

International Conference on Computational Intelligence & Sustainable Development

April 22-23, 2022

Conference Proceedings



Department of Computer Science & Engineering
Faculty of Engineering & Technology
CHAITANYA(DEEMED TO BE UNIVERSITY)

Warangal, Telangana
iccisd@chaitanya.edu.in
www.chaitanya.edu.in

INTERNATIONAL CONFERENCE
ON
COMPUTATIONAL INTELLIGENCE AND SUSTAINABLE
DEVELOPMENT
APRIL 22 – 23, 2022



Organized By

Department of Computer Science and Engineering

Faculty of Engineering and Technology,

CHAITANYA (Deemed to be University)

Hanamkonda, Telangana – 506001

www.chaitanya.edu.in



Dr. Ch. V. PURUSHOTHAM REDDY

Founder & Chancellor

Chaitanya (Deemed to be University)

Kishanpura, Hanamkonda, Warangal

MESSAGE

Chaitanya Institutions have made steady and phenomenal progress in imparting quality education with several awards and accolades for the last thirty-one years. Our vision is to take Chaitanya Deemed University (CDU) to greater heights with good digital governance and sound academic standards. Eventually, we want to make CDU a Center of Academic Excellence with creativity, productivity and accountability for knowledge society.

We have instituted the Chaitanyam to encourage high impact factor papers with original ideas and patent holders, and to promote serious and sustained academic work. We hope these awards will create healthy competition promoting serious and sustained academic work on our campus. Earn-While-You-Learn Program is our latest initiative. Interested PG first year students can register to work in the Softpath Company established at our university. Aspiring students can email their bio-data to placements@cdu.ac.in.

Faculty-wise research journals are planned under the guidance of our Vice-Chancellor. Current English Review (CER), Journal of Bioscientia, Cosmopolitan Journal of Innovations in Engineering and Technology, the latest issue of Prakarsha, Journal of Management and Research were brought out. Journal of Pharmacy and Drug Research is in the pipeline.

We have beyond classroom solutions. We want to go for futuristic solutions to facilitate our students to access our content anytime, anywhere, improve satisfaction and personalized learning outcomes, and give them the opportunity to learn with others. There is commendable participation of our students in extracurricular activities.

We impart quality education by reviewing the impact of the existing programs and their relevance, restructuring of a few courses, consolidation of existing teaching programs, strengthening the learning process, strict adherence to the academic schedule, researching monitoring and assistance, encouraging national and international seminars, webinars, workshops, refresher courses, exhibitions, placement sessions, etc. Our pedagogy calls for hands-on experience, extensive laboratory and workshop exposure to link students to real world problems and situations. Students become industry-ready with good life and employability skills.

We have so far conducted 22 national and international webinars/ seminars on various topics. In addition to these, 60 standard online quizzes were conducted, and a hundred video lessons for YouTube Channel covering all branches were made available. All our 297 research scholars of two batches are enthusiastic to pursue their research seriously from the date of joining their research

program due to our good research facilities, weekly / fortnightly Regular Review Meetings (RRMs) and monthly and yearly reports by the scholars. The snapshots of RRM's have to be uploaded to the Chaitanya Research Group as a proof. Within ten months of joining the Ph.D program, our 139 research scholars of the first batch published 54 Research Papers in refereed journals during 2020-21.

Chaitanya has created a benchmark in Upgradation of Knowledge Through Interaction (UKTI) sessions to update the skills of teachers of various subjects. We have so far conducted 45 sessions and are now producing video lessons, making them available online for the benefit of all. To update the skills of teachers of various subjects, a daily interactive session was launched on April 27, 2020. All senior teachers have conducted the sessions with impressive PPTs. The Faculty Induction Program (Guru Dakshata) is done at the beginning of academic year. FDPs and Workshops are conducted to update their skills. We have initiated these UKTI sessions for the staff through WhatsApp for focus, clarity and readability. These sessions have exposed the teachers to the use of ICT and online teaching tools for better instruction.

Our university has developed adequate infrastructural facilities for the already existing and newly introduced academic programs. Our laboratories are very well equipped and not short of anything. The teachers are at liberty to go in for any equipment that is useful for their laboratories. The University is equipped with HPLC, IPR Spectrophotometer, U.V. Spectrophotometer, PCR, Fermenter, Gel documentation system etc. The purpose of these instruments is to familiarize the students with the latest equipment so that they are not at sea when they encounter such instruments in industries or research institutions later.

Our university has been rated as one of the most sought-after colleges for the students of this region with the result that there has been considerable pressure on student admissions for all the courses. In view of the large number of academic programs, courses and course combinations and ever-increasing intake, the college has to live up to the expectations of the parents. A lot of emphasis has been placed on teaching, learning and evaluation.

I congratulate the Department of Computer Science on conducting an International Conference on Computational Intelligence and Sustainable development (ICCISD). I wish them all the best.

Dr Ch. V. Purushotham Reddy

Chancellor



Prof. G. DAMODAR
Vice-Chancellor
Chaitanya (Deemed to be University)
Kishanpura, Hanamkonda, Warangal

MESSAGE

Pleased to know that the Department of Computer Science is conducting an International Conference on “Computational Intelligence and Sustainable development (ICCISD)” for two days on April 22 and 23, 2022, covering AI, IoT, ML and its Applications, Soft Computing, Image Processing, NLP, Deep Learning, Speech Recognition, Big Data, Bioinformatics, Block Chain, Wireless and Wired Networks, Grid Computing, Cloud Computing, Quantum Computing, Mobile and Ubiquitous Computing, Global avigation Satellite Systems, etc.

Ever since we got deemed to be university status in November 2019, we have been striving hard to take Chaitanya to greater heights. Our healthy practices so far include Academic Interphase Programs with TCS and IBM, good practices appreciated by AICTE, At-Home-Exam™ announcing the results on time, Best Paper and Patent Publication Awards, Beyond Classroom Solutions, unique Chaitanya App, Chaitanya At-Home-Library, Community Service and Rural Based Projects, Free-ships worth 1.10 crores last year, Implementation of some provisions of NEP 2020, Internationalisation of Higher Education, eight Inventions and Innovations including the battery-operated car, the introduction of latest courses including Agriculture, Life Skills, DBT Skill Vigyan Program, NCC as a General Generic Elective, Interactive Sessions as Deeksharambh, Regular Research Review Meetings with Ph.D. scholars, State-of-Art Labs, Study Tours of Ek Bharat Shreshtha Bharath, Sustainable Campus as SATAT, UKTI Sessions under Guru Dakshta, making video lessons available on YouTube, conducting online quizzes, Earn-While-You-Learn Schemes, University Social Responsibility Initiatives, encouraging patents, a proposal for Atal Chaitanya Incubation and Innovation Center, BIRAC under Bio-Nest in collaboration with University of Hyderabad, etc.

