoy | 2018 | The increasing availability of electronic health data presents a major opportunity in healthcare. Machine learning (ML) can transform patient risk stratification broadly in the field of medicine. This could lead to targeted interventions that reduce the spread of health-care-associated pathogens. | Introduction of ML, how ML can transform healthcare epidemiology. | ML-driven tools help reveal early disease risks, ML algorithms can save time and costs. Lack of personal involvement. |  | Effect of ML on infectious has been explained well. | Big data in healthcare could also be included |
| 18 | Materials today proceedings | An intelligent Chatbot using deep learning with Bidirectional RNN and attention model | Manu Dhyani, Rajiv Kumar | 2021 | The paper here explains the modeling and performance in deep learning computation for an Assistant Conversational Agent (Chatbot) The model is developed to perform English to English translation. experiments are conducted using Tensorflow using python 3.6. The paper here also studies MacBook Air as a system for neural network and deep learning. | Bidirectional Recurrent Neural Network has been used | Save time and involve a one time cost but at the same time lack personal care and involvement, require maintenance |  | Deep learning, Chatbot, Bidirectional RNN and Attention model, Tensorflow, Neural Machine Translation have been explained in detail. | Performance of deep learning computation with TensorFlow should have been explained a bit |
| 19 | Journal of Medical Systems | Applicability Evaluation of Web Mining in Healthcare E-Commerce Towards Business Success and a derived Cournot Model | P. Damodharan & C. S. Ravichandran | 2019 | Any E-Commerce firm to survive must be of cutting edge and competitive edge. Web content mining enables them to attract and retain innumerable customers. The huge gap between Partial and exhaustive promotion when it comes to the deployment of web mining techniques. The results show that the model suits the economics behind the online businesses in both cases and thus helps to identify or enhance the underlying web mining techniques towards business success. The paper models web mining as a Game in Cournot Model to understand the varying role of web mining in online business successes. It also shows that there are two distinct types of online business based on web content promoted towards buy. | Web usage mining and web content mining have been used. | The advantages is that it does not depend upon any database of users rating and disadvantage of this system is that the knowledge base needs to remain updated to keep an eye on the changing preferences of customers. The hybrid recommenders have been motivated by the observation that single recommendation techniques have some difficulties which need to be overcome. These can be done by the approach of combining two recommended systems. The most common form of hybrid recommender combines the content based and collaborative based filtering. | Applicability evaluation of web mining healthcare | Web mining web scraping and search engine optimisation have been explained well. | search Engine Optimization Research For Website Promotion could be included in this paper. |
| 20 | IEEE | Video Monitoring System using Facial Recognition: A Facenet-based Approach | Moura, Augusto F. S.  Pereira, Silas S. L.  Moreira, Mario W. L.  Rodrigues, Joel J. P. C. | 2020 | Decreases in establishment and capacity costs have expanded the interest for security frameworks, including video reconnaissance and computerized confirmation. The video observation frameworks, when checked by people, are dependent upon mistakes and are trying to scale. Confirmation frameworks can approve somebody utilizing a secret word or a card from another client. Facial acknowledgment calculations can settle this shortcoming by the traffic observing of referred to people or interlopers just as for individual biometric confirmation. Thus, this paper assesses the FaceNet approach utilizing the Labeled Faces in the Wild benchmark, just as assesses an AI strategy known as support vector machine (SVM) for the classification of embedding generated using FaceNet The recommended approach additionally models a constant facial acknowledgment framework consolidating FaceNet and SVM, arriving at 90% of precision utilizing a medium webcam. | Face - Net  CNN  Tensorflow  Python3  Open CV | Pros – Very large comprehensive dataset is employed (260 Million)  Cons – The model is just too deep. albeit the dataset is comprehensive it's too big in size and is difficult to handle. to beat this generally this model isn't trained from scratch and therefore the pre-trained model is employed | Facenet Accuracy with different datasets | A proper method for facial recognition is used which can be used for face-recognition based login and aadhar verification, | A single |