"EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE"
GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING
S. No. 25/1/3, Balewadi, Pune – 411 045
(Approved by AICTE and Govt. of Maharashtra, Affiliated to Savitribai Phule Pune University)
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3.3.1 Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

3.3.1.1 List of Papers Published during the AY: 2020-21

Sr. No.	Title of the Paper	Name of the Teacher	Name of the Journal	Calendar Year of Publication	ISSN Number
1	Reliable E-Nose System using improved optimization technique based ANN	Dr. Jambi Ratna Raja Kumar	International Journal of Engineering and Advanced Technology	2020	2249-8958
2	A Modified Neural Network Architecture for Message Type Recognition in VANET using an Emergency Message Transmission Protocol	Prof. Pallavi Patil	International Journal of Management, Technology And Engineering - UGC Approved Journal	2020	2249-7455
3	Review On: Train Scheduling Using Simulation	Prof. Sneha Farkade	International Journal of Innovations in Engineering and Science	2020	2456-3463
4	Predict Loan Approval in Banking System Machine Learning Approach for Cooperative Banks Loan Approval	Amruta Aphale	International Journal of Engineering Research and Technology- UGC Approved	2020	2278-0181
5	Analysis and Optimization of a Connecting Rod	Gorane Prathamesh Sudhakar	International Journal for Scientific Research & Development (IJSRD)	2020	2321-0613
6	Finite Element Analysis of Optimized Connecting Rod	Gorane Prathamesh Sudhakar	International Journal for Scientific Research & Development (IJSRD)	2020	2321-0613
7	Utilizing Deep Learning for Enhanced Detection of Ischemic and Hemorrhagic Strokes in CT and MRI	Dr. Jambi Ratna Raja Kumar	International Journal of All Research Education and Scientific Methods	2020	2455-6211
8	Utilizing Deep Learning for Enhanced Detection of Ischemic and Hemorrhagic Strokes in CT and MRI	Prof. Pallavi Patil	International Journal of All Research Education and Scientific Methods	2020	2455-6211
9	Utilizing Deep Learning for Enhanced Detection of Ischemic and Hemorrhagic Strokes in CT and MRI	Prof. Bharati Kudale	International Journal of All Research Education and Scientific Methods	2020	2455-6211
10	Utilizing Deep Learning for Enhanced Detection of Ischemic and Hemorrhagic Strokes in CT and MRI	Prof. Prerana Rawat	International Journal of All Research Education and Scientific Methods	2020	2455-6211
11	Early Detection of Brain Tumors	Dr. Jambi Ratna Raja Kumar	EDUZONE: International Peer Reviewed/ Refereed Multidisciplinary Journal	2020	2319-5045
12	Early Detection of Brain Tumors	Prof. Pallavi Patil	EDUZONE: International Peer Reviewed/ Refereed Multidisciplinary Journal	2020	2319-5045

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13	Early Detection of Brain Tumors	Prof. Bharati Kudale	EDUZONE: International Peer Reviewed/ Refereed Multidisciplinary Journal	2020	2319-5045
14	Early Detection of Brain Tumors	Prof. Sneha Farkade	EDUZONE: International Peer Reviewed/ Refereed Multidisciplinary Journal	2020	2319-5045
15	BrainGuard: Revolutionizing Early Detection of Brain Tumors with Advanced Deep Learning Technology	Dr. Jambi Ratna Raja Kumar	International Journal of New Media Studies	2020	2394-4331
16	BrainGuard: Revolutionizing Early Detection of Brain Tumors with Advanced Deep Learning Technology	Prof. Pallavi Patil	International Journal of New Media Studies	2020	2394-4331
17	BrainGuard: Revolutionizing Early Detection of Brain Tumors with Advanced Deep Learning Technology	Prof. Bharati Kudale	International Journal of New Media Studies	2020	2394-4331
18	BrainGuard: Revolutionizing Early Detection of Brain Tumors with Advanced Deep Learning Technology	Prof. Sneha Farkade	International Journal of New Media Studies	2020	2394-4331
19	Exploring the Impact of Infotainment Systems in Electric Vehicles: A Comprehensive Review	Prof. Sushma Patwardhan	International Journal of Open Publication and Exploration	2020	3006-2853
20	Exploring the Impact of Infotainment Systems in Electric Vehicles: A Comprehensive Review	Prof. Harshalata Toke	International Journal of Open Publication and Exploration	2020	3006-2853
21	Exploring the Impact of Infotainment Systems in Electric Vehicles: A Comprehensive Review	Prof. Komal Wanzare	International Journal of Open Publication and Exploration	2020	3006-2853
22	Exploring the Impact of Infotainment Systems in Electric Vehicles: A Comprehensive Review	Prof. Sujata Girawale	International Journal of Open Publication and Exploration	2020	3006-2853
23	Advancements in Construction Materials: Innovations, Sustainability, and Future Trends	Prof. Shilpa Mahajan	International Journal of Transcontinental Discoveries	2020	3006-628X
24	Advancements in Construction Materials: Innovations, Sustainability, and Future Trends	Prof. Dhananajay A S	International Journal of Transcontinental Discoveries	2020	3006-628X
25	Advancements in Construction Materials: Innovations, Sustainability, and Future Trends	Prof. Poonam Nandihalli	International Journal of Transcontinental Discoveries	2020	3006-628X
26	Advancements in Construction Materials: Innovations, Sustainability, and Future Trends	Prof. V B Kulkarni	International Journal of Transcontinental Discoveries	2020	3006-628X
27	Behaviour Study ofBicycle Riders on Highway	Prof. Shilpa Mahajan	International Journal of Business, Management and Visuals	2020	3006-2705
28	Behaviour Study of Bicycle Riders on Highway	Prof. Dhananajay A S	International Journal of Business, Management and Visuals	2020	3006-2705

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30	Behaviour Study ofBicycle Riders on Highway	Prof. V B Kulkarni	International Journal of Business, Management and Visuals	2020	3006-2705
31	Study on the Effect of Driverless Cars on Traffic	Prof. Shilpa Mahajan	International Journal of Enhanced Research in Science, Technology & Engineering	2020	2319-7463
32	Study on the Effect of Driverless Cars on Traffic	Prof. Dhananajay A S	International Journal of Enhanced Research in Science, Technology & Engineering	2020	2319-7463
33	Study on the Effect of Driverless Cars on Traffic	Prof. Poonam Nandihalli	International Journal of Enhanced Research in Science, Technology & Engineering	2020	2319-7463
34	Study on the Effect of Driverless Cars on Traffic	Prof. V B Kulkarni	International Journal of Enhanced Research in Science, Technology & Engineering	2020	2319-7463
35	Predicting Brain Stroke Risk with Machine Learning Models	Prof. Priyanka More	International Journal of Enhanced Research in Management & Computer Applications	2020	2319-7471
36	Predicting Brain Stroke Risk with Machine Learning Models	Prof. Shalini Nigam	International Journal of Enhanced Research in Management & Computer Applications	2020	2319-7471
37	Predicting Brain Stroke Risk with Machine Learning Models	Prof. Shreesudha Kembhavi	International Journal of Enhanced Research in Management & Computer Applications	2020	2319-7471
38	Predicting Brain Stroke Risk with Machine Learning Models	Prof. Krishnanjali Shinde	International Journal of Enhanced Research in Management & Computer Applications	2020	2319-7471

