IOSR Journal of Engineering (IOSRJEN) **www.iosrjen.org**
ISSN (e): 2250-3021, ISSN (p): 2278-8719
Vol. 10, Issue 1, January 2020, ||Series -II|| PP 27-34

Feasibility Study on Fly Ash based Geopolymer Concrete

Prof. Ms. Samruddhi C. Sagane , Prof. Harshwardhan P. Nistane, Dr. P. A. Kadu

Department of Civil Engineering Prof. Ram Meghe Institute of Technology & Research, Badnera Amravati, India
Department of Civil Engineering Prof. Ram Meghe Institute of Technology & Research, Badnera Amravati, India
Department of Civil Engineering Prof. Ram Meghe Institute of Technology & Research, Badnera Amravati, India

Received 31 December 2019; Accepted 15 January 2020

Abstract: Concrete is the most widely used building material in the construction of infrastructures such as buildings, highways, dams, and many other facilities. The increasing of worldwide production of ordinary Portland cement to meet infrastructure developments indicates that concrete will continue to be a chosen as the most common material of construction in the future. The production of cement consumes a lot of energy and increase CO_2 emission to the atmosphere. Another alternative to make environment friendly concrete is the development of geopolymer which is an inorganic alumina – silicate polymer, synthesized from materials of geological origin or by product materials such as fly ash which is rich in silicon and aluminum. In this study, 2 mixes were produced to evaluate the effect of key parameters on the mechanical properties of concrete and its behavior. For curing of specimens ambient curing (at room temperature) and oven curing at a temperature of 75^{o}C have been used. Geopolymer concrete gives better results in workability of concrete as compare to conventional concrete. Test results reveal that fly ash based geopolymer concrete gives better results of compressive strength than ordinary Portland cement. As the fluid to fly ash ratio increases the compressive strength decreases. For oven drying curing increase in compressive strength is more than ambient curing at room temperature as compare to conventional concrete.
Keywords: Compressive Strength, Concrete, Fly Ash, Geopolymer, Rebound Number

I. INTRODUCTION

A. General

The cement industry is India's second highest payer of Central Excise and Major contributor to GDP (Gross Domestic Product). With infrastructure development growing and housing sector booming, demand for cement is also bound to increase. However, cement industry is extremely energy intensive. After thermal power plants and iron and steel sector, India cement industry is third largest coal user in country. The term 'Geo-polymer' was first introduced by Davidovits in 1978 to describe family of mineral binders with chemical composition similar to zeolites but with amorphous microstructure. Two main constituents of Geo-polymers are source materials and alkaline liquids. The source materials on alumino-silicate should be rich in silicon (Si) and aluminium (Al). They could be by-product materials such fly ash, silica fume, slag, rice-husk ash, red mud, etc. Geo-polymers are also unique in comparison to other alumino-silicate materials.

II. GEOPOLYMER CONCRETE

A. What is Geo-polymer?

Geo-polymers are inorganic, typically ceramic materials that form long range, covalently bonded, non-crystalline (amorphous) networks. Obsidian is example of naturally occurring Geo-polymer.Geo-polymer concrete, in other words, can be termed "No Cement Concrete". Ordinary Portland cement is main constituent in cement concrete for binding aggregates, coarse and fine, together to make homogeneous mass. Portland cement mixed with water reacts and C-S-H gel formed, whereas in Geo-polymer concrete formation of C-S-H gel is very minimal due to presence of low calcium content in fly ash. The usage of cement is totally nullified in manufacturing Geo-polymer concrete making it more environmental friendly and hence term "No Cement Concrete".

B. Geo-polymer Production

A coal fly ash sample from Carolina was used in chemical process known as geo-polymerization to produce new binder name geo-polymer. The developed Geo-polymer binder could completely replaced by OPC binder in regular concrete application. Mortar and concrete samples were made to compare strength of geo-

polymer with OPC concrete. The polymerization process involves a fast chemical reaction under alkaline conditions on silicon-aluminium minerals that results in three dimensional polymeric chain and ring structure. The ultimate structure of Geo-polymer depends largely on ratio of Si to Al (Si:Al), with materials having a ratio of Si:Al between 2 to 3.5 for use in concrete application. A critical feature is that water is added only for workability and this water does not become part of Geo-polymer structure. In other words, water is not involved in chemical reaction and is expelled during curing and drying. In hydration process of OPC, resultant products are predominantly calcium silicate hydrate (C-S-H) gel and calcium hydroxides. Where as in case of Geo-polymer, these do not form. CSH is gel of hydrated CaO-SiO2, which normally contributes mechanical strength to cement. In contrast, formation of three dimensional amorphous alkali alumino-silicate network with general formula of (Na/K)n-((-Si-O2)z-Al- O)n.wH2O which attributes binding properties to Geo-polymeric gel in terms of their elemental composition is calcium. If excess calcium is added, some forms of C-S-H gel will be obtained. But it has significantly lower Ca/Si ratio than CSH gel formed from hydration of Ordinary Portland Cement.

C. Constituents of Geopolymer Concrete

The main constituent of a Geo-polymer concrete is low calcium ASTM class F fly ash, alkaline liquid, coarse and fine aggregates. Unlike ordinary cement concrete wherein cement is mixed in range of 350 kg/m3 to 450 kg/m3 depending upon grade of concrete, an equivalent quantity of fly ash is taken and mixed in case of Geo-polymer concrete. Class F fly ash is obtained from Sophia Power Plant and is used to manufacture Geo-polymer concrete throughout the project.

D. Alkaline Liquid

Locally available silicates and hydroxides of sodium are used to prepare an alkaline liquid. Though silicates and hydroxides of potassium could be used to prepare an alkaline liquid, sodium based silicates and hydroxides are used in this project considering a high cost of potassium based chemicals.

Sodium silicate is a common name for the compound sodium meta-silicate, Na2SiO3, also known as the water glass or liquid glass. It is available in an aqueous solution and in the solid form and is used in cements, passive fire protection, refractoriness, textile and lumber processing, and automobiles. Sodium carbonate and silicon dioxide react when a molten to form sodium silicate and carbon dioxide and chemical equation reads as

$$Na2CO3 + SiO2 \longrightarrow Na2SiO3 + CO2$$

Sodium hydroxide (NaOH), also known as the caustic soda, is caustic metallic base. It is used in many industries, mostly as a strong chemical base in a manufacture of pulp and paper, textiles, drinking water, soaps and detergents and as drain cleaner. Worldwide production in 2004 was approximately 60 million tons, while demand was 51 million tones. Pure sodium hydroxide is white solid available in a form of pellets, flakes, and granules. It is the hygroscopic and readily absorbs carbon dioxide from air, so it should be stored in the airtight container. It is very soluble in water and is highly exothermic when it is dissolved in the water.

A sodium hydroxide solution will leave the yellow stain on fabric and paper. Care should be taken while handling sodium hydroxide pellets or flakes. Gloves and masks should be worn while weighing sodium hydroxide and putting a same in water to dissolve. Sodium silicate and sodium hydroxide are mixed in suitable proportions to obtain an alkaline liquid. 8M, 12M and 14M are the molarities of sodium hydroxide used throughout this research.

E. Curing of Geopolymer Concrete

Steam curing, Heat curing and curing at an ambient temperature are three methods being employed to cure a Geo-polymer concrete. It takes days to cure a concrete in ambient temperature and steam curing requires boiler and fire wood to generate steam. Throughout this project, Heat curing is adopted to cure Geo-polymer concrete elements at 70C to 90C in oven. The heat curing enhances a compressive strength of Geo-polymer concrete by 15% and also attains its full strength in 24 hours. This is in contrast to 28 days curing of cement concrete elements and hence Geo-polymer concrete can also be termed "One day Concrete".

III. LITERATURE REVIEW

Shri Krishna Gurlhosur, Abdul Samad M Kamdod et. al.[1] studied 'A Comparative Study Of Green Geopolymer Concrete Using Fly Ash'. The long term properties included in the study were compressive strength, sulfate resistance and sulfuric acid resistance. The alkaline liquid comprised a combination of sodium silicate solution and sodium hydroxide solids in flakes or pellets form dissolved in water. Two different mixing ratios, M15 and M20, was used for the fly ash concrete, cement concrete and mixture of cement + fly ash concrete specimens. The sulfuric acid resistance of concrete was also studied. The concentration of sulfuric acid solution was 5% for soaking concrete specimens. As per the test results, it was observed that higher the average ambient

temperature higher was the compressive strength. The test results demonstrate that heat-cured fly ash-based geopolymer concrete has an excellent resistance to sulfate attack. There was no damage to the surface of test specimens after exposure to sodium sulfate solution up to one week. The sulfuric acid resistance of heat-cured geopolymer concrete was significantly better than that of Portland cement concrete.

Brett Temest, Olanrewaju Sanusi[2] studied 'Compressive Strength And Embodied Energy Optimization Of Fly Ash Based Geopolymer Concrete'. In this paper authors have studied the details of mix design and curing regimen for a geopolymer concrete by relating strength development to the quantity of energy that was consumed to activate the fly ash and curing the concrete to elevated temperature. Concrete were produced with the addition of NaOH at the rate of 10%, 13% and 16% of fly ash mass. Cylinder samples were made and batches in room temperature and then cured to 75^0C. It was observed that lower alkalinity activating solutions benefited most from additional curing time, whereas mix produced with higher alkalinity solutions benefited most from additional aging time. Geopolymer cement from fly ash eliminates greenhouse gas sources i.e. resulting in reducing negative environmental impacts. It was also observed that there was less energy consumption than Portland cement concrete with higher compressive strength. Increased curing time at 75^0 C also improved 28 days strength. High temperature curing for an additional day improved compressive strength at an average of 12% in all mixes.

Asha Philip, Ashok Mathew[3] presented 'Experimental Study On Mechanical Properties Of Geopolymer Concrete Using GGBS'. The aim of the study was to develop an environmental friendly construction material using geopolymer concrete. In terms of reducing the global warming, the Geopolymer technology could reduce the CO2 emission in to the atmosphere caused by cement industries about 80%. In this technology, the source material that was rich in silicon and aluminum was reacted with highly alkaline solutions through the process of geopolymerization to produce the binding material. Given paper states to use GGBS (Ground Granulated Blast furnace Slag) in place of OPC and compare its properties with the normal concrete. In the present investigation it was proposed to to study the mechanical properties viz. compressive strength, split tensile strength, flexural strength test on concrete specimen. This study reveals that, GGBS makes significant impact on the strength of geopolymer concrete, the mechanical properties were higher for geopolymer concrete and rate of gain of geopolymer concrete was very fast at first 7 days curing period. Hence give faster construction of products, GGBS based geopolymer concrete has excellent compressive strength and was suitable for structural applications.