We have initiated a positive action to encourage research in post graduate courses project work is now included as a part of curriculum. Sectoral specializations like Tourism and Hospitality, Health Care Management for MBA, Net Programming, Multimedia Applications, Cloud Computing for MCA as in-house projects were introduced. Efforts are being made to have a much more and rigorous University–Industry nexus so that the batches of students get industrial experience along with academic programs by conducting meetings with the entrepreneurs in the region to impress upon the need to support the students’ training programs in their establishments so that they and others can employ them after completion of their courses.

We have introduced Open electives like Food Technology, Nanotechnology, Biosafety, IPR, Tourism and Hospitality Management, Health Care Management, Fundamentals of Electronics, E-commerce, Computer Applications and Airline Management. These courses can be taken up by all the students of post-graduation to have an insight of the different fields which might help them in enriching their career prospects. We started offering B.Sc. Agriculture from the current academic year. We have got permission to start B.Sc. Nursing Course next year. Currently, we have about 6000+ students who belong to 14+ countries including India.

We are committed and dedicated to our vision and mission and constantly evolve ourselves to the future needs and impart education that makes the world a better place to live in. The pillar of our strength is innovative teaching and learning experiences offered by experienced faculty backed with high quality resources. We offer academic ambience, fruitful interaction and friendly support with excellent placements making life a celebration for every student. Our syllabus is skill-based, and industry focused with contemporary curriculum, choice-based credit system (CBCS) and continuous assessment and grading pattern (CAGP). Social outreach programs, eco-friendly environment, diversified student community, education scholarships for deserving and meritorious students, internal quality assurance, enriching projects and internships, corporate linkages, global alumni network, learning management system, highly accomplished faculty members and levitating research culture are some of our salient features.

We always remember our core vision of empowering our future generations to be morally, ethically and intellectually strong with LOCF and following some provisions of National Education Policy 2020. To be with our university is an exciting and rewarding experience with opportunities for nurturing abilities, challenging cognizance and gaining competence.

I hope that this two-day Conference will motivate the staff, delegates, research scholars, industrialists and students to deliberate upon the significant advances in the field of computer science and engineering. I wish the conference all success.

Prof G. Damodar

Vice-Chancellor



*Prof. G. Shankar Lingam
Dean, Faculty of Engineering, and Technology
Chaitanya (Deemed to be University)
Kishanpura, Hanamkonda, Warangal*

MESSAGE

It is with great pride, enthusiasm, and anticipation that I invite you to read the conference proceedings of the International Conference on Computational Intelligence and Sustainable Development - 2022 — “a new kind of research”.

An enormous amount of work has gone into the development of this conference Proceedings, and I believe you will see that effort reflected in this edition and in the impact, it will have on the field.

It’s a cliché but a useful one in this case: We are a work in progress actively seeking ideas from campus and community in terms of structure, goals, and vision. We remain open to where we are going and how we will get there.

As we look at ICCISD-2022, it is important to keep in mind that it represents the collective thinking of a group of innovative individuals with whom I am privileged to work. First, we want ICCISD to be the premiere academic research in Computer Science and Engineering. We want it to look different, to be different, to be one journal that, will be as dynamic as the work going on in our disciplines, a rarity in academic publishing. Second, we want it to be a vehicle for a new type of conversation about engineering and Technology and its place in the academic review, tenure, promotion, and reward process. Third, we want ICCISD to lead the way in defining scholarship in the academy, scholarship in which faculty, students, and community members participate from idea to presentation through distribution.

ICCISD intends to be a leader in facilitating a new kind of discussion in the field of Computer Science and Engineering which is transformative and that it is time for transformation in academia, ICCISD will be at the forefront in strengthening relationships between communities and institutions of higher learning.

Dr. G. Shankar Lingam
Conference Chair

Brief Note on Conference

The Department of Computer Science & Engineering was established in 2010 to meet the demand for well qualified computer professionals. The Department offers B. Tech (Computer Science & Engineering) from 2010 onwards with an intake of 120, M. Tech. (Computer Science & Engineering) from 2013 onwards with an intake of 24 and Ph. D. (Computer Science & Engineering) from 2021 onwards.

The department of Computer Science and Engineering, Faculty of Engineering, Chaitanya Deemed to be University organized an international conference at our university during April 22 – 23, 2022. In this conference, Academicians / Industrialist / Research Scholars are contributed in the form of articles that illustrate research results, projects, surveying works and industrial experiences that describe significant advances in the field of Computer Science and Engineering.

As the today's global economic environment is undergoing transformation so managing change is vital to ensure sustainable growth. Innovation and emerging opportunities have become one of the key strategic tasks. This conference helped us to renew key challenges and opportunities in today's dynamic world and improved the research and theory building in every area by facilitating the exchange of knowledge, ideas, latest trends, developments, and contemporary challenges.

The aim of this conference has achieved by providing a platform for researchers, practitioners in sharing their ideas and to discuss current issues dealing with changing economic and competitive environment and to also get acquainted with latest developments and trends. We received the original research papers in the areas of Big Data, Block Chain, Bioinformatics, Deep Learning, Image Processing/Pattern Recognition, Internet of Things, Machine Learning & Applications, Soft Computing and Neural Networks. We received total 86 papers from the researchers who are contributing their services in top educational institutions and shortlisted 27 papers based on the peer review process and comments from the reviewers. The shortlisted and registered papers are allowed to present their work in the conference. We thank the management, Chancellor, Vice- Chancellor, Registrar, OSD, Deans, Departments and researchers who involved directly and indirectly in making this conference success. – *Thank you*

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AUTO ENCODER TIME-SERIES ANOMALY DETECTION ENHANCEMENT WITH ATTENTION

Ann Varghese, Midhun M. S., James Kurian

0000-0002-9136-1738, 0000-0003-3666-7520, james.cusat@gmail.com

Department of Electronics, Cochin University of Science & Technology, Kerala, India

Abstract

Auto encoders can be used effectively for detecting anomalies in time-series signals. Anomaly detection is the first step in diagnosing a heart disease. Nowadays, long term electrocardiogram (ECG) monitoring devices are available that produce continuous heart readings. These readings need to be analysed manually or with technological assistance to determine anomaly occurrence. A comparison of different auto encoder architectures, namely convolution & hybrid model, in detecting anomalies, is proposed in this work. The attention layer is also incorporated into the hybrid architecture to find out how its performance is affected. The comparison of the different models in terms of F1- score, false-positive rate (FPR) and area under the ROC curve (AUC) are specified.