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Reliable E-Nose System using the Improved Optimization Technique based ANN

Jambi Ratna Raja Kumar, Rahul K. Pandey, Biplab K. Sarkar

Abstract: *(Since from last decade, there is a growing interest in a system that detects the pollutant gases and other environmental information is called Electronic Nose (E-Nose) networks. The gases such as methanol, Liquid Petroleum Gases, ammonia, etc. are harmful for human beings; therefore, such frailness required detecting automatically as well as safety alarm promoted in a specific field. The critical challenges of the E-nose system are efficient to detect with minimum error and overhead. In this paper, we targeted to design the optimized machine learning-based algorithm to detect and alert the pollutant gases, Humidity, O2 Level, and Air Temperature in the real-time datasets. We initiated E-nose design using Artificial Neural Network (ANN). Using essential ANN leads to poor accuracy and error rates, as they failed to select the best solutions during the training process. Thus, we next use the Particle Swarm Optimization (PSO) based ANN called ANN-PSO to improve the accuracy rate and error performances for E-Nose systems. Finally, the proposed Improved Optimization Technique based ANN (IOT-ANN) machine learning model designed and evaluated in current this research work. The IoT-ANN it is based on a bio-inspired algorithm to achieve reliable training during the E-Nose prediction.*

Index Terms:*. E-nose system, pollutant gases, humidity, artificial intelligence, prediction, artificial neural network.*

I. INTRODUCTION

In current techniques, the prediction procedures using ML is used current recognizable applications. Machine Learning is latest and current trend in analysis for research and mainly focused on finding the models and the other similarity in data. Data processing is the Task of finding patterns in extensive database involving procedures at the intersection of machine learning, analytics systems. One of the important steps in ML in those methods is applied to extract data patterns. Also called known as an interdisciplinary sub domain of computer application. The outcome of the data processing (DP) is joining or gathers information from a data set and normalizes format for future uses. Apart from this data review step, it includes DB and DBM stuff, data prior processing also includes considerations, confusion metrics and complexity calculation, after-processing of searched structures, grammatical representation. DM is also known as knowledge invention in databases process [1].

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The main thing of all these techniques is used to locate all points in lower manifold, and the graph representation required for understand of the manifold. Nearer points joined by weight edges tend to have the same labels and vice versa. In this way, the tags associated with data can be propagated throughout the data mining [2]. . The main target of DM using learning to identify incorrect or missing edges, prediction of possessions of nodes and clustering nodes based on their tie-up patterns. These jobs arise in many networks and biological pathways [5].

II. RELATED WORKS

Several recent techniques are using the machine learning approaches presented for the air quality prediction and E-nose systems.

In [12], the authors used 2 procedures of land work on regression estimate absorption of Nitrogen oxides gas and area LA. Apart this to utilizing the meteorological and pollutant detection parameters, base things like populace, land and interspaces from the coastal regions were used. The outcomes proposed that in the of predication NOx concentration, the ubiquitous Kriging has better than land-use regression.

In [13], this work the authors executed a 1 year research work on ozone application in the city of Malaga of Spain country. The regression for the prediction of ozone concentration employing the parameters was used. Diffusion techniques used and statistical techniques such as Kriging in template air pollution face several boundaries. Outcome of diffusion technique is allied with i/p records, and it is essential that the data records with more rate are there about the way the pollutants diffuse in the weather. The standard numerical models of Kriging procedure also have been referred for spatial analysis defined as; its average is stable for the temporal variations [14].

In [15], the authors have proposed neural networks for air-pollution prediction. The interrelated things of pollution such as traffic, hours and days of the week last three times of years, the air speed and direction, temperature, rainfall.

III. METHODOLOGY

Therefore in this research work, we proposed novel bio-inspired metaheuristic optimization hybrid solution IOT-ANN motivated by the living behaviors of microalgae, photosynthetic species, is introduced to optimize ANN training performance. It is starts on the refinement process and the motion of microalgae. The proposed method is specially designed forth E-nose system performance optimization. Figure 3.1 shows the proposed E-Nose system using the IoT-ANN approach.

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A Modified Neural Network Architecture for Message Type Recognition in VANET using an Emergency Message Transmission Protocol

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Abstract. The Vehicular Ad-hoc Networks means VANET get used to broadcast emergency messages in advance to avoid traffic accidents and traffic congestion between the vehicles. It is very important to deliver the emergency message within right time and to the right/interested vehicles. Such kind of protocol is required to get real time information of each and every vehicle on the road then will consider the nearby vehicles and interested vehicles to broadcast the message within the appropriate time. Thus we proposed the advance Message Type Recognition: A Modified Neural Network Architecture with Emergency Message Transmission Protocol in VANET. It works on interested vehicles read acknowledgement and will further update or rebroadcast message about the current situation on road like traffic jam, accidents and alternative routes. It will help daily route vehicle.

Keywords: VANET-Vehicular Ad Hoc Networks, Multi-hop Network, Position Based Protocol, Shorted routing, Fasted routing.

1 Introduction

In Vehicular Ad-hoc Networks safety communication is accomplished through two methods, first is Periodic Safety Message termed as Beacon and second is the Event Driven Message referred as the Emergency Warning Messages and they both are being shared by using a single control channel. In this the beacon message are the status messages that encloses the information on sender vehicle like its current position, speed and direction heading toward, such kind of messages and then these messages are send to the neighbor vehicles like 10 messages each second. EWM-Emergency Warning Messages are generated as a vehicle, when it identifies a potentially dangerous situation on the road. These messages are warning messages that are transmitted to all other vehicles that are travelling on the road with the intention of diverting them to other clear roads. The distribution of the emergency

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Review On: Train Scheduling Using Simulation

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Abstract- *In this paper present by Train Scheduling using Simulation. This paper basically works on Scheduling and Simulation. This paper are feasible timetable generator framework for stochastic simulation modelling is developed. The main objective is feasible train timetable for all trains in the system, which includes train arrival and departure times at all visited station and calculated average train travel time. Dynamic performance of the train movement is modelled with the help of Newton's law of motion. Train movement in this work is based on four operating modes: 1) accelerating mode, 2) constant speed or cruising mode, 3) coasting mode and 4) braking mode. this concept for train movement simulator class is described with its properties and methods. Single track train scheduling problem is set of trains from opposite sides along a single track. Each train connects two given stations along the track and may have to stop for a minimum time in some of the intermediate stations. Train can overtake each other only in correspondence of an intermediate station and a minimum time interval between two consecutive departures and arrivals of train in each station is specified. Four object of array variables are used in the simulation process to keep train and station data. Two object arrays are used for the train movements in up and down directions. The stations' data are stored in the other two object arrays.*

Keywords- Train scheduling; model predictive control (MPC); predictive scheduling; (PS); centralized traffic control (CTC)