IV. MATERIAL PROPERTIES

A. Fly Ash

Fly-ash may be defined as an alumina-silicate source which represents the majority component of geo-polymer concrete quantity wise and has the least unit cost of all the cementing materials used in the mix. Fly-ash plays the important role of reducing brittleness in geo-polymer concrete to a considerable extent so that it can withstand more tensile stress. Fly ash as the solid by-product of the combustion of coal and it is generally extracted from coal-fired power plant through the process of electrostatic precipitation. The Fly-ash used in the thesis work was procured from Paras thermal power station, Vidyut Nagar, PARAS, Tal, Balapur, District AKOLA.

B. Cement

It is a fine mineral powder manufactured with two controlled and precise processes specifically called wet and dry process. Cement is made by grinding together a mixture of limestone and clay, which is than heated at temperature of 1450°c which results, into granular substance called "clinker", combination of calcium, silicate, alumina and iron oxide. In this paper, cement of grade 53 has been used only for conventional concrete.

C. Coarse Aggregates

The aggregate which are retained over IS sieve 20 mm is termed as coarse aggregate. The basic function performed by these aggregates in geo-polymer concrete is to increase the strength of geo-polymer concrete & thus help in making a solid and hard mass of geo-polymer concrete. It helps to reduce the cost of geo-polymer concrete mix prepared by occupying the maximum volume of the concrete. Easily available crushed aggregate of 20mm size are used as coarse aggregates.

TABLE I. PHYSICAL PROPERTIES OF COARSE AGGREGATES

Sr. No.	Properties	Test Result
1	Specific Gravity	2.67
2	Fineness modulus	8.65
3	Bulk density	1545 kg/m3
4	Water absorption	0.55%

D. Fine Aggregates

The aggregates pass through 4.75mm IS sieve is called as fine aggregates. The important function performed by these fine aggregates in geo-polymer concrete is to fill the voids in the concrete so as to make it a homogeneous mix. In addition to this it fills the voids present in the coarse aggregate and reduces shrinkage and cracking of geo-polymer concrete. The nearby available river sand was used in this experimental work.

TABLE II. PHYSICAL PROPERTIES OF FINE AGGREGATES

Sr. No.	Properties	Test Result
1	Specific Gravity	2.6
2	Fineness modulus	2.49
3	Bulk density	1260 kg/m3
4	Water absorption	1%

E. Alkaline Solutions

A combination of sodium silicate solution and sodium hydroxide solution was used as alkaline solution. Alkaline solution in geo-polymer concrete can be defined as an ingredient responsible for dissolution source of silica and alumina leading to the formation of chemical reagent of Alumina-silicate oxides through the complex action of hydroxide ions. The concentration of sodium hydroxide solution is taken as 10 Molarity. The reason is that sodium silicate solution is cheaper than the sodium hydroxide solution. Ratio for sodium silicate to sodium hydroxide solutions was kept as 2.5.

F. Water

Potable water was used in the concrete mix for the given project work. Water is also used in the preparation of NaOH solution for preparing geopolymer concrete and the same was used for curing of normal mix concrete.

V. PREPARATION OF GEOPOLYMER CONCRETE

A. Preparation of Geopolymer Concrete

400 g of sodium hydroxide flakes dissolved in one liter of water to prepare sodium hydroxide solution of 10 M. The mass of NaOH solids in a solution vary depending on the concentration of the solution expressed in terms of molarity (M). The sodium hydroxide solution was mixed with sodium silicate solution to get the desired alkaline solution one day before making the geopolymer concrete. After solution is prepared the composition is weighed and mixed in the dry mix of fly ash, fine aggregate and coarse aggregate to form a fly ash base geopolymer concrete mix concrete mixture and then transferred into the moulds.

B. Mix Proportions

TABLE III. MIX PROPORTIONS

Sr. No.	Constituents	Proportion (kg/m3) of Conventional Concrete	Proportion (kg/m3) of Geopolymer Concrete Mix 1	Proportion (kg/m3) of Geopolymer Concrete Mix 2
1	Fly ash	419	419	419
2	Fine aggregate	714	714	714
3	Coarse aggregate(20mm)	869.25	869.25	869.25
4	Coarse aggregate(10mm)	289.75	289.75	289.75
5	Sodium hydroxide(NaOH)	-	48	52
6	Sodium silicate(Na2SiO3)	-	120	130
7	Water	189	22.5	22.5
8	W/C Ratio	0.45	-	-
9	Solution/Fly ash Ratio	-	0.45	0.5
10	Na2SiO3/ NaOH Ratio	-	2.5	2.5

C. Clasification of Specimens

A total of 45 cubes of 150 mm x 150 mm x 150 mm size has been casted of which 9 cubes of normal mix, 18 cubes for geopolymer concrete mix 1(Ambient temp. and 75°C), and 18 cubes for geopolymer concrete mix 2 (Ambient temp. and 75°C) has been casted. For each mix 3 cubes have been tested for 7 days, 14 days, 28 days.

D. Curing of geo-polymer concrete

Generally, heat curing is recommended for geo-polymer concrete. Heat curing considerable assist the chemical reaction that occurs in geo-polymer concrete. Both curing time and curing temperature changes the compressive strength of geo-polymer concrete. Longer curing time increases the polymerization process resulting in higher compressive strength. The rate of increase in strength was rapid up to 24 hrs of curing time beyond the 24 hrs the gain in strength was minor. Higher curing temperature of geo-polymer concrete gains the higher compressive strength. Heat curing can be done by oven heating or steam curing. In case delay in the start of heat curing up to five days did not produce in loses of compressive strength. In the present work, all specimens of geopolymer concrete were kept for ambient curing at room temperature and at oven dry curing at the temperature of 75°C for 24 hours.

VI. RESULTS AND DISCUSSION

A. Slump Cone Results

TABLE IV. SLUMP CONE RESULTS

Sr. No.	Mixes	Slump Value in mm	Average Slump Value in mm
1	Nominal Mix	34	37
		36	
		40	
2	Geopolymer Mix 1	70	74
		74	
		79	
3	Geopolymer Mix 2	95	103
		105	
		109	

It shows that workability is greater in geopolymer concrete as compare to normal concrete and in geopolymer concrete as the fluid/fly ash ratio increases workability increases.

For mix-2 fluid/fly-ash ratio 0.5 is more workable than mix-1 having fluid/fly ash ratio lesser than mix-2 i.e. 0.45. For both the mixes of geopolymer concrete shear slump is obtained while performing slump cone test.

B. Compressive Strength Test Results

Compressive strength is the most important property used to study a concrete. Since other properties of concrete often compare with the compressive strength, it is used as an indicator of the other physical & chemical properties. For each type of mix, 3 cubes were considered and then average of 3 cubes was considered as a final value. The test results of the compressive strength test of normal mix and geo-polymer concrete samples are given below respectively. The table shows the result of 7 days, 14 days and 28 days of all mixes.

TABLE V. COMPRESSIVE STRENGTH TEST RESULTS

Days	Average Compressive Strength of Conventional Concrete (N/mm2)	Average Compressive Strength of Geopolymer Concrete Mix 1 Ambient Temp. (N/mm2)	Average Compressive Strength of Geopolymer Concrete Mix 1 75^0 C Temp. (N/mm2)	Average Compressive Strength of Geopolymer Concrete Mix 2 Ambient Temp. (N/mm2)	Average Compressive Strength of Geopolymer Concrete Mix 2 75^0 C Temp. (N/mm2)
7 Days	17.05	30.58	39.09	28.95	32.82
14 Days	23.25	39.48	49.98	37.56	45.7
28 Days	28.6	43.79	51.13	42.64	49.27