Index Terms—ECG; attention; Hybrid; LSTM; Convolution; Auto encoder

ORCHESTRATION OF ML/AI MODELS USING MLOPS/AIOPS FRAMEWORKS

¹Deepak Kumar U S, ²A K Sampath,

¹Department of Computer Science, Presidency University, Bangalore, India

deepakkumarus@gmail.com

Department of Computer Science, Presidency University, Bangalore, India

sampath.ak@presidencyuniversity.in

Abstract

Companies require an ML/AI process that is automated and streamlined. The strategy is to set up a common architecture and development methods so that the company can get the most out of its machine learning and artificial intelligence investments. This is where ML/AIOPS derived from continuous integration & continuous development CI/CD culture, may play an important role in helping enterprises increase team cooperation, improve the stability and scalability of ML/AI systems and shorten development cycles. As a result, enterprises may reap the benefits of being at the vanguard of innovation while also assisting in the realization of total business value from ML/AI investments. The ML/AIOPS framework is an ML/AI engineering technique that combines the development of ML/AI systems with operation features. Organizations can benefit from shorter ML/AI system development cycles, faster product to market, improved cooperation amongst their teams, increased dependability, Performance, scalability, and security of their ML/AI systems by implementing ML/AIOPS framework principles. Operational and governance processes have been simplified.

Keywords— MLOps, AIOps, CI, CD, ML, AI.

TRAFFIC SIGN RECOGNITION USING CNN

Abhay Chopde, Mahesh Badade, Awadhesh Bansode, Mrunal Barve, Atharva Bhatkar

abhay.chopde@vit.edu, mahesh.badade20@vit.edu, awadhesh.bansode19@vit.edu,

umrunal.barve19@vit.edu, atharva.bhatkar19@vit.edu

Vishwakarma Institute of Technology Pune

Abstract

Traffic sign recognition is one of the important tasks for autonomous vehicles. The dynamic external environment, on the other hand, makes real-time recognition of traffic signs significantly more difficult when compared with other different recognition tasks. The system helps in the safety of the drivers as well as the vehicles. There are many popular approaches that prominently use Convolution Neural Networks (CNN), computer vision techniques, and machine learning for the execution, classification and feature extraction. This helps in the identification and detection of traffic signs. In this work, our focus is to design traffic signs recognition system using a multi task convolution neural network. The data augmentation technique is used to expand the dataset by applying affine transformation techniques. To the best of our knowledge, other published systems typically restrict themselves to a specified collection of traffic signs, but since we are using considerably a large dataset, the suggested approach is more extensive. The proposed model gives 95% training accuracy and 93.65% testing accuracy on the German Traffic Sign Recognition Benchmark (GTSRB).

Keywords— CNN, GTSRB, Deep Learning, Traffic Sign Recognition.

CHATBOT USING DEEP LEARNING

Abhay Chopde, Mohit Agrawal

abhay.chopde@vit.edu, mohit.agrawal19@vit.edu

*Department of Electronics and Telecommunication, Vishwakarma Institute of Technology,
Pune, India.*

Abstract

Chatbots are pieces of computer software that use Natural Language Processing (NLP) to reach out to humans. The development of conversation is a crucial component of any Chatbot. The implementation of a good Chatbot model remains a significant challenge, despite recent advances in NLP and Artificial Intelligence (AI). It can be used for a variety of tasks. Generally, it should understand what the user is trying to accomplish and respond accordingly. Until now, a plethora of features have been introduced that have significantly improved the conversational capabilities of chatbots. This paper proposes a method for developing a chatbot based on deep neural network. The data was learned and processed using a neural network layered with multiple layers. The novelty of the proposed model was that, the bot can be trained on any input data based on the user's needs and requirements, meaning that it was a generalized one. Text to speech conversion was added to make it more user friendly.

Keywords— *Artificial Intelligence, Chatbot, Natural Language Processing, Neural Network*

PREDICTING STUDENT'S PLACEMENT PROSPECTS USING MACHINE LEARNING TECHNIQUES

¹VJ Hariharan, ²S Selvakumar, ³M Suguna, ⁴A Sheik Abdullah, ⁵M Ramakrishnan,
⁶Vishaak Prabakar, ⁷R Rithish

Department of Information Technology, Thiagarajar College of Engineering, Madurai, India
hariharanj2003@gmail.com

Department of CSE, Visvesvaraya College of Engineering and Technology, Hyderabad, India
sselvakumar@yahoo.com

School of Computer Science Engineering, Vellore Institute of Technology, Chennai, India
suguna.m@vit.ac.in

School of Computer Science Engineering, Vellore Institute of Technology, Chennai, India
sheikabdullah.a@vit.ac.in

School of information Technology, Madurai Kamaraj University, Madurai, India
ramkrishod@gmail.com

School of Computer Science Engineering, Vellore Institute of Technology, Chennai, India
yishaak.2021@vitstudent.ac.in

Department of Information Technology, Thiagarajar College of Engineering, Madurai, India
rithishrk2@gmail.com

Abstract

Placements are extremely important in students' life as well as the prestige of educational institutions. The majority of students who enrol in college or university hope to be hired by their ideal employer. The reputation of educational institutions is influenced by the rate of placement as well as the quality of instruction. As a result, educational institutions must ensure that students are not only prepared for the industry, but also for placements. All of the colleges go to considerable lengths to assist students in landing jobs at their ideal companies. However, the placement rate varies from year to year for each college. And this has an impact on the institution's reputation. It is critical for educational institutions to prepare students not only intellectually but also for placement in the industry. Early identification of the placement probability will assist both students and management in concentrating on the required area, eliminating barriers, and increasing the possibilities of being placed. The placement prediction process helps to determine the needs of students, which increases the likelihood of their being placed. Early detection of an issue aids in the early removal of roadblocks.

Keywords—Predictive Analysis, Support Vector Machine, Kernel Functions, Behavior Analysis, Educational data Analysis.