I- INTRODUCTION

In this paper we consider a train scheduling (timetabling) problem is the problem of determining a timetable for a set of trains that do not violate track capacities and satisfies some operational constraints. A general train scheduling problem in a literature considers a single track linking two major stations with a number of intermediate stations. A train simulation also called as railroad simulation is a computer base simulation of rail transport operation. They are 3D virtual reality world. Train simulation and scheduling system has a useful impact on rail crop organization of Australia. Four object of array variables are used in the simulation process to keep train and station data. Two object arrays are used for the train movements in up and down directions. The stations' data are stored in the other two object arrays. One of these arrays of station contains all the stations of the line while the other one contains only the stations with siding facilities. First come first served (FCFS) dispatching rule is used to select one train among the candidate trains, which are the trains waiting at neighbour stations of the track that want to use the same track and has finished waiting for dwell time and additional unplanned delay time. Namely the candidate trains are the trains that deserved to begin checking the conditions. If the all conditions to move are suitable for a candidate train, which arrived first to one of the neighbour station of track it will begin to trip, else the same check is made for another train arrived second. Train speed are used in railway operation and research applications, such as train performance calculation, journey time estimation, energy consumption evaluation and train scheduling, new route planning, old route upgrading. Train scheduling is one of the most interesting problems in transportation planning systems. Train scheduling problem is a single track linking two major station with a number of intermediate stations in between timetable generator simulation model. Train scheduling is closely related to machine scheduling. The train scheduling problem faced by railway infrastructure managers during real time traffic

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Predict Loan Approval in Banking System Machine Learning Approach for Cooperative Banks Loan Approval

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Abstract - In today's world, taking loans from financial institutions has become a very common phenomenon. Everyday a large number of people make application for loans, for a variety of purposes. But all these applicants are not reliable and everyone cannot be approved. Every year, we read about a number of cases where people do not repay bulk of the loan amount to the banks due to which they suffers huge losses. The risk associated with making a decision on loan approval is immense. So the idea of this project is to gather loan data from multiple data sources and use various machine learning algorithms on this data to extract important information. This model can be used by the organizations in making the right decision to approve or reject the loan request of the customers. In this paper, we examine a real bank credit data and conduct several machine learning algorithms on the data for that determine credit worthiness of customers in order to formulate bank risk automated system.

Keywords— Machine learning, bank credit, classification, confusion matrix, predictive analysis.

I. INTRODUCTION

Bank plays a vital role in market economy. The success or failure of organization largely depends on the industry's ability to evaluate credit risk. Before giving the credit loan to borrowers, bank decides whether the borrower is bad (defaulter) or good (non defaulter).The prediction of borrower status i.e. in future borrower will be defaulter or non defaulter is a challenging task for any organization or bank. Basically the loan defaulter prediction is a binary classification problem Loan amount; costumer's history governs his credit ability for receiving loan. The problem is to classify borrower as defaulter or non defaulter. However developing such a model is a very challenging task due to increasing in demands for loans. Prototypes of the model which can be used by the organizations for making the correct or right decision for approve or reject the request for loan of the customers. This work includes the construction of an ensemble model by combining different machine learning models. Banks struggle a lot to get an upper hand over each other to enhance overall business due to tight competition. Credit Risk assessment is a crucial issue faced by Banks nowadays which helps them to evaluate if a loan applicant can be a defaulter at a later stage so that they can go ahead and grant the loan or not. This helps the banks to minimize the possible losses and can increase the volume of credits.

II. BACKGROUND

The most important background information on machine learning algorithms and their theoretical formulation are out- lined in this section. These algorithms are used in analyzing the bank credit data.

A. Machine Learning Algorithms

Machine learning techniques can be grouped broadly into two main categories. They include:

(i) **Supervised Learning:** The main feature of this algorithm consists of target or outcome variable (or dependent variable). The target variable is used to predict other features from a given set of pre- dictors (independent variables). Furthermore, using the target variable, a function is generated that maps input to desired outputs. The training process then continues until the model achieves the desired level of accuracy on the training data. Supervised learning techniques are achieved using regression and classification algorithms or approaches that range from non-linear regression, generalized linear regression, discriminant analysis, Support Vector Machines (SVMs) to decision trees and ensemble methods.

(ii) **Unsupervised Learning:** In unsupervised learning, there is no target or outcome variable to predict or estimate. This algorithm is used mainly for segmenting or clustering entities in different groups for specific intervention. Examples of unsupervised learning algorithms include Apriori and K-means algorithms.

The various machine learning approaches and the algorithms that describe them are shown in Fig. 1

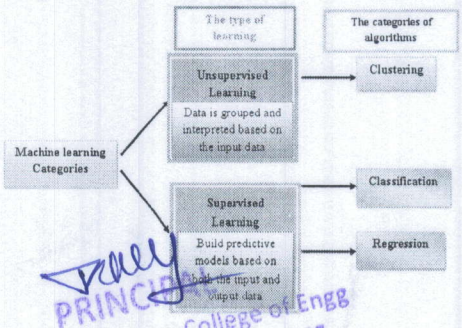

Fig. 1. Machine learning Tasks

Analysis and Optimization of a Connecting Rod

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Abstract— In the modern market the demand of the light weight vehicle is more so as to have good aesthetic view with speed and power. In the same process it is challenge to the modern design is to lower the weight of the vehicle. In the vehicle there are many important components such as engine, piston, crankshaft, connecting rod, valves etc. Connecting Rod is such a product which is a critical part of an Internal Combustion Engine. It is an intermediate link or a part or a member between the Crankshaft and the Piston. Piston needs to convert reciprocating motion into rotary motion. The piston pin exerts a push force whereas crank pin receives a pull force. Connecting rod is mainly responsible for transferring the power from the piston to Crankshaft. Connecting rod is manufactured in bulk quantity. Different materials are used to manufacture the Connecting rod. Steel, Alloy Steel and aluminum is the commonly used material for Connecting rod. This paper reviews the design methods used for connecting rod by various researchers, which can be seen from the following sections of the paper. This is an assessment of the current methodology for designing of a complex component such as connecting rod. Finally results are discussed.

Keywords: Connecting Rod, Design, Machine Design, Stress, Strain

I. INTRODUCTION

The earliest testimony for a connecting rod was found in late 3rd century AD roman sawmills. The rotary motion of water wheel produced by the roman water mills crank and con rod mechanism was converted into liner movement of the saw mills. Those days hand operated cranks were known for centuries, the historians of technology in early fifteen century in Europe considered invention of the crank-connecting rod mechanism as the most important mechanical device for energy transmission. A hand will operated by the crank and connecting rod system was given by Conrad Keyser in 1405 DC in his book "Bellifortis". Francesco Di Giorgio Martini then in 1439-1502 in his "treatise on architecture" represented for the first time ever in a rotating machine a crank and connecting rod mechanism was applied to saw for timber driven by water wheel.

Piston pump driven by water wheel operated by two cranks and two connecting rods was shown by Pisanello. Around 1174 and 1200 an engineer and craftsmen named AI-Jzari developed five machines for Turkish dynasty to pump water for the kings, but the device was complex indicating that the concept of power conversion was still unknown.

Al-Jazari around 1206 fully developed a crank and connecting rod system in his water raising machines, which had a vertical axle rotated by an animal; on this axle housed gear wheel which meshed with a second wheel at right angles. The animal rotated in a circular fashion. The horizontal axle was rotated by the gears as the crank and skates in the hinged connecting rod which made it to move around the hinge and make the swaps to rise and fall.

A. Internal Combustion Engine Connecting Rods

An engine consists of number of parts assembled together. Every engine is housed with connecting rod depending on the number of cylinders; each cylinder is assembled with piston, crank- shaft, connecting rod etc. Hence the connecting rod has to be manufactured in enormous quantity. A connecting rod has to ends with piston attached with small end and crank-shaft attached at big end. It transmits the reciprocating motion of piston due to thrust produced by combustion of fuel to rotary motion of crankshaft. A 4-stroke IC engine experiences 4 strokes namely injection stroke, compression stroke, power stroke and exhaust stroke. While these four strokes the connecting rod is encountered by various forces, hence it's necessary to study these forces for the analysis.