C. Comparative Graphs of both Mixes as per varying Curing Temperature

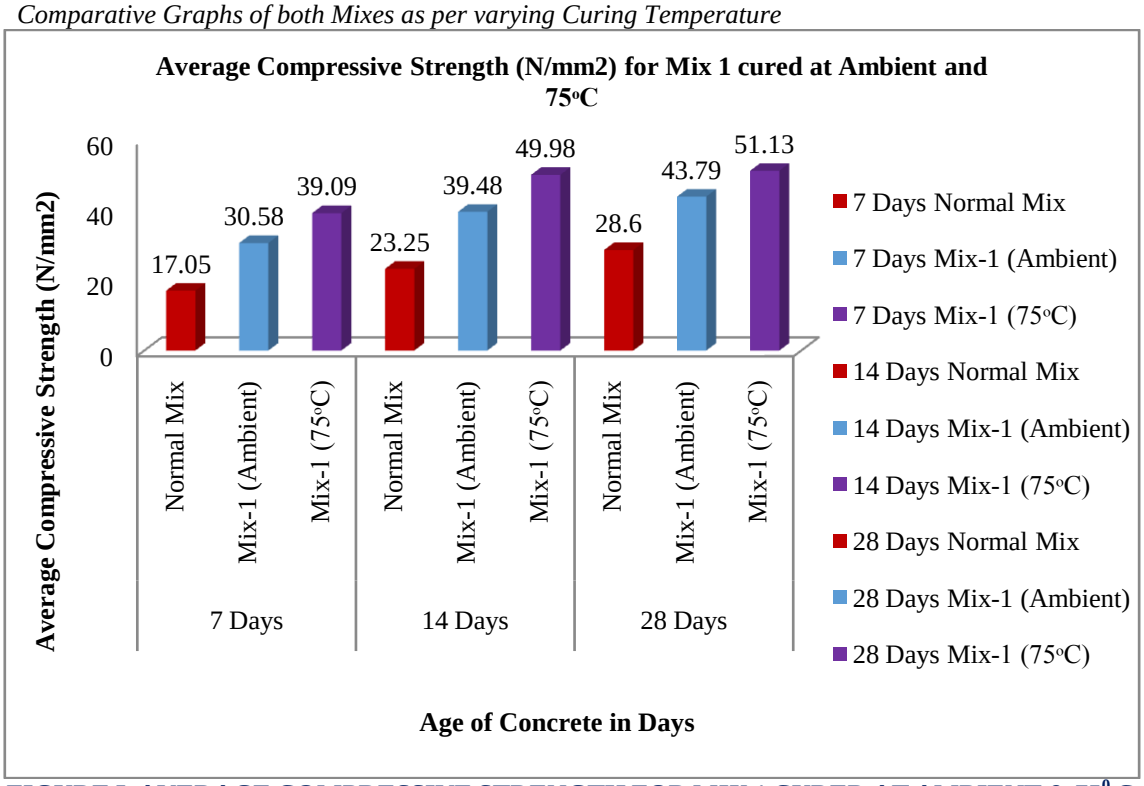


FIGURE I. AVERAGE COMPRESSIVE STRENGTH FOR MIX 1 CURED AT AMBIENT & 75^0 C

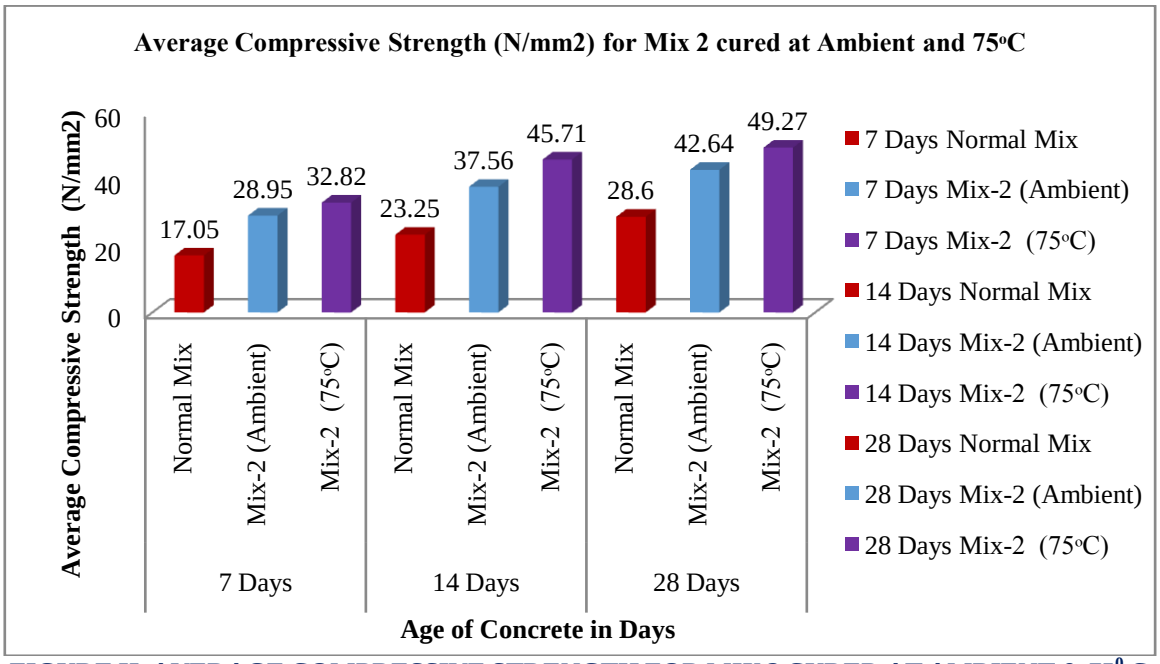


FIGURE II. AVERAGE COMPRESSIVE STRENGTH FOR MIX 2 CURED AT AMBIENT & 75^0 C

Above graphs shows the comparative results of both mixes cured at ambient room temperature and oven drying temperature at 75°C with respect to results of normal conventional concrete individually.

For mix 1, from figure 1 results states that compressive strength for geopolymer concrete is better as compare to normal conventional concrete. But as the mix 1 was divided into two parts as per varying curing temperature one was for room temperature and another was for 75°C, the compressive strength was good for greater temperature than room temperature.

Similarly, for mix 2, from figure 2 results states that compressive strength for geopolymer concrete is better as compare to normal conventional concrete. But as the mix 2 was divided into two parts as per varying

curing temperature one was for room temperature and another was for 75°C, the compressive strength was good for greater temperature than room temperature.

In respect to 2 mixes, i.e. mix 1 and mix 2 figure 1 giving more results than figure 2 because for mix 1 fluid to fly ash ratio was 0.45 and for mix 2 fluid to fly ash ratio was 0.5. It states that, as the fluid to fly ash ratio increases the compressive strength decreases.

D. Comparative Graphs of ambient temperature for both mixes and 75°C for both mixes with respect to normal conventional concrete

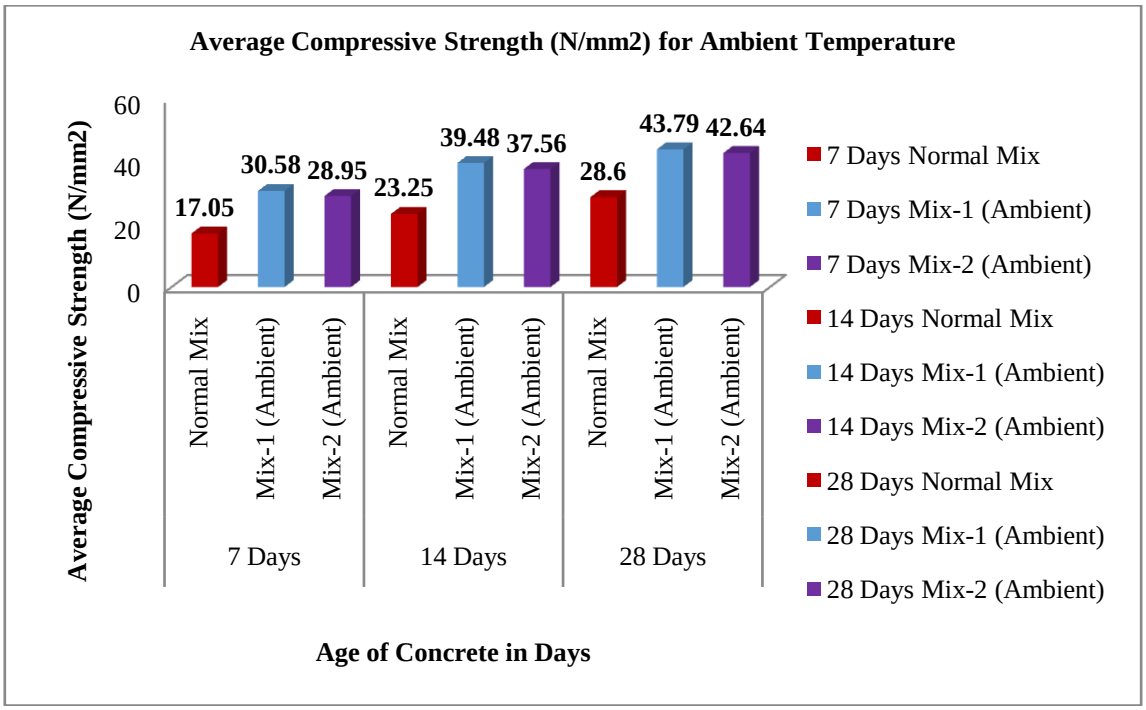


FIGURE III. AVERAGE COMPRESSIVE STRENGTH (N/MM2) FOR AMBIENT TEMPERATURE

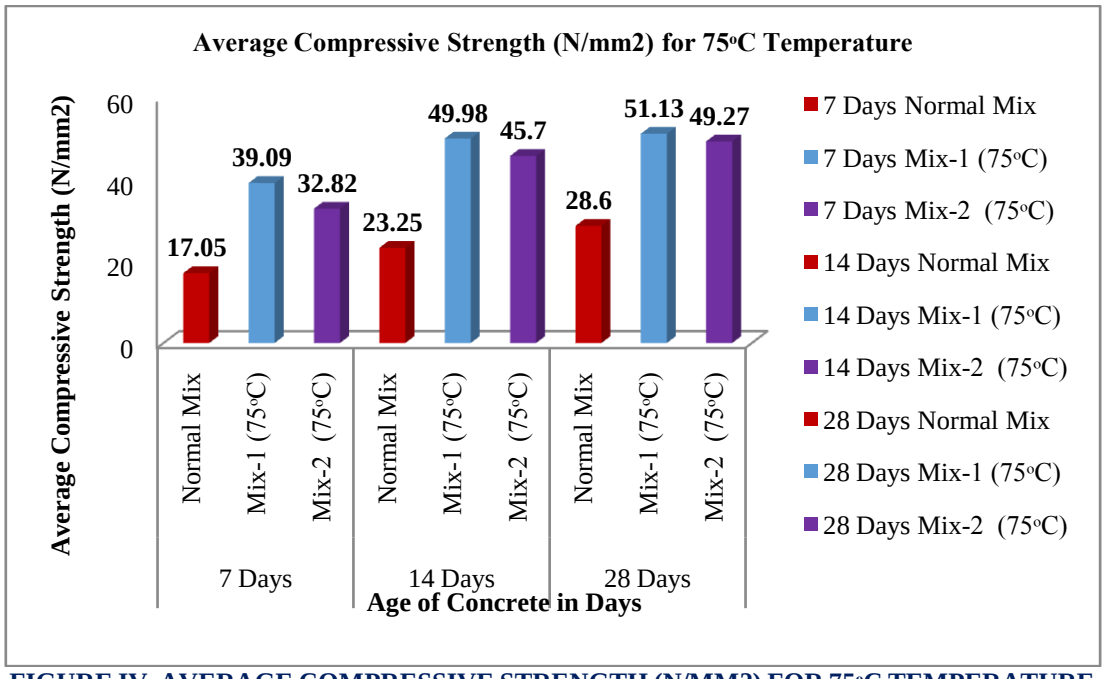


FIGURE IV. AVERAGE COMPRESSIVE STRENGTH (N/MM2) FOR 75°C TEMPERATURE

Above first graph showing the comparative result of normal mix with both mixes were cured at ambient room temperature and second graph showing comparative result of normal mix with both mixes were cured at oven drying temperature of 75°C.

In comparison between normal mix and ambient temperature for both the mixes, compressive strength is greater for geopolymer concrete as compare to normal mix but at the same time for mix 2 compressive strength was lesser.

Figure IV shows comparative results of normal mix with oven drying temperature of 75°C for both mixes. From this graph results reveals that, compressive strength was good for geopolymer concrete with 75^0 C temperature than ambient room temperature.