LOAD BALANCING TECHNIQUES IN CLOUD COMPUTING

CHANDER DIWAKER, Ishu Devi, Parveen Kumar

Department of CSE, UIET, Kurukshetra University, India

Chander_cd@rediffmail.com

Department of CSE UIET, Kurukshetra University, India

ishupunia81@gmail.com

Centre for Railway Information, Systems, New Delhi, India

psehrawat05@gmail.com

Abstract

Cloud computing has been drastically changed by the enormous advancement of Internet services. Many centres of Cloud data are known for serving demands of several tenants regarding cloud computing which release huge amount of electricity that leads to high cost of operation and diffusion of carbon dioxide (CO₂) in the environment. In order to repair this, preservation is mandatory for the potential use by constructing a fresh structure and to measure its effect in various cloud data centres. As a result, price of processing power is reduced by the usage of pruned electricity. One of the appropriate ways of saving energy is to adjust the balancing of optimal load to meet cloud data centres which are energy efficient. Focus is to be maintained upon enhancing the efficacy by dividing the workload equally in order to reduce the enormous use of energy in the cloud data centres. In this paper, assessment of cloud computing in relation to algorithms of balancing load is discussed.

Keywords - Cloud computing, Cloud services, Green computing and Load balancing.

BREAST CANCER PREDICTION: A COMPARATIVE ANALYSIS USING MACHINE LEARNING TECHNIQUES

K.Srilatha Reddy¹, Dr.N.Sateesh Kumar²

¹Research Scholar, Dept of CSE, Chaitanya Deemed University

csephdscholar2021@gmail.com

²Professor, Dept of CSE, Chaitanya Deemed University

meet.nskumar@gmail.com

Abstract

Early detection of disease has become a crucial problem due to rapid growth in population in medical research in recent times. With the rapid growth in population, the risk of death incurred by breast cancer is rising exponentially. Breast cancer is the deadliest cancer among all of the cancers which has most severe symptoms already unveiled. An automatic disease detection system aids in medical staff to recognize the disease and diagnose the patients with reliable, effective, and rapid response as well as decreases the risk of death. In this paper, we compare with five supervised machine learning techniques namely support vector machine (SVM), random forests, K-nearest neighbors, logistic regression and artificial neural networks (ANNs). The Wisconsin Breast Cancer dataset is obtained from a prominent machine learning database named kaggle UCI machine learning database. The performance Analysis of the study is measured with respect to accuracy, sensitivity, specificity, precision, negative predictive value, false-negative rate, false-positive rate, F1 score, and Matthews Correlation Coefficient. Additionally, these techniques will enhance the performance on various parameters like precision–recall area under curve and receiver operating characteristic curve. The results obtained in the comparative analysis that the ANNs obtained the highest accuracy, precision, and F1 score of 98.64%, 97.92%, and 0.9895, respectively, whereas 97.65%, 95.85%, and 0.9797 precision, accuracy, and F1 score are obtained by SVM, respectively.

Keywords: Breast cancer prediction · Cancer dataset · Machine learning · Support vector machine · Random forests · Artificial neural networks · K-nearest neighbors · Logistic regression

REVIEW ON PERFORMANCE ANALYSIS AND EVALUATION OF RECOMMENDATION SYSTEMS WITH DIVERSE DIMENSIONS OF METRICS.

Vinod Ingale, Dr. Saikiran

Computer Science and Engineering Adarsh Institute of Technology and research centre, Vita Sangli, India, vinod.ingale15@gmail.com

Computer Science and Engineering, Chaitnya Deemed to be University, Hanmkonda, India kiran.09528@gmail.com

Abstract

In today's world, recommendation systems assist people in suggesting the greatest item among the most regularly used goods or the best item with a high level of popularity. The majority of the commendations are based on machine learning algorithms that perform learning using training datasets and a standard collection of programs that enhance prediction using the underlined datasets. In recent years, customer and product growth has surged, providing substantial challenges for recommender systems. They entail giving high-quality recommendations and completing numerous recommendations per second for millions of consumers and items, and many of them use the Collaborative Filtering technique to develop recommender systems. It predicts an item's utility for a specific user based on the user's previous interests and takes other users' feedback into account. Much of the early research focused on the "accuracy" of recommendation systems. However, a good recommendation in terms of accuracy must be combined with other factors. This paper proposes metrics for evaluating elements of recommendation systems other than accuracy. Other factors to consider are:(1) Coverage, which is the percentage of a data collection that is covered.(2) confidence metrics that can assist users in making decisions that a recommender system is capable of recommending, judgments that are more effective (3) computing time, which measures how quickly an algorithm can produce worthy recommendations, (4) novelty/serendipity, which measure whether a recommendation is novel, and (5) robustness which measure the ability of the algorithm to make virtuous estimates in the presence of noisy or sparse data.

Keywords— Recommendation System (RC), Collaborative filtering (CF), Content based Filtering(CBF),Artificial Intelligence (AI), Evaluation, Lenskit, MovieLens, Algorithms

ANALYSIS ON INTEGRATING MACHINE LEARNING WITH BLOCKCHAIN TO ENSURE DATA PRIVACY

E. Rajeshwari¹, M. Vani²

Assistant Professor, Dept. of CSE, KU College of Engineering & Technology, KU Campus

rajeshwarie732@gmail.com

Assistant Professor, Dept. of CSE, KU College of Engineering & Technology, KU Campus

makula.vani@gmail.com

Abstract

These days data is gathered with next to no particular reason, each movement of a machine or a person is recorded, if required later on then the data will be breaking down. Be that as it may, here the topic of trust emerges as the data will go through many stages for the examination by various gatherings. The data might contain some touchy or private data that can be miss used by the associations engaged with the investigation stages. So it is required for the hour to consider the data protection issues truly. Data protection alludes to how to control the utilization of a piece of data by its relative significance. For instance, somebody won't spare a moment to say his/her name to outsiders however won't share versatile no. address until the outsider gets comfortable. In this computerized age, the individual utilization of data security by and large applied to basic individual data. According to a business perspective, data security works from a more extensive perspective past the basic data of representatives and clients. There is an overall end that AI and Machine Learning driven advancements are deterred by data protection issues as the ML utilizes enormous data collections to prepare and test. However, would the impediment be able to obstruct convert to a venturing stone? Indeed, It can be. Envision a situation where nobody is trust-capable, so all things considered, Blockchain enters the scene. Blockchain utilizes the data yet in an obscurity way. So, in this paper, we are proposing a way, how to consolidate Machine Learning and Blockchain to guarantee data security.