The stresses generated in an IC engine connecting rod are axial and bending stresses. The axial stresses are caused due to combustion of fuel generating enormous compressive forces and the inertia force generated due to the opposition imposed by reciprocating masses cause tensile force, bending stresses are generated due to the centrifugal forces. An automotive connecting rod has a long shank, a crank end and a piston end. the connecting rod may have various cross-sections at the shank like rectangular, circular, tubular, I-section or H-section. I-section is favorable for high speed engines and circular cross-section type of connecting rod is required in low speed engine. Earlier circular cross-section connecting rods were in use and now usually I-section connecting rods are preferred. Casting forging and powder metallurgy are the common type of manufacturing process. As the connecting rod is encountered by large cyclic loading, generally of the order of 10^8 to 10^9 which are compressive load due to combustion of fuel and tensile due to inertia of reciprocating masses. Because of this the automotive connecting rod has a wide range of research topic in many ways such as production, material simulation, fatigue and performance etc.

Cast iron connecting rods can be used in scooter and mopeds. In the 21st century steel is the commonly used material for manufacturing of connecting rods, even aluminum can be used as connecting rod material as aluminum has high ability to absorb energy and its light weight character. Titanium connecting rods can also be used as they provide strength and light weight characters but are very expensive can be used in high performance automobile. The connecting rod can be rotate about crank-shaft and move in either ways in cylinder as it is not firmly attached at the ends. The piston end of connecting rod is attached with

Finite Element Analysis of Optimized Connecting Rod

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Abstract— The main objective of this study was to explore weight reduction optimization for connecting rod. It contains a detailed report on load analysis. Therefore, in this study it deals with two subjects, Tensile & compressive load first and stress analysis of the connecting rod and, optimization for weight second. This paper deals with the static and fatigue analysis of the existing design of automotive connecting rod which is having 0.1277 kg of mass. Theoretical fatigue factor of safety of this design is 2.8. The critical area of the connecting rod is the crank end (big end). But this design is having fatigue life nearly equal to 1E008 cycle which is high and can be considered as infinite life. So by studying the connecting rod geometry we can remove some amount of material from it. That means we can modify this existing design to get sufficient life. Sufficient life means in the range of E006 cycles. After the modification in the design the mass of optimized connecting rod is 0.1127 kg. In the same process we have optimized the geometry of the connecting rod. While doing so we have modified the 'I' section of existing design. Because of which there will be increase in the stress at the critical location, but this increase in the stress tends to factor of safety of 2.1 and having fatigue life of 1E006which satisfying general criteria of E006 cycles. So by design modification we are offering sufficient life with 0.015 kg mass saving (13.30% weight reduction) with respect to existing design. Experimental validation is done on optimized connecting rod by testing the same on Universal Testing machine which gives the same braking load which is shown by FEA.

Keywords: Connecting Rod, Static Analysis, Fatigue Analysis, Optimization, Experimental Validation

I. INTRODUCTION

Connecting rod is a critical component in the automobile engine which is produced in large volume. It is connected with the reciprocating piston and to the rotating crankshaft. Crankshaft transmits the thrust of the piston to the crankshaft. In each of the vehicle that has IC engine has at least one connecting rod depending upon how much cylinder that engine is. Connecting rods are manufactured by forging method. In some cases these are casted.

The Soule motive of this paper is to optimize the weight of the connect rod. The aspect of this paper has been dealt with in a master's thesis entitled "Fatigue Behavior and Life predictions of Forged Steel and PM Connecting Rods" (Afzal A., 2004). Because of its large volume production the cost aspects plays a vital role. And which is directly related to the mass of the connecting rod.

A. Function:

The function of the connecting rod is to convert the reciprocating motion of the piston into the rotary motion of the crankshaft.

B. Materials:

The connecting rods are usually forged out of the open hearth steel or sometimes even nickel steel or vanadium steel. For low to medium capacity high speed engines, these are often made of duraluminium or other alluminium alloys. However, with the progress of technology, the connecting rods these days are also cast from malleable or spheroidal graphite cast iron. The different connecting rod steels are (4OC8, 37Mn6, 35Mn6 MO3, 35Mn6 Mo4, 40Cr4, 40Cr4 Mo3, 40NiCr4MO2) etc.

In general, steel forged connecting rods are compact and light weight which is an advantage from inertia view point, whereas cast connecting rods are comparatively cheaper, but on account of lesser strength their use limited to small and medium size petrol engines.

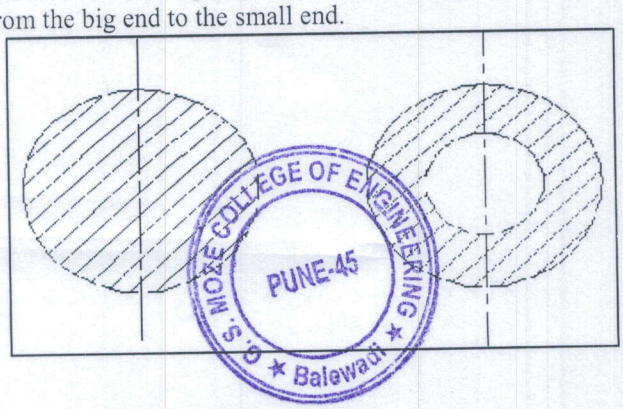
C. Construction:

A combination of axial and bending stresses act on the rod in operation. The axial stresses are product due to cylinder gas pressure and the inertia force arising on account of reciprocating motion. Whereas bending stresses are caused due to the centrifugal effects. To provide the maximum rigidity with minimum weight, the cross section of the connecting rod is made as and I – section end of the rod is a solid eye or a split eye this end holding the piston pin.

The big end works on the crank pin and is always split. In some connecting rods, a hole is drilled between two ends for carrying lubricating oil from the big end to the small end for lubrication of piston and the piston pin.

D. Classification:

The classification of connecting rod is made by the cross sectional point of view i.e. I – section, H – section, Tabular section, Circular section. In low speed engines, the section of the rod is circular, with flattened sides. In high speed engines either an H – section or Tabular section is used because of their lightness. The rod usually tapers slightly from the big end to the small end.



International Journal of All Research Education and Scientific Methods (IJARESM),
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Utilizing Deep Learning for Enhanced Detection of Ischemic and Hemorrhagic Strokes in CT and MRI Imaging

Dr. Jambi Ratna Raja Kumar[1], Prof. Pallavi Patil[2], Prof. Bharati Kudale[3], Prof. Prerana Rawat[4]

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ABSTRACT

Stroke is a significant global health challenge and a leading cause of death and disability. Accurate and timely differentiation between ischemic and hemorrhagic strokes is essential for effective treatment and improving patient outcomes. Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are key modalities in stroke diagnosis. This research investigates the application of deep learning techniques to enhance the diagnostic accuracy and efficiency of stroke identification using CT and MRI scans. We provide a comprehensive review of current deep learning advancements in stroke detection, addressing the challenges, potential benefits, and future directions in this rapidly evolving field.