VII. CONCLUSION

From the above experimental result following conclusions are drawn:

- This project has shown the total elimination of cement from concrete which ultimately becomes "Green concrete".
- The fly ash has considered as waste material and found out to be usefulness through Geopolymer concrete in construction industries and become a valuable material.
- Workability test results shows that, workability of geopolymer concrete is good as compared to normal conventional concrete.
- As the fluid to fly-ash ratio increases workability of geopolymer concrete also increases.
- Comparative results of compressive strength with respect to normal mix shows that compressive strength is better for geopolymer concrete as compared to normal mix.
- The test results of compressive strength for mix-1 were better as compared to mix-2 in geopolymer concrete.
- As the fluid to fly-ash ratio increases compressive strength of geopolymer concrete decreases.
- As the temperature of curing increases the compressive strength increases. Hence the results for oven curing at 75°C as compared to ambient curing was better in geopolymer concrete.
- Increase in compressive strength of geopolymer concrete was 30 to 40% more as compared to normal mix.
- It reduces the emission of carbon-dioxide (CO_2) from the cement manufacturing industries in the environment up to a greater extent.
- Geo-polymer concrete has excellent properties and is well-suited to manufacture precast concrete products that are needed in rehabilitation and retrofitting of structure after a disaster.

REFERENCES

[1]. Shri Krishna Gurlhosur, Abdul Samad M Kamdod et. al., "A Comparative Study Of Green Geopolymer Concrete Using Fly Ash", Journal Of Science Engineering And Technology, Vol. 11, No. I, pp 26-32, August 2015.

[2]. Brett Temest, Olanrewaju Sanusi, "Compressive Strength And Embodied Energy Optimization Of Fly Ash Based Geopolymer Concrete", world of coal ash (WOCA) Conference, May 2009.

[3]. Asha Philip, Ashok Mathew, "Experimental Study on Mechanical Properties of Geopolymer Concrete using GGBS", International Journal of Science and Research, Volume – 5, Issue – 5. ISSN No. 2319 – 7064, May 2016.

[4]. IS-3812: 2003 Specification for Fly Ash use.

[5]. IS-516-1959 (Reaffirmed 1999), Edition 1.2 (1991-2007), Methods of test for strength of concrete, (Compressive strength test of concrete).

[6]. M. S. Shetty, Concrete Technology, a division of S. Company Ltd., New Delhi, 1982.

Prof. Ms. Samruddhi C. Sagane,et.al. "Feasibility Study on Fly Ash based Geopolymer Concrete." *IOSR Journal of Engineering (IOSRJEN)*, 10(1), 2020, pp. 27-34.

Certificate

We are pleased to award this certificate to

S. C. Sagane

for contributing / presenting the research paper entitled

Feasibility Study on Fly Ash Based Geopolymer Concrete

in

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

PRINTER, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No. +91 721-2681246, Fax +91 721 268133

Certificate

We are pleased to award this certificate to

H. P. Nistane

for contributing / presenting the research paper entitled

Feasibility Study on Fly Ash Based Geopolymer Concrete

in

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No : +91 721-2681246, Fax: +91 721-2681337

International Engineering Journal For Research & Development

Vol.4
Issue 4

E-ISSN NO:-2349-0721

Impact factor : 6.03

SEISMIC PERFORMANCE OF RCC BUILDING WITH SHEAR WALLS AT VARIOUS LOCATIONS - A REVIEW

Prof.S.R.Band
Prof.Ram Meghe Institute of Technology and Research, Badnera-Amravati,India.
Swapnil28_band@yahoo.co.in

Prof.P.S.Deshmukh
Prof.Ram Meghe Institute of Technology and Research, Badnera-Amravati,India.
psdeshmukh2013@gmail.com

Prof. S.A.Deshmukh
Prof.Ram Meghe Institute of Technology and Research, Badnera-Amravati,India.
shashikantdeshmukh.2012@rediffmail.com

Prof. M.S.Mahalle
Prof.Ram Meghe Institute of Technology and Research, Badnera-Amravati,India.
mayur.aakar@gmail.com

Abstract:-

The occurrence of the earthquakes in the world and construction of high rise buildings demands for the construction of earthquake resistant buildings. Many of the tall buildings had collapsed in past earthquakes and the reasons attributed were poor design and construction practices. The high seismic areas may be susceptible to the severe damage in structures. In the seismic design shear walls play a major role in earthquake resisting members. Now a day, shear wall in R.C. structure are most popular system to resist lateral load due to earthquake. Shear wall is a rigid vertical diaphragm capable of transferring lateral forces from exterior walls, floors, and roofs to the ground foundation in a direction parallel to their planes. Shear walls have more strength, stiffness and resist in-plane loads that are applied along its height. Buildings with shear walls which are properly designed give a very good performance Also the positioning of shear wall has influence on the overall performance of the building. For effective performance of building it is essential to provide position of shear wall in an ideal location. In the present paper, studies of various researches were discussed on performance of RCC building with shear wall based on its location.

Keywords - Shear wall, Earthquake, RCC, Seismic Forces

INTRODUCTION

Earthquakes demonstrate vulnerability of various inadequate structures, every time they occur. The lessons taught from the aftermath of earthquakes and the research works being carried out in laboratories give better understanding about the performance of the structure and their components. Damage in reinforced concrete structures was mainly attributed to the inadequate detailing of reinforcement, lack of transverse steel and confinement of concrete in structural elements. Typical failures were brittle in nature, demonstrating inadequate capacity to dissipate and absorb inelastic energy. This necessitates a better understanding of the design and detailing of the reinforced concrete structures under various types of loading.

Shear wall is a rigid vertical diaphragm capable of transferring lateral forces from exterior walls, floors, and roofs to the ground foundation in a direction parallel to their planes. When shear walls are designed and constructed properly, they will have the strength and stiffness to resist the horizontal forces. Shear walls are especially important in high-rise buildings subject to lateral wind and seismic forces.

In the present study, various researches were discussed on performance of shear wall based on its location, orientation and materials used for construction.

REVIEW OF LITERATURE

Chandurkar and Pajgade, presented a study towards the solution for shear wall location in multistory building. Effectiveness of shear wall had been studied with the help of four different +models. Model one was bare frame

structural system and other three models were dual type structural system. An earthquake load was applied to a building of ten stories located in zone II, zone III, zone IV and zone V. Parameters like Lateral displacement and story drift whereas total cost required for ground floor were calculated in both the cases replacing column with shear wall.

Aainawala and Pajgade, For the study, a G+12, G+25, G+38 building with 3.5 meters height for each storey, regular in plan was modeled. This building consists of four spans of 5 meter, 3 meter, 3 meter and 5 meter in X direction and in Y direction as shown in figure 2. The square plan of all buildings measures 16m x 16m. Shear walls were modeled using three different positions. These buildings were designed in compliance to the Indian Code of Practice for Seismic Resistant Design of Buildings .The buildings was assumed to be fixed at the base. The buildings were modeled using software ETAB Nonlinear v 9.0.7 four different models were studied with different positioning of shear wall in different zones and for various heights to find out the best location of shear wall in buildings. Models were studied and dynamic analysis was performed for G+ 38 models in all the four zones comparing the lateral displacement, storey drift, concrete quantity required, steel and total cost required in all the zones

Prof. N. K. Meshram, Gauravi M. Munde, studied Seismic Analysis of Shear Wall at Different Location on Multi-storey RCC Building. The main aim of work out the solution for shear wall location in multi-storey building. It's important to work out the strength of RC shear wall of a high-rise building by dynamical shear wall location. Three completely different cases of shear wall position for a building are analyzed. Earthquake load is calculated by the unstable constant technique IS 1893 (PART–I):2002.STAAD professional V8i software is used for the analysis of structures. The structures area unit compared on four completely different parameters specifically joint displacement, axial force, bending moment and base shear In this study, the analysis of multistoried buildings are done by STAAD PRO software using response spectrum analysis observed that time period decreases as the mode frequency increases for all model. Maximum lateral displacement increases as storey height increases for all models. Minimum lateral displacement of the building has been reducing due to the presence of shear wall placed at the center. It can be said that building with corner shear wall is more efficient than all other types of shear wall.

Tarun Magendra (et.al), studied, Optimum Positioning of Shear Walls in Multistory-Buildings. The basic objective of this work is to analyze different models with Shear walls and compare them using ETABS, to get the optimum positioning of Shear walls inside the structure. Four different cases of shear wall position for G+10 storey building with keeping zero eccentricity between mass center and hardness center have been analyzed and designed as a frame system by computer application software ETABS. parameters were considered to present a comparison between the different frames are Maximum Storey Drift, Maximum Storey Displacement, Storey Shears and Storey Overturning Moment. The frame with Shear Walls clearly provides more safety to the designers and although it proves to be a little costly, they are extremely effective in terms of structural stability. It is observed that Box-type Shear Walls showed better results

Prof. Rahul T. Pardeshi et.al, studied Analysis of Irregular High-rise Building Using Shear Walls At Different Locations. They used Staad Pro V8i to analyze the certain irregular high rise building by changing the location of shear wall .The present work contains the experimental investigation on reducing the size of the member to make structure economical and efficient by locating shear wall at varying places in irregular shape building. it is observed that deflection was reduced and reached within the permissible deflection after providing the shear wall in shorter direction. Shear wall symmetrically in the outer most moment resisting frames give better performance for regular shape building. The shear wall location was found to be more effective towards shorter column as compared to other locations. Shear wall at outer side was most efficient and resulting in reduction in base shear as compared to original building.

Mr.K.LovaRaju(et.al), they conducted non-linear analysis of frames to identify effective position of shear wall in multi storey building. An earthquake load was applied to a G+7 storey structure of four models with shear wall at different location in all seismic zones using ETABS. Push over curves were developed and has been

found the structure with shear wall at appropriate location is more important while considering displacement and base shear.

Syed.M.Katami et.al , studied the results of time history analysis which addressed the effect of openings in shear walls near- fault ground motions. A model of ten storey building with three different types of lateral load resisting system: Complete shear walls, shear walls with square opening in the centre and shear wall with opening at right end side were considered. From the results it was observed that shear walls with openings experienced a decrease in terms of strength.

Varsha.R.Harne, presented G+5 storey RCC building which is subjected to Earthquake loading in zone II to determine the strength of RC wall by changing the location of shear wall using STAAD.Pro. Seismic coefficient method is used to calculate the earthquake load as per IS 1893 – 2002 (Part I). Different models compared to other models the shear force and bending moment, for structure with shear wall along the periphery is found to be maximum at the ground level and roof level respectively. Hence the shear wall provided along the periphery of the structure is found to be more efficient than all other types of shear wall.