Index Terms—*Machine Learning, Data Analysis, Blockchain, Integration, Data Privacy, Encryption*

A CASE STUDY AND IMPLEMENTATION OF CLOUD COMPUTING TECHNOLOGY IN EDUCATION SECTOR DURING COVID-19 PANDEMIC

B. Shruthi¹, Prof. G. Shankarlingam²

Chaitanya Deemed to be University, Hanamkonda

shruthi.b72@gmail.com

Dean, Faculty of Engineering and Technology, CDU, Hanamkonda, 506009

shankar@chaitanya.edu.in

Abstract

Education plays a vital role in any country's development. It is the only key to develop a strong nation in socio economical development. Education sector facing a lot of challenges to provide education to the students in pandemic period especially in lock down period due to Covid -19. The number of positive cases approx 97.46 million are recorded around the world. Cloud computing is an emerging technology in pandemic situation. It allows the students to learn from any location. Therefore, this study presents the implementation of cloud services in education .It provides a feature that is digital learning over the network. Cloud computing fulfill the limitations of educational barriers. Cloud computing enables us to access the data from anywhere over the network. ICT tools are used to educate the students in an easy way. It has changed the face of education system in an efficient manner. It helps from school education to higher education in pandemic. This technology helps the students, specifically higher education students in e-learning, in job applications, get online courses through various sources. The results showed that there is an effective implementation on education sector using cloud technology.

A PRIVACY APPLICABLE DEEP LEARNING SCHEMES FOR BIG DATA

¹Dr.Ramu Vankudoth, ²Hanumanthu Bhukya

Assistant Professor, Chaitanya Deemed to be University, Warangal

E-Mail:ramuvankudoth86@gmail.com

Assistant Professor, Kakatiya Institute of Technology and Science, Warangal

E-Mail:bhcsekits@gmail.com

Abstract

Big data analytics is a burgeoning research topic in computer science and a variety of other fields throughout the globe. It has had a lot of success in a variety of sectors. Deep learning algorithms, on the other hand, derive complex descriptions automatically from a large quantity of unstructured data. In any analytics context, the categorization of big data is the most difficult difficulty to handle among all research concerns since it delivers a greater commercial benefit. Classification is a system for labelling data in order to undertake meaningful analysis in a cost-effective and efficient manner. According to research, the feature's quality may affect categorization performance. this study effort investigates the influence of privacy in the feature selection process. Incorporating a privacy-preserving technique should have no effect on categorization performance. In order to address these problems, the thesis study proposes the PPCS-MMDML, an integrated method for privacy-based feature selection and successful large data heterogeneous picture collection classification. With classification accuracy and running time, a qualitative evaluation of all suggested classification models and privacy-preserving mechanisms was conducted. The presented approaches give compromising outcomes over existing methods, according on a statistical study of accuracy values and computing time.

Keywords: Deep learning, Big Data, Machine Learning, Feature Selection, Feature Extraction.

THE PLANNING AND PRODUCTION OF A HINDI DIGITAL DICTIONARY FOR NLP SPECIFIC PURPOSE

Gatha Sharma ¹, Anadi Sharma ²

¹ Shiv Nadar University, India

gatha.sharma@snu.edu.in

² Mphasis, Bangalore, India

Abstract

Digital humanities provides possibilities for creation of new pathways for research in the field of Humanities and Social Sciences. A complete digital infrastructure has to be created to realise these possibilities. Since 1960's computational linguists are trying to develop tools for better communication between human languages and machine. Digital dictionary is one such tool. It forms the core of natural language processing (NLP) based tasks. Digital dictionaries contain an enormous amount of information and are very useful, but their design is structured according to specific needs either of the language learners or the program for which they had been designed, so data-access for other NLP tasks is either limited or denied completely. The creation of a complete new digital dictionary becomes inevitable in such a scenario.

Keywords— NLP, Digital Dictionary, Digital Infrastructure, Text mining Software

COMPARATIVE STUDY OF LINEAR AND NON-LINEAR TIME SERIES DATA USING ENSEMBLE MODEL FOR COVID19

Shivaratri Narasimha Rao, S.China Ramu

*Researcher Scholar, Department of Computer Science and Engineering, Osmania University,
Hyderabad, Telangana, India.*

getnrao@gmail.com

*Professor, Department of Computer Science and Engineering, CBIT(A), Hyderabad-75,
Telangana, India.*

chinaramu_cse@cbit.ac.in

Abstract

This paper we present a relative study of linear and nonlinear time series data prediction through ensemble model with performs which asses the proposed model with BATS, TBATS, Holts Linear, ARIM model when the data fits in linear and we implemented and compared seven regression methos after performing various experimental analysis for investigating additional features. And results illustrate that the proposed algorithm is much more effective.

Keywords: Deep Neural Networks, Artificial Intelligence, Time Series Data, Prediction, Ensemble.

USAGE OF MACHINE LEARNING TOWARDS THE PLANT-PATHOGEN INTERACTIONS AND PLANT DISEASE IDENTIFICATIONS

M.Soujanya¹, E. Aravind Reddy²

Research Scholar, Department of CSE

mamidalasoujanya@gmail.com

Assistant Professor, Department of CSE

aravind@chaitanya.edu.in

Abstract

The agriculture sector plays an essential duty because of the rapid growth of the population as well as the boost sought after for food. Consequently, it needs to enhance crop return. The existence of pathogens in the plant bodies is among the leading concerns in the agriculture sector as it results in a lot of yield miseries. Machine learning is one of the branches in Expert systems to function instantly or offer the instructions to a specific system to execute an activity. The goal of Machine Learning is to recognize the framework of the data and also fit that information right into designs that can be recognized and made use of by the people. There are some obstacles in condition recognition and also category is uneven history during photo acquisition, segmentation as well as category of images. When illnesses are recognized as per the signs, and their attributes, control mechanisms can be used. We here provide a review of studies that utilize machine learning about the plant-pathogen communications and also plant disease recognitions.

Index Terms: agriculture, plant disease, machine learning

A PREDICTIVE MODEL FOR DIAGNOSING RHEUMATOID ARTHRITIS

Saloni Fathima¹, Dr.G Shankar Lingam²

Research Scholar, Department of CSE, Chaitanya Deemed to be University

salonifathimamd@gmail.com

Professor, Department of CSE, Chaitanya Deemed to Be University

shankar@chaitanya.edu.in

Abstract

Machine-learning (ML) methods work at info removal, with the capability to refine the information-rich free-text doctor notes in EHRs. The scientific clinical diagnosis consisted of therein represents doctor professional viewpoint in addition to likewise is added continually tape-recorded than category criteria elements. Rheumatoid Arthritis (RA) is a systemic autoimmune condition that preferably influences tiny joints. As the well-timed diagnosis of the health problem is vital for the therapy of the person, several jobs have been performed in the field of deep looking for set on creating quick and specific automated strategies for RA medical diagnosis. Rheumatoid Arthritis is among the ailment that its reason is unidentified yet; looking into the place of clinical info mining can be beneficial in early professional medical diagnosis as well as likewise therapy of the illness. In this study, a predictive model is advised that recognizes rheumatoid arthritis.