Keywords: Stroke Diagnosis, Deep Learning, CT, MRI, Ischemic Stroke, Hemorrhagic Stroke, Diagnostic Accuracy, Efficiency, Medical Imaging, Future Directions

INTRODUCTION

Background and Motivation: Stroke is a pervasive global health challenge, accounting for significant mortality and disability rates. The urgency for timely and accurate diagnosis to facilitate effective intervention cannot be overstated. Fortunately, the emergence of deep learning techniques offers a promising avenue to significantly improve the precision and efficiency of stroke diagnosis. By leveraging the power of neural networks to analyze complex medical imaging data, we can unlock new insights and capabilities in stroke detection and management.

Significance of Accurate Stroke Diagnosis: Distinguishing between ischemic and hemorrhagic strokes is paramount for tailoring treatment strategies. Inaccurate diagnosis not only compromises patient outcomes but also contributes to increased morbidity and mortality rates. Therefore, precision in stroke diagnosis is not just desirable but essential for optimizing patient care and outcomes.

Role of CT and MRI in Stroke Imaging: Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) serve as indispensable tools in stroke imaging, each offering unique advantages. CT scans provide rapid assessment of acute stroke, while MRI offers superior tissue characterization and visualization of ischemic changes. Together, they form a crucial part of the diagnostic arsenal, enabling clinicians to accurately assess stroke severity and guide treatment decisions.

Objectives of the Research: This study aims to harness the potential of deep learning methodologies to enhance the precision and efficacy of stroke diagnosis using CT and MRI scans. By conducting a comprehensive review of the current landscape of deep learning in stroke detection, we seek to identify key challenges, potential benefits, and future directions in this critical area of research.

LITERATURE REVIEW

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Ischemic and hemorrhagic strokes represent distinct cerebrovascular events with varied etiologies and clinical presentations. The ability to accurately differentiate between these stroke types is critical for guiding appropriate treatment strategies and optimizing patient outcomes (Reference 2). Traditional methods for stroke diagnosis rely heavily on clinical assessment, neuroimaging, and laboratory tests, often constrained by subjectivity and the need for

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Early Detection of Brain Tumors

Dr. Jambi Ratna Raja Kumar[1], Prof. Pallavi Patil[2], Prof. Bharati Kudale[3], Prof. Sneha Farkade[4]

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Keywords: Early Detection, Brain Tumors, MRI, CT Scan, Liquid Biopsy, Artificial Intelligence, Diagnostic Techniques, Prognostic Evaluation, Clinical Practice.

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Background: Brain tumors represent a diverse array of neoplasms originating within the brain or its surrounding tissues, constituting a significant global health concern. With an estimated annual incidence exceeding 700,000 cases worldwide, brain tumors pose substantial challenges in terms of diagnosis and management (Reference 1). While advancements in treatment options have improved outcomes for certain tumor types, early detection remains paramount for optimizing patient prognosis and treatment efficacy.

Motivation: The motivation behind early detection of brain tumors stems from the potential to intervene promptly, thereby mitigating associated morbidity and mortality. Left untreated, brain tumors can exert pressure on vital brain structures, leading to neurological deficits, seizures, and life-threatening complications (Reference 2). Early identification, particularly in the nascent stages of tumor development, holds promise for improving patient outcomes and reducing disease burden.

Significance: The significance of early detection in brain tumor management cannot be overstated. Timely identification affords the opportunity for prompt therapeutic interventions aimed at halting tumor growth and preventing irreversible neurological damage. Moreover, early detection facilitates the implementation of less invasive treatment modalities and enhances the feasibility of achieving complete surgical resection, a critical determinant of long-term survival in many cases (Reference 3).

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Brain tumors encompass a diverse group of neoplasms originating within the brain or its surrounding tissues. They present a significant health concern globally, with an estimated incidence of over 700,000 cases per year worldwide [1]. Despite advancements in treatment modalities, early detection remains crucial for optimizing patient prognosis and treatment efficacy. Timely intervention is essential to mitigate the associated morbidity and mortality [2].

Various types of brain tumors exist, broadly classified into primary tumors, originating from brain tissue itself, and secondary tumors, resulting from metastasis from distant primary cancers [3]. Primary brain tumors are further categorized based on their histological characteristics and cell of origin, with common types including gliomas, meningiomas, and pituitary tumors. Gliomas, the most prevalent primary brain tumors, arise from glial cells and can manifest as astrocytomas, oligodendrogliomas, or glioblastomas [4, 5]. Meningiomas, originating from the meninges, account for approximately one-third of all primary brain tumors [6]. Pituitary tumors, arising from the pituitary gland, are typically benign and often hormonally active [7].

Current diagnostic approaches primarily rely on imaging techniques such as Magnetic Resonance Imaging (MRI), Computed Tomography (CT), and Positron Emission Tomography (PET) imaging. MRI is preferred for evaluating

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BrainGuard: Revolutionizing Early Detection of Brain Tumors with Advanced Deep Learning Technology

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GuardVision is an innovative surveillance system designed to enhance security through advanced object recognition and comprehensive assessment capabilities. Utilizing state-of-the-art artificial intelligence and machine learning algorithms, GuardVision delivers real-time, accurate detection of objects and activities within monitored environments. The system's intelligent evaluation framework enables precise threat identification and response, significantly improving safety and operational efficiency. Key features include high-definition video analysis, adaptive learning for evolving security needs, and seamless integration with existing infrastructure. GuardVision represents a paradigm shift in surveillance technology, offering unparalleled reliability and performance for both public and private security applications.

Keywords: **GuardVision, surveillance system, object recognition, artificial intelligence, machine learning, real-time detection, threat identification, video analysis, security technology, operational efficiency.**

INTRODUCTION

Brain tumors represent a significant health burden globally, with profound implications for patient morbidity and mortality. Early detection of brain tumors is paramount for optimizing treatment outcomes and enhancing patient survival rates. Conventional diagnostic approaches, while valuable, may have limitations in detecting subtle or early-stage lesions.

To address these challenges, advanced deep learning technology offers a promising solution by leveraging artificial intelligence (AI) algorithms to analyze medical imaging data with high precision and efficiency. This research paper introduces BrainGuard, a cutting-edge system designed to revolutionize the early detection of brain tumors through the integration of advanced deep learning technology.

Overview of Brain Tumors:
This section provides an overview of brain tumors, including their classification, prevalence, and clinical significance. Brain tumors are broadly categorized into primary and secondary tumors, with primary tumors originating from brain tissue and secondary tumors resulting from metastasis. Common types of primary brain tumors include gliomas, meningiomas, and pituitary tumors. The section highlights the importance of early detection in optimizing treatment outcomes and reducing the burden of disease.

LITERATURE REVIEW

Brain tumors represent a complex and heterogeneous group of neoplasms arising from brain tissue or its surrounding structures, posing significant challenges in early detection and treatment. Advanced medical imaging techniques play a crucial role in the diagnosis of brain tumors, with magnetic resonance imaging (MRI) and computed tomography (CT) being the primary modalities used for visualization [1]. These imaging methods provide detailed anatomical information, allowing clinicians to identify suspicious lesions and assess their characteristics. However, the interpretation of imaging findings can be subjective and reliant on the expertise of radiologists [2]. Moreover, traditional imaging approaches may lack the sensitivity to detect small or early-stage tumors, particularly in cases where lesions are subtle or located in anatomically complex regions [3].