Suresh et.al., studied to find the effective, efficient and optimum location of shear walls in high rise irregular RC building. In this paper the optimum location of shear wall has been investigated with the help of three different models. Model 1 is frame structural system and other two models are dual type structural system with central core wall and corner shear wall. An earthquake load calculations are based on IS 1893(PART-1)-2002 and applied to (G+20) storey R.C building in zone-2 and zone- 5. The analysis is performed using ETABS Software package. The conclusion was made that plan without shear wall gives more displacement and more drift compare to plan with shear wall along four edges. Hence by providing shear wall along four edges storey displacement, storey drift, storey shear can be reduced and also there is increase strength and stiffness of the structure. Hence it was concluded that by providing shear wall along four edges is found to be optimum position of shear wall.

Donthireddy Raja Shekar Reddy at.al studied the Seismic Analysis of Multi Storied Building with Shear Walls of Different Shapes. In this paper The multi store building with G+14 storey's are analyzed for storey drift story displacement and base shear using ETABS software. For the analysis of these building for seismic loading with all Zones (Zone-II, III, and IV & V) is considered. The analysis of these building is done by using dynamic method (Response spectrum analysis). In the study of seismic behavior of the building with shear walls of four different Shapes in all zones were compared. First part of the study included the dynamic analysis of Building. The storey drift, story displacement and base shear will be obtained.

CONCLUSION

The high-rise structure without shear wall gives more displacement and more drift compare to plan with shear wall along four edges. Hence it can be concluded that, by providing shear wall along four edges we can reduce storey displacement, storey drift, story shear and, we can increase strength and stiffness of the structure. Structure with shear wall at optimum location is more important while considering displacement and base shear of any high-rise building. Also various aspects of performance of shear wall presented by many of the investigator. To improve the performance of shear wall. Structure with shear wall at appropriate location is more important while considering displacement and base shear. Raising of shear wall up to the entire height of building is not necessary and it is sufficient to raise the shear wall up to mid height of building. Also the shear wall provided along the periphery of the structure is found to be more efficient.

REFERENCES

1. P. P. Chandurkar and Dr. P. S. Pajgade (2013), "Seismic Analysis of RCC Building with and Without Shear Wall." (IJMER), .2. 3, Issue. 3, pp-1805-1810, ISSN: 2249-6645,May - June 2013
2. M.S.Aainawala, Dr.P.S.Pajgade, "Design of multistoried R.C.C. buildings with and without shear walls." International Journal of Engineering Sciences and Research Technology
3. Tarun Magendra, Abhyuday Titiksh , "Optimum Positioning of Shear Walls in Multistorey- Buildings" International Journal of Trend in Research and Development, Volume 3(3).
4. Prof. N. K. Meshram,, Gauravi M. Munde, "Seismic Analysis of Shear Wall at Different
5. Location on Multi-storey RCC Building", *International Journal of Interdisciplinary Innovative Research & Development (IJIIRD)*Vol. 02 Issue 02, 2018
6. Mr.K.LovaRaju, Dr.K.V.G.D.Balaji, Effective location of shear wall on performance of building frame subjected to earthquake load, International Advanced Research Journal in Science, Engineering and Technology, ISSN 2394-1588 Vol. 2, Issue 1, January 2015
7. Varsha R. Harne, Comparative Study of Strength of RC Shear Wall at Different Location on Multi-storied Residential Building, International Journal of Civil Engineering Research.ISSN 2278-3652 Volume 5, Number 4 (2014), pp. 391-400
8. Seyed M. Khatami, Alireza Mortezaei, Rui C. Barros, Comparing Effects of Openings in Concrete Shear Walls under Near-Fault Ground Motions, The 15thWorld Conference on Earthquake Engineering ,2012.
9. M R Suresh, Ananth Shayana Yadav (2015). The optimum location of shear wall in high rise R.C buildings under lateral loading. International Journal of Research in Engineering and Technology. Volume: 04 Issue: 06.
10. Donthireddy Raja Shekar Reddy, Joshi Sreenivasa Prasad2 , " The Seismic Analysis of Multi Storied Building with Shear Walls of Different Shapes: A Literature Review" International Journal of Engineering Research & Technology (IJERT) Vol. 8 Issue 07, July-2019
11. Prof. Rahul T. Pardeshi1, Prof. Pratiksha M. Bhadange, Somesh V. Hasija, Saddamhussain I. Khan Mayur B. Marade, Ramesh H. Pansare, Krishna M. Rupchandani, " Analysis of Irregular High-rise Building Using Shear Walls At Different Locations", International Journal of Recent Trends in Engineering & Research (IJRTER) *Volume 03, Issue 02; February – 2017.*
12. IS 1893(part 1) : 2002, " Criteria for earthquake resistant design of structures, part 1, general provisions and buildings ", Fifth revision,Bureau of Indian Standerds, ManakBhavan, Bahadur Shah ZafarMarg, New Delhi 110002
13. Bureau of Indian Standard, IS-456(2000), "Plain and Reinforced Concrete Code of Practice".

Certificate

We are pleased to award this certificate to

S.R.Band

for contributing / presenting the research paper entitled

Seismic Performance of RCC Building with Shear Walls at Various Locations - A Review

in

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research, Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

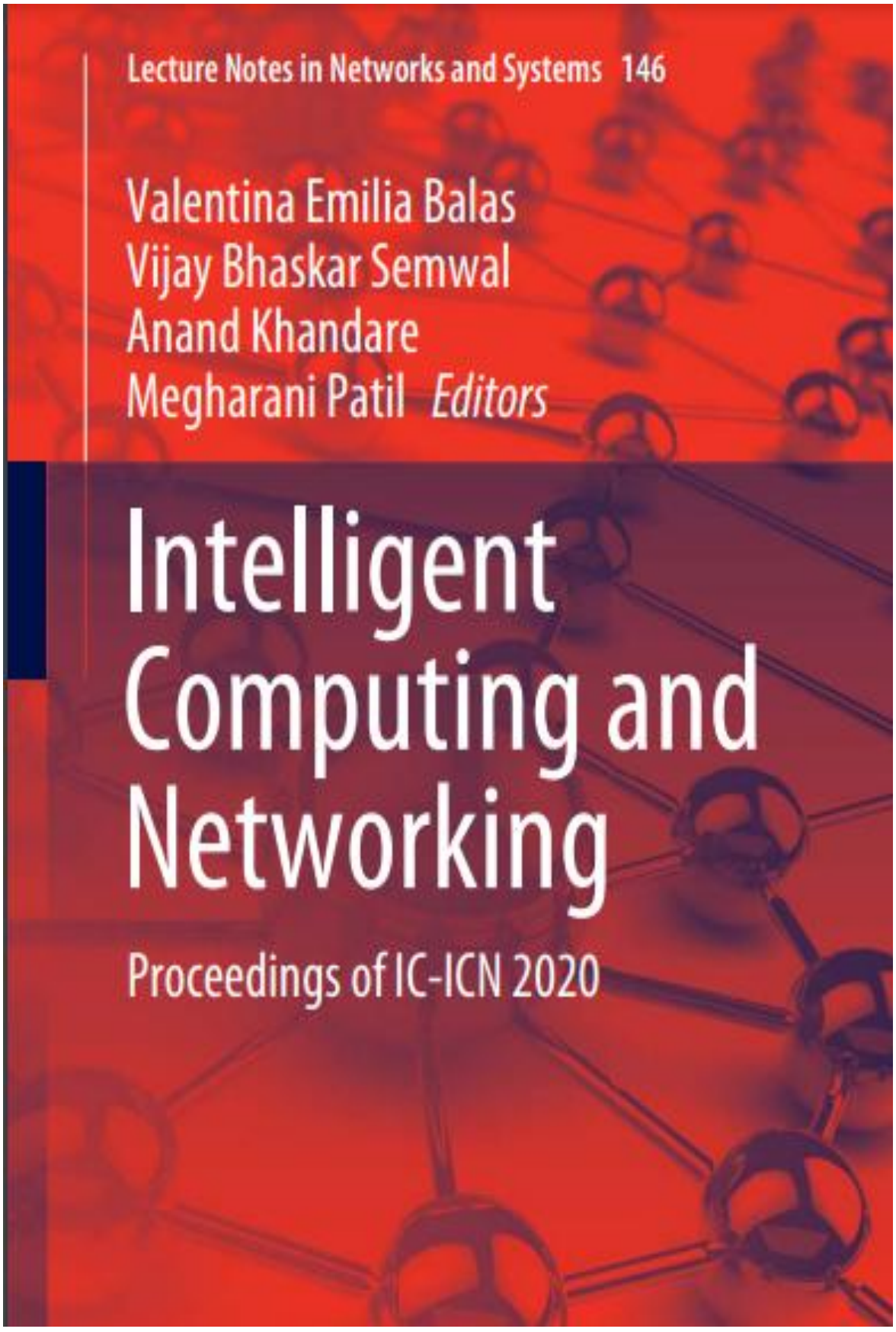
(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337


Lecture Notes in Networks and Systems 146
Valentina Emilia Balas
Vijay Bhaskar Semwal
Anand Khandare
Megharani Patil Editors
Intelligent Computing and Networking
Proceedings of IC-ICN 2020

Prediction of nMAG in PMIPv6 with the Help of MN Positions

Nitesh M. Tarbani, A. S. Alvi, G. R. Bamnote, and V. S. Gulhane

Abstract The Proxy Mobile IPv6 (PMIPv6) is a protocol which manages mobility. It uses signaling and home agent's activity of MIPv6 through a proxy mobility agent in a localized network. In any type of wireless communication, handover delay should be as less as possible. Tremendous work has been done to minimize the handover delay in PMIPv6, and many solutions have been proposed by the many researchers. Almost all of the solutions have one thing in common that the authentication information of the MN should be sent to new MAG in advance, and to send information to new MAG, it is mandatory to anticipate the new MAG. This paper proposes an algorithm to

2nd International Conference on Data, Engineering and Applications (IDEA 2020)

Bhopal, India
28-29 February 2020

IEEE

IEEE Catalog Number: CFP20H35-POD
ISBN: 978-1-7281-5719-1

Additional Paper:

Ac

Removal of Unnecessary Files using Predictive Data Mining Method

Publisher: IEEE

Cite This

PDF

Shrikant P. Akarte ; G. R. Bamnote **All Authors**

Abstract:
This research paper focuses on using the data mining methodology and soft computing approach to the field of clinical data. The predictive model (classifier) takes the historical clinical data of patients from a multiple dataset and performs the learning and training through an algorithm. The dataset for the multiple diseases of patients is used to elaborate the application and to explain the design and working of framework and multiclass classifier. And doing so it is found that the algorithm works correctly and this multiclass class classification is