Keywords—Rheumatoid Arthritis, machine learning,

EFFECTIVE MACHINE LEARNING APPROACHES FOR HEART DISEASE PREDICTION SYSTEM

Ms. K. Jayasri, Prof. N. Satheesh Kumar

Research Scholar, Department of CSE, Chaitanya Deemed to be University

kummari.jayashree@gmail.com

Professor, Department of CSE, Chaitanya Deemed to Be University

meet.nskumar@gmail.com

Abstract

Heart disease cases are on the rise, and being able to predict one is becoming increasingly important and worrisome. There has been a long-standing interest in the detection of cardiac disease. One of the leading causes of death worldwide is heart disease. According to a recent study, heart disease is responsible for over 30% of all global deaths. In order to be successful, this diagnostic must be performed with precision and speed. In most cases, medical diagnoses are made by the expertise and experience of specialists, but because there have been cases of incorrect diagnoses, doctors often advise patients to undergo a variety of tests for further analysis, which can be costly and time-consuming due to the enormous size of medical databases. Self-diagnosis or interpretation of medical images is being used to detect the disease in its earliest stages by researchers. Heart disease (CT) can be diagnosed using magnetic resonance imaging (MRI) and cardiac computed tomography (CT) data. The research looks into which patients are more prone to heart disease depending on several medical factors. This study offered a computer-aided diagnostic algorithm based on the patient's medical history. Machine learning methods such as K-NN, Logistic Regression, Nave-Bayes, Decision Trees, and Support Vector Machines were utilized to predict and categorize patients with cardiac disease. The model can be used to enhance the precision of detection and prediction of attacks in any patient. The proposed model was able to accurately predict signs of heart disease in a specific individual using multiple classification algorithms. Also, prior classifiers are compared. Using the specified model to find the likelihood of the classification properly identifying the heart condition relieves a lot of pressure. Given its heart disease prediction technology, it improves care and lowers costs. This study provides valuable information to help us forecast heart disease patients.

Keywords: Cardiac Disease, Decision Tree, K-NN, LR, Random Forest, SVM, MRI, CT.

USING TWO AUGMENTED VIEWS FOR SIMILARITY COMPUTATION IN IMAGES USING MACHINE LEARNING

D. Praneeth, Dr. N. Satheesh Kumar

PhD Scholar, CSE Department, Chaitanya Deemed to be University

praneeth040@gmail.com

Professor & Head, Department of CSE, Chaitanya Deemed to be University

meet.nskumar@gmail.com

Abstract

Similarity computation in image data sample have much application domain area like in, image recognition, face recognition, similarity measurement for medical images etc. This area is a very important and active field of research for computer science and machine learning domain. Similarity computation using low dimensionality space based on two important properties categorization of features: positive concentrated and negative concentrated. These properties can be observed using learning mechanism and instance-based supervision using approximation in mentioned properties of feature, aims for data augmentation and spread of features. This change in process of similarity computation may achieve fast learning speed and more accuracy than all previous methods. This particular work proposed on process of data augmentation, cosine similarity, and competitive performance with hope for good machine architecture.

Keywords: Similarity Computation, Machine learning, CNN, Deep Neural Network, Unsupervised Learning:

DECISION SUPPORT TOOL FOR MEDICAL PREDICTION SYSTEM USING MULTIPLEXED MACHINE LEARNING TECHNIQUES

Selva kumar Subramanian¹, Mahesh Akuthota², Syed Thisin³, Vinuthna Amireddy⁴

^{1,2,3,4}Department of Computer Science & Engineering

Visvesvaraya College of Engineering and Technology, Hyderabad

sselvakumar@yahoo.com¹, maheshvcetce@gmail.com², syedthaisin@gmail.com³,

vinuthnaamireddy@gmail.com⁴

Abstract

Medical information systems are used by large number of hospitals to control the patient data and clinical information. Typically, these systems produce enormous volumes of data in statistics, text, graphs, and images. Regrettably, these statistics are rarely utilized to assist clinicians in making clinical decisions. This problem can be solved using advanced techniques of machine learning. So, the main goal of the proposed study is to create a prototype of a Decision Support in Medical Prediction Systems using prominent and efficient machine learning techniques like Naive Bayes, ID3, and Compact Weighted Associative Classification. It can predict a patient's chance of developing cancer, HIV, diabetes, and heart attacks. The system's performance and accuracy are investigated and examined using various test plan scenarios. A group of related inquiries must be handled to achieve the appropriate decision-making solution from the revealing prediction system. One of the system's benefits is that it may be used as a module in a hospital management system. The inputs can be automatically given from the patient details, and they produce the exact results. Everyone can easily access it, even in their homes, when the system is spread online. The proposed approach was tested on the UCI machine learning dataset with the simulation environment. The objective of the research work is to create a web-based questionnaire application for Decision Support in Medical Prediction systems. It can retrieve hidden knowledge (patterns and correlations) linked with users' answers to the particular disease from a historical diseases database. This proposed system helps predict the patient's condition and achieve better results by comparing the performance of these algorithms and calculating their accuracy.

Keywords—Decision Support, Medical Prediction System, Machine Learning Techniques

USING DATA MINING TECHNIQUES TO PREDICTION OF SOFTWARE FAILURES.

Ch. kishore kumar, Dr. R. Durga

Research scholar department of computer science, chennai, india.

[kishore.chennuri@gmail.com.](mailto:kishore.chennuri@gmail.com)

Associate professor, department of computer science, chennai, india.

drurdurgaresearch@gmail.com

Abstract

Software reliability models assess the reliability by predicting faults for the software. Reliability is a real world phenomenon with many associated real-time problems. To obtain solutions to problems quickly, accurately and acceptably, a large number of soft computing techniques have been developed, but it is very difficult to find out which one is the most suitable and can be used globally. In this paper, we have provided an overview of existing soft computing techniques, and then critically analyzed the work done by the various researchers in the field of software reliability. Further to this, we have also compared soft computing techniques in terms of software reliability modeling capabilities.