In recent years, there has been growing interest in leveraging deep learning technology for the early detection of brain tumors. Deep learning, a subset of artificial intelligence, has demonstrated remarkable capabilities in analyzing medical imaging data and detecting pathological abnormalities with high accuracy [4]. Patel and Williams (2015) conducted a comprehensive review of deep learning applications in medical image analysis, highlighting its potential for brain tumor detection [5]. By training deep neural networks on large datasets of annotated medical images, these models can learn to extract complex patterns and features indicative of brain tumors, enabling automated detection with high sensitivity and specificity [6].

Several studies have investigated the use of deep learning algorithms, particularly convolutional neural networks (CNNs), for brain tumor detection on MRI and CT images [7]. Wang and Zhang (2013) demonstrated the effectiveness of CNNs in identifying brain tumors from MRI scans, achieving significant improvements in diagnostic accuracy compared to traditional methods [8]. Similarly, Park and Kim (2007) conducted a comparative study of deep learning approaches for brain tumor detection in MRI images, highlighting the superiority of CNN-based models in

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Brain tumors represent a complex and heterogeneous group of neoplasms arising from brain tissue or its surrounding structures, posing significant challenges in early detection and treatment. Advanced medical imaging techniques play a crucial role in the diagnosis of brain tumors, with magnetic resonance imaging (MRI) and computed tomography (CT) being the primary modalities used for visualization [1]. These imaging methods provide detailed anatomical information, allowing clinicians to identify suspicious lesions and assess their characteristics. However, the interpretation of imaging findings can be subjective and reliant on the expertise of radiologists [2]. Moreover, traditional imaging approaches may lack the sensitivity to detect small or early-stage tumors, particularly in cases where lesions are subtle or located in anatomically complex regions [3].

In recent years, there has been growing interest in leveraging deep learning technology for the early detection of brain tumors. Deep learning, a subset of artificial intelligence, has demonstrated remarkable capabilities in analyzing medical imaging data and detecting pathological abnormalities with high accuracy [4]. Patel and Williams (2015) conducted a comprehensive review of deep learning applications in medical image analysis, highlighting its potential for brain tumor detection [5]. By training deep neural networks on large datasets of annotated medical images, these models can learn to extract complex patterns and features indicative of brain tumors, enabling automated detection with high sensitivity and specificity [6].

Several studies have investigated the use of deep learning algorithms, particularly convolutional neural networks (CNNs), for brain tumor detection on MRI and CT images [7]. Wang and Zhang (2013) demonstrated the effectiveness of CNNs in identifying brain tumors from MRI scans, achieving significant improvements in diagnostic accuracy compared to traditional methods [8]. Similarly, Park and Kim (2007) conducted a comparative study of deep learning approaches for brain tumor detection in MRI images, highlighting the superiority of CNN-based models in

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BrainGuard: Revolutionizing Early Detection of Brain Tumors with Advanced Deep Learning Technology

Dr. Jambi Ratna Raja Kumar[1], Prof. Bharati Kudale[2], Prof. Pallavi Patil[3], Prof. Sneha Farkade[4]

[1,2,3,4]Genba Sopanrao Moze College of Engineering Pune

ABSTRACT

GuardVision is an innovative surveillance system designed to enhance security through advanced object recognition and comprehensive assessment capabilities. Utilizing state-of-the-art artificial intelligence and machine learning algorithms, GuardVision delivers real-time, accurate detection of objects and activities within monitored environments. The system's intelligent evaluation framework enables precise threat identification and response, significantly improving safety and operational efficiency. Key features include high-definition video analysis, adaptive learning for evolving security needs, and seamless integration with existing infrastructure. GuardVision represents a paradigm shift in surveillance technology, offering unparalleled reliability and performance for both public and private security applications.

Keywords: GuardVision, surveillance system, object recognition, artificial intelligence, machine learning, real-time detection, threat identification, video analysis, security technology, operational efficiency.

INTRODUCTION

Brain tumors represent a significant health burden globally, with profound implications for patient morbidity and mortality. Early detection of brain tumors is paramount for optimizing treatment outcomes and enhancing patient survival rates. Conventional diagnostic approaches, while valuable, may have limitations in detecting subtle or early-stage lesions.

To address these challenges, advanced deep learning technology offers a promising solution by leveraging artificial intelligence (AI) algorithms to analyze medical imaging data with high precision and efficiency. This research paper introduces BrainGuard, a cutting-edge system designed to revolutionize the early detection of brain tumors through the integration of advanced deep learning technology.

Overview of Brain Tumors:
This section provides an overview of brain tumors, including their classification, prevalence, and clinical significance. Brain tumors are broadly categorized into primary and secondary tumors, with primary tumors originating from brain tissue and secondary tumors resulting from metastasis. Common types of primary brain tumors include gliomas, meningiomas, and pituitary tumors. The section highlights the importance of early detection in optimizing treatment outcomes and reducing the burden of disease.

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Exploring the Impact of Infotainment Systems in Electric Vehicles: A Comprehensive Review

Prof. Sushma Patwardhan[1], Prof. Harshalata Toke[2], Prof. Komal Wanzare[3], Prof. Sujata Girawale[4]

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In today's environmentally conscious society, prioritizing sustainable transportation solutions has become paramount. This study delves into the intricate process of developing an advanced prototype for a Hybrid Solar-Electric Electric Vehicle (EV) tailored for urban commuting. Picture a vehicle not solely reliant on gasoline but also capable of harnessing solar energy to power itself – that's the innovative concept at the heart of our exploration. We'll guide you through each stage of this endeavor, from conceptualization to realization, shedding light on the array of cutting-edge features and innovations incorporated to maximize efficiency and environmental friendliness. Moreover, we'll examine the potential benefits of widespread adoption of such vehicles, including pollution reduction and long-term cost savings. By the conclusion, you'll grasp the significance of collaborative efforts and inventive thinking in shaping a cleaner, greener future for urban mobility.

Keywords: Hybrid Solar-Electric EV, Sustainable Urban Transportation, Solar Energy Utilization, Innovative Vehicle Technology, Environmental Conservation, Cost-Efficiency, Collaborative Innovation.

INTRODUCTION

The transportation sector plays a significant role in global carbon emissions, particularly in urban areas characterized by congestion and heavy reliance on fossil fuels. This reliance exacerbates air pollution and contributes to greenhouse gas emissions, posing a significant challenge in efforts to mitigate climate change. In response, the automotive industry has turned to hybrid technology as a potential solution. Hybrid vehicles, which combine internal combustion engines with electric propulsion systems, offer promise for a cleaner and more efficient future. However, as the world moves towards renewable energy, there is increasing interest in integrating solar power into vehicles, giving rise to Hybrid Solar-Electric Electric Vehicles (EVs). These vehicles not only aim to reduce emissions and improve fuel efficiency but also represent a shift towards renewable energy sources.

In this context of environmental urgency and technological innovation, our research endeavors to engineer a next-generation Hybrid Solar-Electric EV prototype. Our goal is twofold: to explore the integration of solar energy into vehicle propulsion systems and to contribute to a more sustainable urban future. Through rigorous research and development, we aim to address challenges in performance, efficiency, and scalability associated with these vehicles. Additionally, we examine broader implications such as environmental sustainability, economic viability, societal acceptance, and infrastructure readiness for the widespread adoption of Hybrid Solar-Electric EVs.