5th International Conference on Inventive Computation Technologies ICICT 2022

20-22, July 2022 ◊ Lalitpur, Nepal

ICICT 2022 Publication Link

ICICT 2022 in IEEE Website
Brochure

Previous Publications
2021 2020 2018 2016

XPLORE COMPLIANT ISBN: 978-1-6654-0837-0
DVD ISBN: 978-1-6654-0836-3

Tribhuvan University, Nepal

Final Paper Submission Due
18 June, 2022

Last Date of Registration
22 June, 2022

Conference Date
20-22, July 2022

2020 International Conference on Inventive Computation Technologies (ICICT)
26-28 Feb. 2020

Search within results

for 10.1109/ICICT48043.2020.9112454

Refine

Author

Affiliation

Quick Links

Select All on Page

Sort By: Sequence

Convolutional Neural Network based Review System for Automatic Past Event Search using Visual Question Answering

Pranita P. Deshmukh; Rani S. Lande

Publication Year: 2020 , Page(s): 155 - 159

Abstract HTML

Proceedings of the Fifth International Conference on Inventive Computation Technologies (ICICT-2020)
IEEE Xplore Part Number:CFP20F70-ART; ISBN:978-1-7281-4685-0

Convolutional Neural Network based Review System for Automatic Past Event Search using Visual Question Answering

Miss. Pranita P. Deshmukh[1]
Department of Computer Science & Engineering
PRMIT&R, Badnera
Amravati, India
pranita.33deshmukh@gmail.com

Miss. Rani S. Lande[2]
Department of Computer Science & Engineering
PRMCEAM, Badnera
Amravati, India
lande.rani@gmail.com

***Abstract* — A consumer may additionally take hundreds of pics from mobile phones, Collecting the no of photos, videos that seize cherish capable moments from one's past, such as workshops, STTP's, FDP's or Conferences. The users may use personal photos/videos as a imply of getting higher portions from their recollections about these events. To plan and advance question grasp community model, content material primarily based and textual content primarily based snap shots or movies event search engine, textual content based totally reply technology engine, engine for generating snap shots or movies evidences corresponding to generated answers. The proposed gadget will be evaluated on the basis of a number overall performance assessment parameters. The proposed system can be implemented in Python through using VQA and other QA datasets.**

Keywords—Events; Memex Question Answering; Visual Question Answering; Convolutional Neural Network.

I. INTRODUCTION

or videos. The proposed system in this research work takes a order questions or images from a customer, the aim is to automatically answer questions about the previous occasions identified by returning relevant photos, videos or answers. The idea to a proposed structure is a question or a series of images or both and the output is an answer and a relevant images or videocassettes that explain the answer. The relevant images or videotapes are necessary as not only are they beneficial in rapidly confirming the answer but also they proposed rich data to refresh user's recollection almost the questioned event.
The proposed research work addresses following challenges:

- Pictures and videos involve rich data. The people typically has orders of videos or images, ordered according to their time stamps. These photos or videos may have script comments, labels or other metadata. A robust method is required to control irregularity of multimodal data, such as photos or videos not having annotations.

- The second challenge regards relevant videos to be displayed in output for validations in addition to straight answer established on input data. The

2019 IEEE Pune Section International Conference (PuneCon)
18-20 Dec. 2019
DOI: 10.1109/PuneCon46936.2019

- **Solar Powered Water Desalination Using Fresnel Lens Tracking System**
  Rakesh Borase; Jayanand Gawande; Sushant Pawar; Sharad Jadhav
  Publication Year: 2019 , Page(s): 1 - 4
  Cited by: Papers (1)
  ▸ Abstract HTML

- **Machine Learning and Blockchain Techniques Used in Healthcare System**
  Nilima V. Pardakhe; V. M. Deshmukh
  Publication Year: 2019 , Page(s): 1 - 5
  Cited by: Papers (2)
  ▸ Abstract HTML

- **Surveying Machine Learning Algorithms On Eeg Signals Data For Mental Health Assessment**
  Ela Gore; Shantal Pathi

2019 IEEE Pune Section International Conference (PuneCon)
MIT World Peace University, Pune, India. Dec 18-20, 2019

Machine Learning and Blockchain Techniques Used in Healthcare System

Nilima V. Pardakhe
Research Scholar
CSE Dept
P.R.M.I.T.&R.,Badnera
nilimapardakhe@gmail.com

V. M. Deshmukh
Associate Professor
CSE Dept
P.R.M.I.T.&R.,Badnera

Abstract-Information systems and computerization nowadays need very faster, secure & easier data analysis techniques. It is also required to maintain efficiency and accuracy in data analysis. So machine learning & Blockchain techniques have been continuously used in the data analysis & security in various fields from medicine to organization and education to energy applications. This study applies classification of machine learning & Blockchain techniques to process the data and survey of selection methods, query strategies, applications and security. In highly secure data, Security issues are solved by using Blockchain Technology.

Blockchain technology is rapidly gaining attention towards the Security of confidential data. The healthcare industry is one of the fields of organization where high risk involves & its attracted attention of many technological organizations so this field required the security for securing their data. The Blockchain is generally used for providing the security to secure the high sensitive data. By using the Blockchain technology there are numerous opportunities for healthcare industry to achieve & gain. Such as reduced transaction costs, increased transparency for regulatory reporting, efficient healthcare data management and healthcare records universality as well as able to access data from any location. In the context of smart healthcare system blockchain may provide distinct benefits, particularly from a context-aware perspective where efficient and personalized solutions may be provided to citizens and the society. This paper provides a comprehensive survey of relationship between Machine learning and blockchain techniques related to smart healthcare system. In addition, we are going to discussed several challenges can comes for actually implementing machine learning secure healthcare system using blockchain based Technology.

Keyword: Machine Learning, Blockchain, Security.

I. INTRODUCTION:

In this era of computerization of business, organizations focus is mainly on future predication by considering the historical data. Machine Learning is an approach or subset of Artificial Intelligence that is based on the idea that machines and applying the different algorithm and method for predicting the expected output. The choice of method and algorithms are depends on what type of data do we have and what kind of task we are trying to automate. The paper organized as follows.

Section II focus on need of machine learning and blockchain techniques, section III explain about application of technology given in section II ,section IV gives the idea about supervised and unsupervised methods and finally section V gives the conclusion[1].

II. NEED OF MACHINE LEARNING:

Machine Learning is a field which came from AI. By using AI we need to work on better Machine which can predict the decision. But AI is not only finding the shortest path between the system it's a system where we can work on other work which predict the future on basis of Histological data[3][5].

Its can be archive by using the Machine Learning it can be use to predict the decision on basis of Histological data. This sounds similar to a child learning from its self. So machine learning was used as a new technology for computer society And now machine learning is present in so many segments of technology, that we don't even realize it while using it. Finding the patter of earth through which its gives it output only possible by human brain. The data being very massive, the time required to complete it takes a more time and at that time to reduce the time and gives the expected output we used Machine Learning, which help people to handle large data in minimum time.

Certificate

We are pleased to award this certificate to

S. M. Deshmukh

for contributing / presenting the research paper entitled

A Review of Machine Learning for Hyperspectral Image Applications

in

International Conference on INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/COC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

Proceedings of
International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

ICI INDUSTRY 4.0 2019

Organised by

Vidharbha Youth Welfare Society's
Prof Ram Meghe Institute of Technology & Research,
Badnera - Amravati, India

29th Nov. - 1st Dec. 2019

ISBN 13 : 978-93-87278-67-7

Sponsored by

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

Vidarbha Youth Welfare Society's
Prof Ram Meghe Institute of Technology & Research
Badnera - Amravati, INDIA
Anjangaon Bari Raod, Badnera, (C.Rly), Amravati (M.S.) INDIA - 444 701
www.mitra.ac.in icstsd@mitra.ac.in

Proceedings of
International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

ICI INDUSTRY 4.0 2019

Organised by

Vidharbha Youth Welfare Society's
Prof Ram Meghe Institute of Technology & Research,
Badnera - Amravati, India

29th Nov. - 1st Dec. 2019

ISBN 13 : 978-93-87278-67-7

Sponsored by

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

Vidarbha Youth Welfare Society's
Prof Ram Meghe Institute of Technology & Research
Badnera - Amravati, INDIA
Anjangaon Bari Raod, Badnera, (C.Rly), Amravati (M.S.) INDIA - 444 701
www.mitra.ac.in icstsd@mitra.ac.in

Certificate

We are pleased to award this certificate to

Vaibhav J. Babrekar

for contributing / presenting the research paper entitled

A Review of Machine Learning for Hyperspectral Image Applications

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research, Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

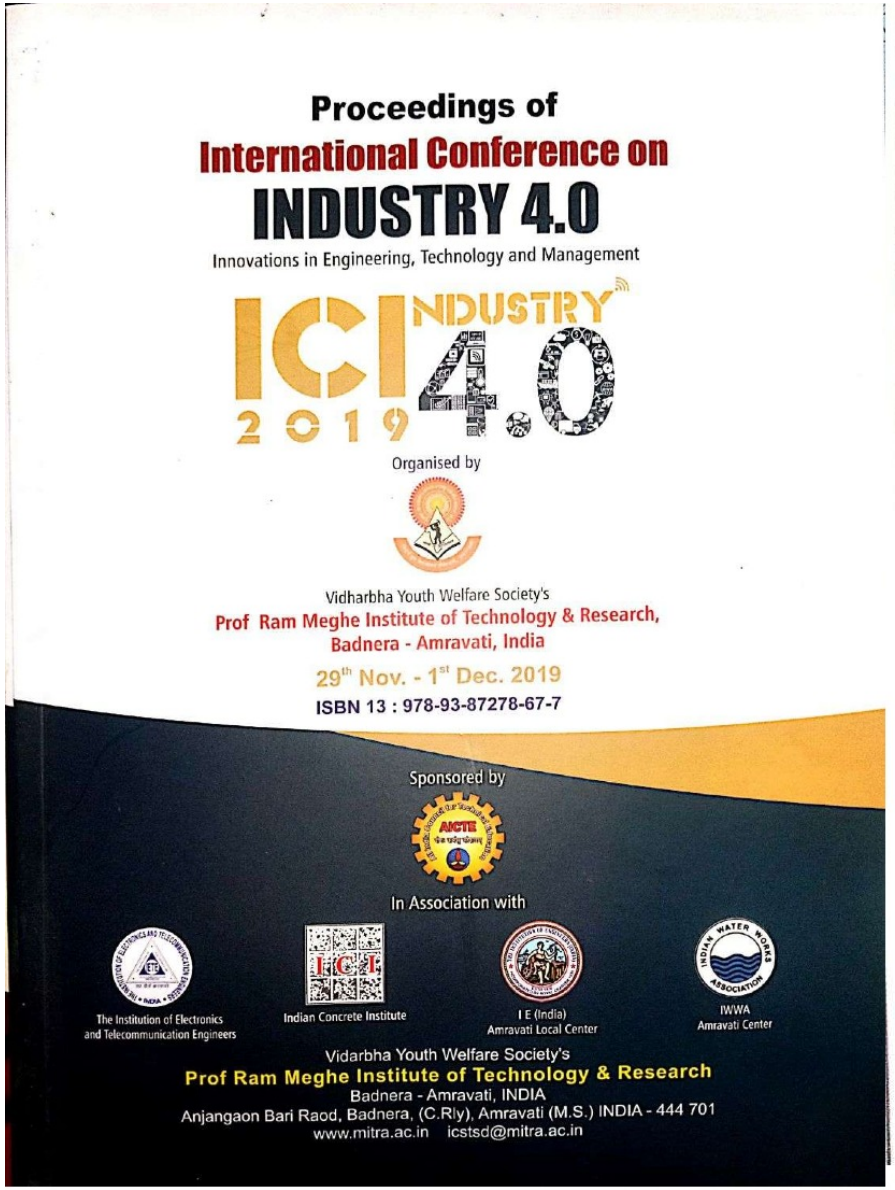
(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | Indian Water Works Association IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-268133