Index Terms- Neural Network, Fuzzy Logic, Genetic Programming, Cuckoo Search, Soft Computing, Software Reliability.

ANALYSIS ON ANOMALY DETECTION IN NETWORK TRAFFIC USING DEEP NEURAL NETWORKS

R.Sushmitha¹, Dhatrika Bhagyalaxmi²

Faculty, Department of CSE, KUCE & T,KU Campus

sushmacse511@gmail.com

Faculty, Department of CSE, KUCE & T,KU Campus

bhagyakmp519@gmail.com;

Abstract

Network anomaly detection is a hot and ongoing research topic, particularly for IoT devices, which are rapidly spreading into various aspects of people's lives and are vulnerable to attack through various weak points. This paper addresses a new problem in IoT anomaly detection by integrating five different datasets of abnormal IoT traffic and evaluating them with a deep learning approach capable of identifying normal and malicious IoT traffic, as well as various types of anomalies. IoT data from various scenarios will be used to create an IoT data set that provides a realistic benchmark for normal and abnormal traffic in the Internet of Things. Hyperparameter optimization has also made deep learning more effective.

SOFTWARE DEFECTS PREDICTION USING MACHINE LEARNING ALGORITHMS

Kethireddy Jyothi, E. Aravind Reddy

Research Scholar, Department of CSE

kethireddy.jyothi@gmail.com

Assistant Professor, Department of CSE

aravind@chaitanya.edu.in

Abstract

It takes a long time to create new software and then maintain that software throughout its lifecycle. However, there is a strong chance that the software will have bugs. The degree to which a piece of software is successful in terms of both user satisfaction and cost is directly related to its reliability and performance. Machine learning (ML) methods can be used to predict software flaws. This approach, when used early in the software development process, can result in better programme performance and lower maintenance costs. A variety of theories and approaches have been tried in the past to predict software issues. Random forests (RF), decision tables (DT) as well as linear regression as well as gaussian processes as well as M5P are employed in this investigation. Algorithms for machine learning Consideration is being given to developing a new model for predicting software faults in the future. Using data from prior projects, a defect prediction can be made. Combining machine learning techniques makes it possible to reliably predict software problems. The SMOreg classifier outperformed the ANN classifier in terms of performance, whereas the ANN classifier performed the poorest.

PROGRAMMABLE NETWORK SERVICES IN NEXT GENERATION SOFTWARE DEFINED NETWORKS TO PREVENT SECURITY ATTACKS

P. Anusha^{@1}, *M. Rakesh*^{#2}

^{@1}*Asst. Professor, Balaji Institute of Technology and Science, Narsampet, Warangal*

anusha.pasupunooti@gmail.com

^{#2}*Asst. Professor, Balaji Institute of Technology and Science, Narsampet, Warangal*

motherakesh@gmail.com

Abstract

The Software Defined Networks is a recent research area that has the initiative in the programmable network technologies and standards developed around 2010. These technologies are associated with networking software, using open interfaces to connect resources. The software defined networks are used to control the entities of the network by centralizing the control plane. The functioning of the network and its security has to be checked by the administrator manually, which may leads to great burden on the network administrator. In this paper we list the various security attacks on software defined network controllers that violate the network topology and also mounted by compromised network entities like end hosts and soft switches. The SDN's are having the ability to provide network virtualization, greater control over network entities and dynamic network policy at reduced operational cost. There are some protocols like Open Flow to do this task. The next generation of research should involve in integration of all connectivity, processing resources and storage under new management interacting with controlling devices for on demand networking and services along with continuous updates and features. This brings into focus relatively key topics such as how to create the conditions for effective and continuous updating and changing the network functions without reinventing each time architectural aspects and related when we deal about security attacks.

This paper presents architecture and the key challenges of programmable enabled networks as the next generation Software Defined Networks (SDN). This paper also looks the problem of detecting security attacks on topology of the network and traffic.

Keywords—Programmable networks, Next generation SDN

PREDICTION ANALYSIS OF CONSUMER PREFERENCES USING ALSCAL FRAMEWORK

*Dr Suresh Chandra Ch^{#1} , Kothakonda Rekha^{*2}*

*^{#1}Associate Professor, Department of Business Management, Vaagdevi Degree & PG
College, Kishanpura, Hanamkonda District, Telangana State*

¹suresh.scholar@gmail.com

*^{*2}Ph.D Research Scholar, University College of Commerce & Business Management,
Kakatiya University, Hanamkonda District, Telangana State*

²rekha.kothakonda20@gmail.com

Abstract

Analysing the consumer preferences is one of the challenging tasks to the companies and especially, the marketers often face typical challenges in predicting the consumer preferences especially while evaluating the non-durable goods where the availability of brands and products are higher than durable products. In this paper an attempt is made to study the significance of Multi-dimensional scaling(MD) with special reference to ALSCAL framework and its application towards prediction of consumer preferences. The study presents the analysis on ALSCAL to predict the consumer preferences for three select non-durable products. the Euclidean distance model is applied for further analysis of consumer preferences for the select non-durables.

Key words: ALSCAL, RSQ, S-stress, Euclidean Distance

DEEP LEARNING MODELS FOR CLASSIFICATION OF DIABETIC RETINOPATHY COLOR FUNDUS IMAGES

SRI LAXMI KUNAI , Dr. A.V KRISHNA PRASAD2

*Research Scholars, Koneru Lakshmaiah Educational Foundation, Vaddeswaram, Guntur
District, AP, India.*

Abstract

Diabetes Retinopathy is a prevalent diabetic condition that causes vision loss due to abnormalities in the retina. Early detection can help prevent vision impairment. Ophthalmologists' diagnosis of diabetic retinopathy manual approach is costly and time consuming. Simultaneously, unlike computer-assisted diagnostic tools, it has the potential to lead to misdiagnosis. Deep learning is one of the most powerful methods for boosting the efficiency of medical image classification and analysis. Convolution Neural Networks are becoming more generally used highly successful technique in medical image processing as a deep learning method. Using deep learning approaches, this work examined and addressed the current Diabetic Retinopathy state-of-the-art recognition and classification using colour fundus images.

Keywords: Fundus images, Diabetic Retinopathy, Classification and Severity level, Convolution Neural Network, Deep Learning.