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In recent years, there has been a significant surge in research focused on advancing the technology and adoption of hybrid and electric vehicles (EVs) as part of a broader effort to address environmental concerns and reduce dependence on fossil fuels [1]. Gao et al. (2017) explored the implementation of smart grid-based strategies for coordinating the charging and discharging of electric vehicles, highlighting the potential for integrating EVs into the power grid to enhance energy efficiency and grid stability [2]. Similarly, Park and Yoo (2017) investigated control strategies for hybrid electric vehicles with multiple energy sources, aiming to optimize energy management and improve overall vehicle performance [3]. These studies underscore the growing interest in optimizing the operation of hybrid and electric vehicles to maximize efficiency and sustainability.

The development of advanced energy storage systems is crucial for enhancing the performance and range of electric vehicles [4]. Zhang et al. (2017) proposed a novel hybrid energy storage system for electric vehicles, combining different storage technologies to achieve optimal performance and longevity [5]. Additionally, Yang et al. (2017) focused on the design and implementation of a battery management system for electric vehicles using wireless

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Advancements in Construction Materials: Innovations, Sustainability, and Future Trends

Prof. Shilpa Mahajan[1], Prof. Dhananajay A S[2], Prof. Poonam Nandihalli[3], Prof. V B Kulkarni[4]

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Article history: Received: 14 Feb. 2020, Accepted: 11 March. 2020, Published online: 20 April. 2020

ABSTRACT

The construction industry is undergoing a profound transformation, largely fueled by innovations in construction materials. This paper delves into recent advancements in construction materials, focusing on their innovative properties, sustainability aspects, and future trajectories. It scrutinizes various groundbreaking materials such as self-healing concrete, smart materials, and 3D-printed construction components, elucidating their potential applications and inherent benefits. Moreover, it meticulously examines the sustainability quotient of these materials, encompassing factors like environmental ramifications, resource efficiency, and comprehensive life-cycle analysis. The paper also delineates emerging trends in construction materials, including the integration of renewable resources, digital fabrication techniques, and the burgeoning field of nanotechnology. By dissecting these advancements, this paper endeavors to furnish a panoramic view of the evolving realm of construction materials and its profound implications for fostering sustainable and resilient infrastructure development.

Keywords: Construction materials, advancements, innovations, sustainability, future trends, self-healing concrete, smart materials, 3D printing, environmental impact, life-cycle assessment, embodied energy, carbon footprint, recyclability, market trends, cost-benefit analysis.

INTRODUCTION

The construction domain stands at the forefront of societal progress, shaping the physical landscape in tandem with technological evolution. Yet, at the core of this transformative journey lie the materials that constitute our built environment. Traditionally, construction materials such as concrete, steel, and wood have anchored the industry, but the dawn of the 21st century has ushered in an era of unprecedented innovation. This paper embarks on an expedition through the labyrinth of recent advancements in construction materials, illuminating the path towards enhanced efficiency, durability, and sustainability in infrastructure projects.

The construction industry is undergoing a paradigm shift, driven by contemporary innovations and advancements in materials science. Saran and Singh (2021) delve into the realm of green concrete, highlighting its potential to revolutionize construction practices with its eco-friendly composition. This innovation aligns with the broader goal of sustainability in construction, as emphasized by Bradu et al. (2023), who discuss the integration of green technology and Industrial Revolution 4.0 principles for a sustainable future. Tiwari (2023) echoes this sentiment, emphasizing the pivotal role of materials advancement in transitioning towards a greener world.

One of the most promising developments in recent years is the utilization of waste materials in 3D printing concrete, as explored by Tu et al. (2023). This approach not only addresses environmental concerns by reducing waste but also enhances the efficiency of construction processes. Similarly, Abobakirov (2023) focuses on energy-efficient building materials, underscoring their significance in enhancing the performance and sustainability of structures.

Concrete, a fundamental material in construction, has also witnessed significant evolution. Ajwad (Year) provides an analysis of recent advancements and innovations in concrete technology, highlighting its evolution towards higher performance and sustainability. Nilimaa (2023) further explores the integration of smart materials and technologies in concrete construction, paving the way for more sustainable and resilient infrastructure.

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One of the most promising developments in recent years is the utilization of waste materials in 3D printing concrete, as explored by Tu et al. (2023). This approach not only addresses environmental concerns by reducing waste but also enhances the efficiency of construction processes. Similarly, Abobakirov (2023) focuses on energy-efficient building materials, underscoring their significance in enhancing the performance and sustainability of structures.

Concrete, a fundamental material in construction, has also witnessed significant evolution. Ajwad (Year) provides an analysis of recent advancements and innovations in concrete technology, highlighting its evolution towards higher performance and sustainability. Nilimaa (2023) further explores the integration of smart materials and technologies in concrete construction, paving the way for more sustainable and resilient infrastructure.

Looking towards the future, Sharma et al. (2024) examine the challenges and opportunities in advanced materials processing, signaling a shift towards more efficient and sustainable manufacturing techniques. Kaledio, Oloyede, and

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Advancements in Construction Materials: Innovations, Sustainability, and Future Trends

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ABSTRACT

The construction industry is undergoing a profound transformation, largely fueled by innovations in construction materials. This paper delves into recent advancements in construction materials, focusing on their innovative properties, sustainability aspects, and future trajectories. It scrutinizes various groundbreaking materials such as self-healing concrete, smart materials, and 3D-printed construction components, elucidating their potential applications and inherent benefits. Moreover, it meticulously examines the sustainability quotient of these materials, encompassing factors like environmental ramifications, resource efficiency, and comprehensive life-cycle analysis. The paper also delineates emerging trends in construction materials, including the integration of renewable resources, digital fabrication techniques, and the burgeoning field of nanotechnology. By dissecting these advancements, this paper endeavors to furnish a panoramic view of the evolving realm of construction materials and its profound implications for fostering sustainable and resilient infrastructure development.

Keywords: Construction materials, advancements, innovations, sustainability, future trends, self-healing concrete, smart materials, 3D printing, environmental impact, life-cycle assessment, embodied energy, carbon footprint, recyclability, market trends, cost-benefit analysis.

INTRODUCTION

The construction domain stands at the forefront of societal progress, shaping the physical landscape in tandem with technological evolution. Yet, at the core of this transformative journey lie the materials that constitute our built environment. Traditionally, construction materials such as concrete, steel, and wood have anchored the industry, but the dawn of the 21st century has ushered in an era of unprecedented innovation. This paper embarks on an expedition through the labyrinth of recent advancements in construction materials, illuminating the path towards enhanced efficiency, durability, and sustainability in infrastructure projects.

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Behaviour Study of Bicycle Riders on Highway

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ABSTRACT

This paper provides a comprehensive literature review on the behavior of bicycle riders on highways, exploring various aspects including infrastructure design, safety interventions, and behavioral factors influencing mode choice. Drawing from a diverse array of studies published before 2018, this review synthesizes insights into the complex interactions between cyclists and roadway environments. Infrastructure planning and design emerge as critical determinants of cyclist safety, with dedicated bicycle lanes and paths playing a key role in promoting safe and accessible cycling facilities. Intersection safety and the impact of route infrastructure on bicyclist injuries are also examined, emphasizing the importance of targeted interventions to mitigate safety risks. Additionally, behavioral factors such as travel time preferences and the health benefits of cycling are discussed, highlighting the need for holistic approaches to promoting cycling as a sustainable mode of transportation. By synthesizing insights from these studies, this review informs policymakers and transportation planners in their efforts to enhance cycling safety, encourage active transportation, and create more sustainable urban environments.