Certificate

We are pleased to award this certificate to

S. M. Deshmukh

for contributing / presenting the research paper entitled

Quality Analysis and Grading of Soybean Using Machine Learning

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

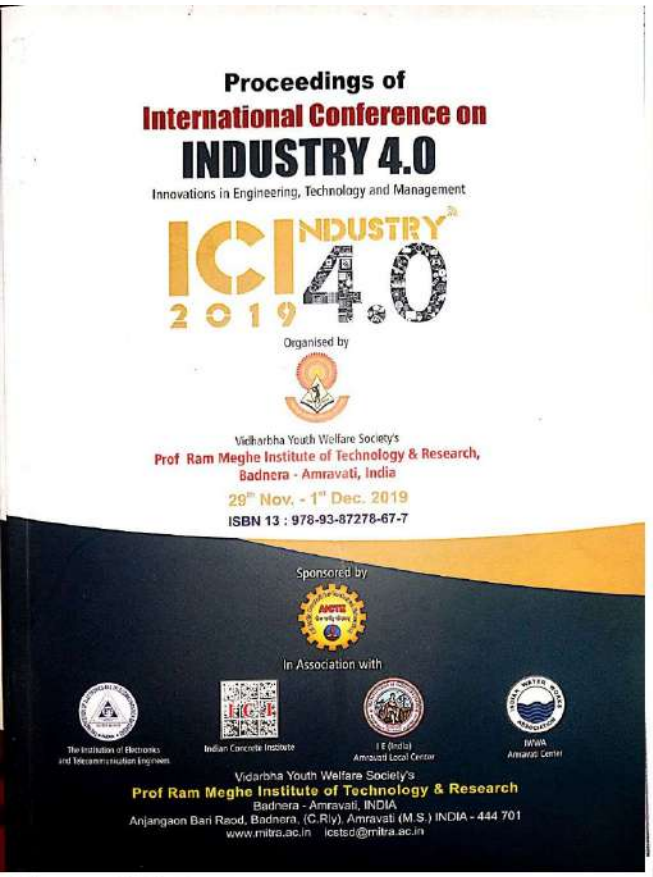
(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-268133



Certificate

We are pleased to award this certificate to

G. G. Patil

for contributing / presenting the research paper entitled

A Systematic Review of Automated Fabric Defect Defection Approaches

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers · Indian Concrete Institute · IE (India) Amravati Local Center · IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

Proceedings of

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

ICI INDUSTRY 4.0 2019

Organised by

Vidharbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research,

Badnera - Amravati, India

29th Nov. - 1st Dec. 2019

ISBN 13 : 978-93-87278-67-7

Sponsored by

In Association with

The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

I E (India) Amravati Local Center

IWWA Amravati Center

Vidarbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research

Badnera - Amravati, INDIA

Anjangaon Bari Raod, Badnera, (C.Rly), Amravati (M.S.) INDIA - 444 701

www.mitra.ac.in icstsd@mitra.ac.in

Certificate

We are pleased to award this certificate to

S. M. Deshmukh

for contributing / presenting the research paper entitled

A Systematic Review of Automated Fabric Defect Defection Approaches

in

International Conference on INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research, Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | Indian Water Works Association Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

Proceedings of
International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

ICI INDUSTRY 4.0 2019

Organised by

Vidharbha Youth Welfare Society's
Prof Ram Meghe Institute of Technology & Research,
Badnera - Amravati, India

29th Nov. - 1st Dec. 2019

ISBN 13 : 978-93-87278-67-7

Sponsored by

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

Vidarbha Youth Welfare Society's
Prof Ram Meghe Institute of Technology & Research
Badnera - Amravati, INDIA
Anjangaon Bari Raod, Badnera, (C.Rly), Amravati (M.S.) INDIA - 444 701
www.mitra.ac.in icstsd@mitra.ac.in

Certificate

We are pleased to award this certificate to

S.W. Mohod

for contributing / presenting the research paper entitled

Optical Recognition of Digital Characters Using Machine Learning

in

International Conference on INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research, Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers · Indian Concrete Institute · I.E. (India) Amravati Local Center · Indian Water Works Association Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

Proceedings of

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

ICI INDUSTRY 4.0 2019

Organised by

Vidharbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research,

Badnera - Amravati, India

29th Nov. - 1st Dec. 2019

ISBN 13 : 978-93-87278-67-7

Sponsored by

In Association with

The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

I E (India) Amravati Local Center

IWWA Amravati Center

Vidarbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research

Badnera - Amravati, INDIA

Anjangaon Bari Raod, Badnera, (C.Rly), Amravati (M.S.) INDIA - 444 701

www.mitra.ac.in icstsd@mitra.ac.in

Certificate

We are pleased to award this certificate to

M. D. Ingole

for contributing / presenting the research paper entitled

Optical Recognition of Digital Characters Using Machine Learning

in

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

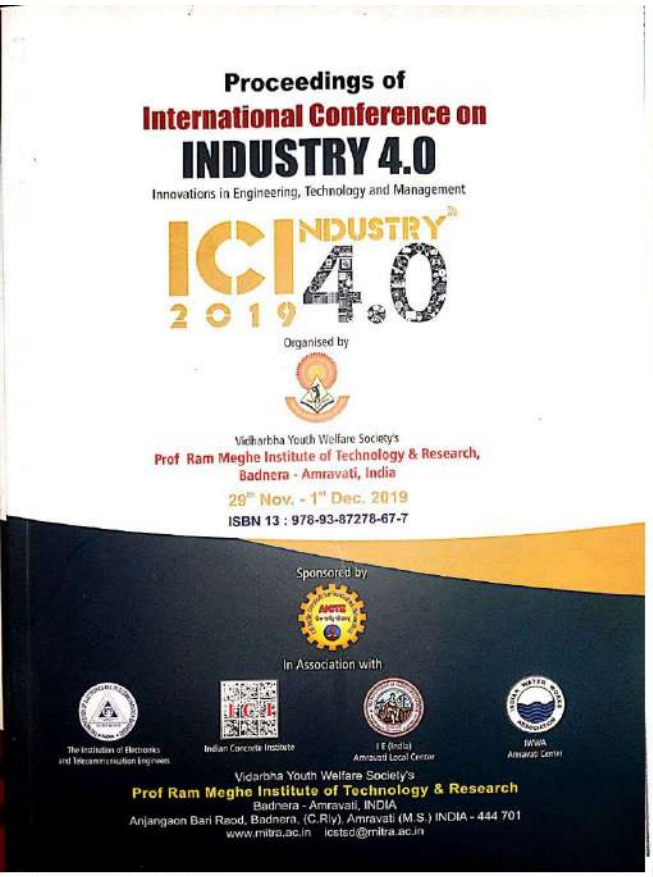
(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337



Certificate

We are pleased to award this certificate to

Vinay U. Kale

for contributing / ~~presenting~~ the research paper entitled

Digital Image Sharing By Using QR Code Technology

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701

www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com

Phone No.: +91 721-2681246, Fax: +91 721-2681337

ICCCE 2019 pp 197–203 | Cite as

Recapitulating the Violence Detection Systems

Snehil G. Jaiswal & Sharad W. Mohod

Conference paper | First Online: 02 August 2019

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 570)

Recapitulating the Violence Detection Systems

Snehil G. Jaiswal and Sharad W. Mohod

Abstract Human behavior is the response to the status of internal and external stimuli. It comes out in the form physical actions and observable emotions which may be associated with individual or group of person. Significant contents from human behavior are pulled out for video surveillance, feature extraction and for creating human computer interface. The present research work explores the video surveillance for realization of violence detection system. A novel framework is introduced through which a raw video stream is processed; subsequently the framework decodes correct semantics relating to the violence detection from the received raw image. In this paper, exhaustive literature survey is carried out which discloses up to date technology in the field of video surveillance.

Keywords Video surveillance · Video indexing · Biometrics · Telehealth and Human-Computer interaction

1 Introduction

Video surveillance in broad sense is monitoring of human behavior, activities and other significant changing information coming out in response to internal and external stimuli. Surveillance broadly achieved using closed circuit cameras, interception of electronic signals or through other possible means. Surveillance proficiently used for intelligence gathering, prevention of crime, protection of process and many more. With the recent development in the field of electronics and fabrication technology, now a days IOTs are proved to be a preferable tool for gathering information.

S. G. Jaiswal (✉)
Sant Gadge Baba Amravati University, Amravati, India
e-mail: Mr.Snehil.Jaiswal@gmail.com

S. W. Mohod
Department of Electronics and Telecommunication, Ram Meghe Institute of Technology & Research, Amravati, India
e-mail: sharadmohod@rediffmail.com

A. Kumar and S. Mozar (eds.), *ICCCE 2019*, Lecture Notes in Electrical

2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE)
24-25 Feb. 2020
DOI: 10.1109/ic-ETITE47903.2020

Biometric Jammer: A Prevention Of Fake Acquisition Of Fingerprint For Security Enhancement

Priya Deshmukh; Sharad Mehod

Publication Year: 2020 , Page(s): 1 - 5
Cited by: Papers (1)

Biometric Jammer: A Prevention Of Fake Acquisition Of Fingerprint For Security Enhancement.