APPLICATION OF WEB USAGE MINING ON PROXY SERVER ACCESS LOG FILE TO INVESTIGATE INTERNET USERS' ACCESS BEHAVIORS IN UNIVERSITIES

S. Hymavathi , Dr. N. Satheesh Kumar

Asst. Professor, Balaji Institute of Technology and Science, Narsampet.

hymavathisabbani@gmail.com

Abstract:

Nowadays Each and every activities have been becoming unimaginable to do without internet. When an internet user requests a particular page on web, an entry is logged into a special file called server log file. Some organization use a proxy server for caching services and administrative control. Proxy server is a server that sits between client computer and internet and provide indirect network services to client. Since proxy server is in between client and web server, every request from clients will pass through the proxy server to corresponding web server. Analysing proxy log file has numerous advantages for access behaviour investigation process. The main objective of the study is investigating internet users' access behaviour by analysing proxy log file of university Proxy Server. By keeping this in mind, the study was done by following the three-web usage mining process phases such as data pre-processing, pattern discovery, and pattern analysis. In Pattern discovery phase, data mining methods such as association rule mining and statistical analysis has been used with the intension of discovering patterns. Apriori algorithm of WEKA data mining tool has been used for association rule mining. The study tried to investigate users' access behaviour based on two-time situations such as class time and exam time. By considering these two-time situations, the study answered the research questions. This study will be an input for creating a platform that changes the university internet usage trend in the way to be essential for effective teaching–learning process. In addition, the study will show how analysing web usage mining on proxy server access log data is essential and motivate other researchers.

Keywords: WEKA, logdata, dmpattern

PREDICTING A SMALLCAP COMPANY GROWTH WITH NEURAL NETWORKS OF ARTIFICIAL INTELLIGENCE

K. Thirupathi Reddy

Computer Science & Engineering, Chaitanya Deemed to be University, Hanamkonda

thirupathi.kandhati@gmail.com

Abstract:

Predicting a company growth is always a difficult task. A company's growth is depending up on the economical situations of the company and it is depending up on the environmental effects also like draught, water source availability, heat conditions like. The most important thing is health of employees. For example, viral attacks like corona. No one can predict the employees' health and natural disasters. But we can make some remedies to cure. In present situations so many sources are there to say company's future. But only some companies are predicting the future of the company by analysing results of previous quarter or year. But this is the time to predict the company performance and future in advance means before posting the results. It is very difficult task, but it is possible by involving the neural networks with artificial intelligence technology. Now we are advancing in technology like artificial intelligence and neural networks, machine learning. To collect the data warehouses, to analyse the data big science, to provide the network IOT, like we have some technology advancement in near future. So, we are trying to analyse the company growth with neural networks of artificial intelligence.

Keywords: IBM Watson, MIPS, HybridNW

AN MRI BASED PARKINSON'S DISEASE PREDICTION USING VARIOUS AI ALGORITHMS

¹Kanoori Jyothi, ²Dr.G.Shankar Lingam

¹Research scholar, Dept of CSE, Chaitanya (Deemed to be University),

jyodoll@gmail.com

² Professor, Department of CSE, Chaitanya (Deemed to be University), Hanamkonda

Dean.engineering@chaitanya.edu.in

Abstract:

In Parkinson's disease (PD), tremors and stiffness are among the many symptoms. In the current diagnostic technique, an MRI scan can be employed with patient assessments and other methods of symptom evaluation. There are, however, differences in symptoms due to the difficulties of assessing and analyzing MRI scans without aid from specialists who have had substantial training in this area. Thanks to these cutting-edge, computationally difficult tools and unique ML approaches, neurological disorders may now be recognized with unprecedented precision. According to a study of the performance of numerous DL designs across various pathologies and imaging modalities, the Convolution and other approaches fail to diagnose neurological disorders. Current deep learning-based Parkinson's and schizophrenia detection algorithms use MRI data from many sources, including operational and anatomical. Researchers have discovered that using new and inventive preprocessing techniques on MRI pictures improves the quality of images free of noise (extraction of features, feature selection, and classification).

A FRAME WORK FOR PREDICTING THE BUSINESS INTELLIGENCE FOR STARTUPS, MID RANGE COMPANIES USING MACHINE LEARNING

¹V. Srujan, ²Dr.G.Shankar Lingam

¹Research scholar, Dept of CSE, Chaitanya (Deemed to be University),

vannalasrujan@gmail.com

² Professor, Department of CSE, Chaitanya (Deemed to be University), Hanamkonda

Dean.engineering@chaitanya.edu.in

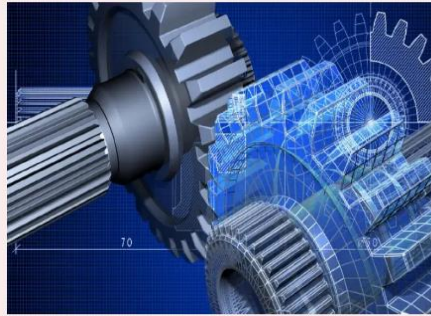
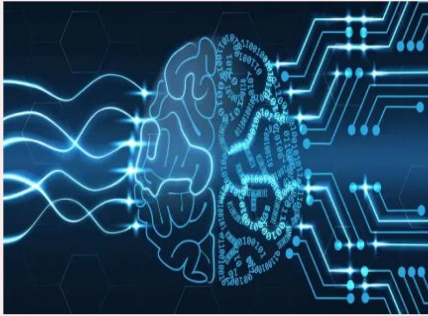
Startups are forming an import and trend in a country's economy. It is vital to know About the features Responsible for the startup's success or failure from the analytics Point of view. Startup companies are a huge driving force for economic development, And the success of these high-risk companies could bring huge returns if they Perfectly planned means. The ability to predict the success of startups is a great Advantage for investors to overtake their competitors. With the development of Information technology, highly reliable results can be obtained by using complex Machine learning algorithms or datamining.

Venture Capital is already recognizing this trend and allocate resources in startups Offering AI and machine learning based features. Machine learning's increased Adoption across the industries has proved how it's algorithms and techniques are Efficiently solving complex real-world problems. As per the latest surveys, machine Learning grown from \$12Bin 2017 to \$57.6Bin 2021.

Machine learning has the ability to improve many operational processes, such as Customer service, finance, marketing and much more. Machine learning can collect and use data from all of these aspects of a business and help you automate Processes to increase productivity.ML can find patterns and help BI and marketing Leaders activate experiences at a level of granularity that was not possible before.

Business intelligence—the strategies and tech companies use to collect, interpret And utilize data—plays a primary role in informing the strategies, functions and Efficiency of a company. However, essential to a company's success as BI is, many businesses don't take advantage of the tools that can improve their BI efforts

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