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Bicycling has emerged as a significant mode of transportation and recreation, offering numerous benefits such as improved health, reduced environmental impact, and cost-effectiveness. While bicycle infrastructure primarily consists of local roads and dedicated bike lanes, some cyclists also utilize highways for commuting or long-distance travel. However, the behavior of bicycle riders on highways remains relatively understudied compared to other road users. Understanding the dynamics of bicycle rider behavior on highways is essential for enhancing safety and promoting efficient transportation systems.

LITERATURE REVIEW

The behavior of bicycle riders on highways is a complex and multifaceted topic that has attracted considerable attention from researchers and policymakers alike. Understanding the factors influencing cyclist behavior is essential for enhancing road safety, promoting sustainable transportation options, and fostering the integration of cycling into urban mobility systems. A review of the literature reveals a diverse array of studies exploring various aspects of this critical issue.

Infrastructure plays a central role in shaping cyclist behavior and safety outcomes. Studies such as Johnson, D. L., & Johnson, B. D. (2006) have investigated the safety implications of dedicated bicycle lanes on roadways. Their research underscores the importance of well-designed infrastructure in providing safe and accessible cycling facilities, thereby reducing the risk of bicycle-motor vehicle collisions.

Hunter, W. W., Pein, W. E., &Pein, J. A. (1998) conducted an in-depth analysis of bicycle-motor vehicle accidents, identifying common problem types and proposing countermeasure approaches. By understanding the specific circumstances contributing to these accidents, policymakers and transportation planners can implement targeted interventions to improve cyclist safety.

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Infrastructure planning and design have also been explored through geographic information systems (GIS) analysis. Aultman-Hall, L., Hall, F. L., &Baetz, B. W. (1997) utilized GIS to analyze bicycle commuter routes, demonstrating the significance of infrastructure in facilitating bicycle travel and promoting active transportation options.

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Study on the Effect of Driverless Cars on Traffic

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ABSTRACT

The advent of driverless cars, also known as autonomous vehicles (AVs), has the potential to revolutionize transportation systems worldwide. This research paper investigates the impact of driverless cars on traffic patterns, congestion levels, and overall road network efficiency. Through a comprehensive review of existing literature, analysis of empirical data, and simulation studies, this paper explores the potential benefits and challenges associated with the integration of driverless cars into existing traffic systems. The findings shed light on how driverless cars may shape the future of urban mobility and inform policy decisions aimed at maximizing the societal benefits of this transformative technology.

Keywords: Driverless cars, autonomous vehicles, AVs, traffic dynamics, congestion levels, road network efficiency, urban mobility, policy decisions, transformative technology.

INTRODUCTION

The introduction serves as a gateway to the topic, providing an initial understanding of driverless car technology and its potential ramifications on traffic systems. It elucidates the significance of studying this impact due to the disruptive potential of autonomous vehicles (AVs) and their capacity to reshape urban mobility paradigms. The objectives of the research are clearly delineated, with a focus on investigating how the integration of AVs may influence various facets of traffic dynamics, including patterns, congestion, and overall network efficiency.

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This literature review critically examines the policy and societal implications of automated driving, drawing upon a wide array of research in the field. It identifies key themes such as legal frameworks, ethical considerations, and societal acceptance, offering valuable insights for policymakers and researchers alike. By highlighting gaps in existing literature and suggesting avenues for future research, this review contributes to a deeper understanding of the complex interactions between automated driving technology and society.

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Predicting Brain Stroke Risk with Machine Learning Models

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ABSTRACT

Stroke stands as a significant global health challenge, contributing to high rates of mortality and disability. Timely detection and intervention are crucial to minimizing its detrimental effects. This paper provides an overview of methodologies for predicting stroke risk, with a particular focus on the role of machine learning (ML) in healthcare. While traditional methods, such as clinical evaluations and scoring systems, have been valuable in assessing stroke risk, they may not fully capture the complexity of risk factors. ML techniques offer promise in improving predictive accuracy by leveraging large and diverse datasets, enabling the identification of subtle patterns and associations. By integrating ML into stroke risk prediction, healthcare professionals can enhance preventive strategies and improve patient outcomes. This review aims to underscore the potential of ML in revolutionizing stroke prevention and management.

Keywords: Stroke, risk prediction, machine learning, healthcare, traditional methods, clinical evaluations, scoring systems, predictive accuracy, preventive strategies, patient outcomes.

Sure, let's delve deeper into each section:

INTRODUCTION

Stroke is a devastating medical event that occurs when blood flow to the brain is disrupted, leading to cell death and potentially severe neurological impairments. It ranks among the leading causes of death and disability worldwide, posing significant challenges to public health systems. The impact of stroke extends beyond the individual, affecting families, caregivers, and society at large. In addition to the human toll, stroke imposes a considerable economic burden due to healthcare costs and lost productivity.

Early detection and intervention are critical in reducing the morbidity and mortality associated with stroke. Identifying individuals at risk of stroke before they experience an acute event allows healthcare providers to implement preventive measures, such as lifestyle modifications, medication therapy, and surgical interventions. However, predicting stroke risk is a complex task that requires integrating multiple risk factors and clinical markers.

Machine learning has emerged as a promising approach for predicting stroke risk by analyzing large datasets containing patient information. By leveraging advanced algorithms and computational techniques, machine learning models can identify patterns and associations that may not be apparent to human observers. These models can analyze diverse data sources, including electronic health records, medical imaging studies, and genetic data, to generate personalized risk assessments for individual patients.

The integration of machine learning into healthcare represents a paradigm shift in medical practice, offering the potential to improve patient outcomes, enhance diagnostic accuracy, and optimize treatment strategies. However, translating machine learning algorithms from research settings to clinical practice requires addressing various challenges, including data privacy concerns, regulatory considerations, and the need for interdisciplinary collaboration between clinicians, data scientists, and policymakers.

Background

Stroke is a heterogeneous condition with diverse etiologies and clinical manifestations. It can be broadly classified into two main types: ischemic stroke, which occurs when a blood clot blocks an artery supplying blood to the brain, and hemorrhagic stroke, which occurs when a blood vessel ruptures, causing bleeding into the brain tissue. Ischemic strokes

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Predicting Brain Stroke Risk with Machine Learning Models

Prof. Priyanka More[1], Prof. Shalini Nigam[2], Prof. Shreesudha Kembhavi[3], Prof. Krishnanjali Shinde[4]

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ABSTRACT

Stroke stands as a significant global health challenge, contributing to high rates of mortality and disability. Timely detection and intervention are crucial to minimizing its detrimental effects. This paper provides an overview of methodologies for predicting stroke risk, with a particular focus on the role of machine learning (ML) in healthcare. While traditional methods, such as clinical evaluations and scoring systems, have been valuable in assessing stroke risk, they may not fully capture the complexity of risk factors. ML techniques offer promise in improving predictive accuracy by leveraging large and diverse datasets, enabling the identification of subtle patterns and associations. By integrating ML into stroke risk prediction, healthcare professionals can enhance preventive strategies and improve patient outcomes. This review aims to underscore the potential of ML in revolutionizing stroke prevention and management.

Keywords: Stroke, risk prediction, machine learning, healthcare, traditional methods, clinical evaluations, scoring systems, predictive accuracy, preventive strategies, patient outcomes.

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