Priya Deshmukh
Research scholar
Dept. of Electronics & Telecomm. Engg.
Prof. Ram Meghe Institute of Technology & Research
Badnera-Amravati, India
deshmukhpri03@rediffmail.com

Sharad Mohod
Professor
Dept. of Electronics & Telecomm. Engg.
Prof. Ram Meghe Institute of Technology & Research
Badnera-Amravati, India

2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE) | 978-1-7281-4142-8/531.00 ©2020 IEEE | 10.1109/ic-ETITE47903.2020.18

Abstract— **Biometric is a powerful tool use for the security in various domains such as mobile device security, law enforcement fields, civilian applications and military application. As the biometric has advantages properties and its wide application in various domains make it more popular also help to capture the commercial market. Even though the biometric system has to face the most common problem like is a spoofing attack and acquisition of biometric data. To detect and solve such attack problems involves use of a fake and liveness detection techniques in the system. Also to prevent the acquisition of image as it is the biometric valuable asset. The novel approach is put forward which suggested the use of fingerprint and palmprint as biometric data in the image form. The biometric data is pre-process and the further processing involves use of random forest classifier for the security enhancement and jam the spoofing attack on biometric system and asset.**

Keywords— Biometric, Fingerprint, Fake detection, Liveness detection, Palmprint, Spoofing, Security

I. INTRODUCTION

Now a day's fingerprint is mostly used biometric for authentication and identification purpose. Fingerprint has vast application area as it is used in military and civilian application. Application in which mostly fingerprint are used for security, authentication, or as an identification purpose. Some area of application are law enforcement, boarder control, customer services or residential and in financial services. Fingerprint is used in all this application area to enhance security and for authentication. It is also used in various offices works, and for device login purpose to secure data from hacking. One of the noticeable applications of the fingerprint authentication is the use of fingerprint in the smart phones. The use of fingerprint in smart phone has reach upto 70%. We have observed numerous cases where biometric login has been hacked. So to secure data we have to boost security by using biometric parameters.

Fingerprint is unique and capable to distinguish a person. Even the twin person has different fingerprint. This property of the fingerprint is used in the biometric identification and also for security of some application. Fingerprint formation study will help to understand the role of fingerprint in biometric identification, authentication and security. Fingerprint consists of loop, whorl and arch. This three ridges shape which forms patterns help to determine uniqueness of a person.

- Arches- In this type of pattern, the ridges entrance side and exit side are diffrent.5% of world's population is considered to possess arches in the fingerprints.
- Loops- This type of patterns has ridges entrance and exit on same side. 60 - 65% of whole population is considered to possess a loop on their fingerprints.
- Whorls- it consist of circles, there are numbers of loops present, or a combination of all types of patterns is involved. 30 - 35% of whole population is considered to possess a whorl on their fingerprints.

In the fingerprint biometric system, as the finger structure and the formation of fingerprint understanding is important like wise the understanding of the sensors use for the sensing of fingerprint as per requirement of the application is also important. Because of the developement and research in the sensors domain made it possible to implement biometric system. The new technology and the research in the sensor domain support biometric system to cover vast market. The market capturing is made possible due to new and advanced sensor technology and very well understanding of fingerprint properties. There are some advantages of fingerprint and sensors which make it suitable for security and authentication purpose. Also there are some drawbacks such as it vulnerable to the various attacks. Due to attacks of different types the security and authentication level is compromised. Solution to this problem is to take some preventive measures and there are some methodologies to prevent the attacks using various techniques.

This paper includes the various counter measures taken to secure the system using various methodologies is discuss. The information of sensors, attacks related to the methods is very helpful to defeat these attacks. It will help in the future to develop a powerful method to block these attacks and design the secure biometric system.

II. METHODS OF AUTHENTICATION

A problem of biometric is the liveness and the security. Real living person biometric properties are used to improve the access to the system and to increase the level of security of the system. But the fingerprint use as biometric is more likely to be attacked by using dead or altered fingers. The most studies have focused on easily affected features. Spoofing attacks using fake fingerprint i.e. 2-D or 3-D replicas of residual fingerprints and many more is possible In the paper by: K. Yamada et al [15], and Putte, Keuning [14].

2019 3rd International Conference on Recent Developments in Control, Automation & Power Engineering (RDCAPE)
10-11 Oct. 2019
DOI: 10.1109/RDCAPE47089.2019

Secure Data Carrying Methodology Through Digital Protection Wall Using Higher LSB Technique over Wireless Network

Devika Gawande, Sharad W. Mohod

Publication Year: 2019 , Page(s): 110 - 115

Secure Data Carrying Methodology Through Digital Protection Wall Using Higher LSB Technique over Wireless Network

Publisher: IEEE

Devika Gawande ; Sharad W. Mohod All Authors

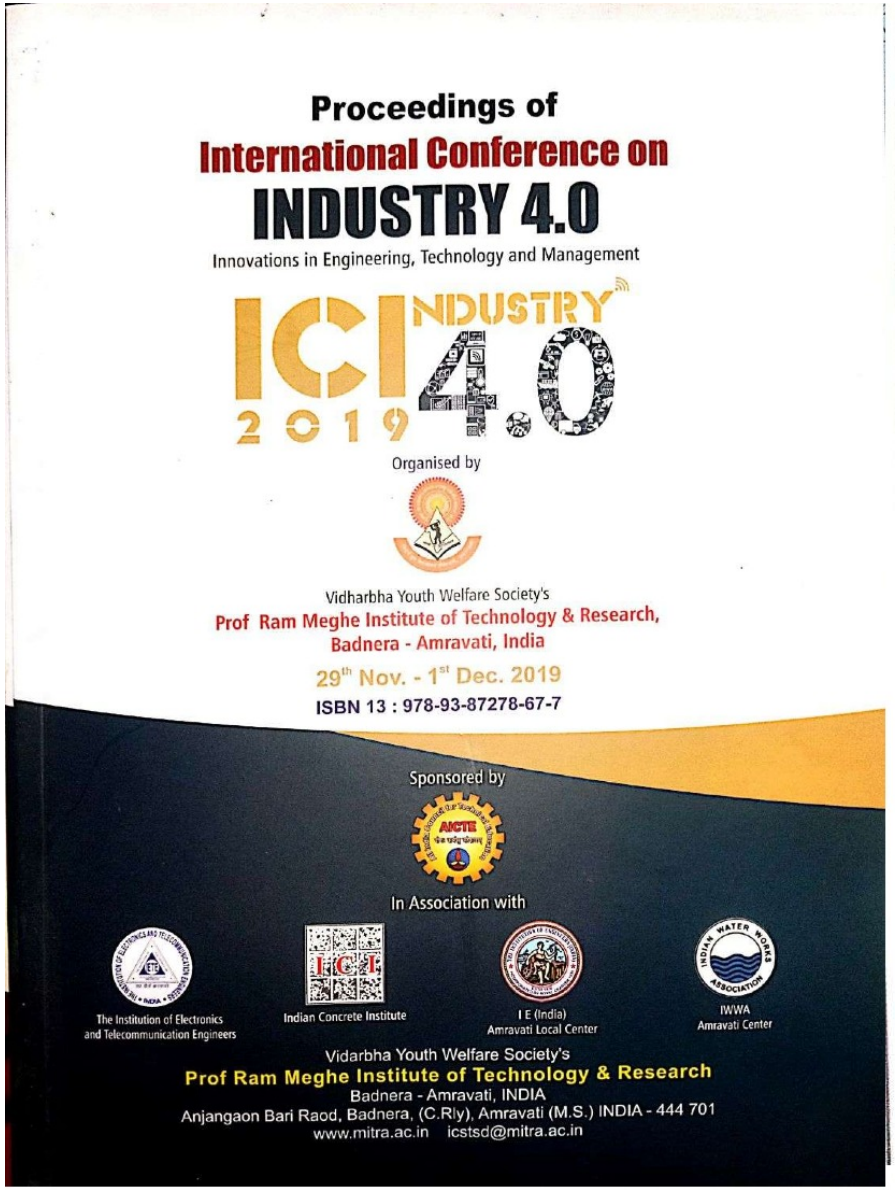
Abstract

Document Sections

Abstract: The secrecy and security of information has always been important to the people whenever it come to confidential data. Today there is advancement in internet technology a... View more

▸ Metadata

Abstract:
The secrecy and security of information has always been important to the people whenever it come to confidential data. Today there is advancement in internet technology and hence there has been increase in use of text and multimedia data transfer over internet. Thus this motivates us to add another layer of security to secrete data,which hides the confidential information within carrier. The carrier we used is the transfer of images that can hide secret information within the region of image. The paper proposes half toning visual cryptography technique with digital protection wall. Technique improves the



Certificate

We are pleased to award this certificate to

Preeti Lawhale

for contributing / presenting the research paper entitled

Tyre Pressure Monitoring System

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

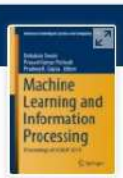
The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

IE (India) Amravati Local Center

IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337



Machine Learning and Information Processing pp 11–26 | Cite as

Stress Detection in Speech Signal Using Machine Learning and AI

N. P. Dhole & S. N. Kale

Conference paper | First Online: 24 March 2020

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1101)

Machine Learning and Information Processing pp 11–26

Stress Detection in Speech Signal Using Machine Learning and AI

N. P. Dhole & S. N. Kale

Conference paper | First Online: 24 March 2020

502 Accesses

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1101)

Abstract

Individual person's speech is verbal way to have conversation with others. Speech many time probably becomes to know that individual person is in stressful condition or normal. These can lead with appropriate assessment of the speech signals into different stress types to evoke that the individual person is in a fit state of mind. In this work, stress identification and classification algorithms are developed with the aid of machine learning (ML) and artificial intelligence (AI) together with MFCC feature extraction methods.

https://link.springer.com/chapter/10.1007/978-981-15-1884-3_2

Certificate

We are pleased to award this certificate to

Girish Patil

for contributing / presenting the research paper entitled

Review on various applications based on iButton (1-Wire Technology) and ZigBee Wireless Protocol

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

Proceedings of
International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

ICI INDUSTRY 4.0 2019

Organised by

Vidharbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research,

Badnera - Amravati, India

29th Nov. - 1st Dec. 2019

ISBN 13 : 978-93-87278-67-7

Sponsored by

In Association with

The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

I E (India) Amravati Local Center

IWWA Amravati Center

Vidarbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research

Badnera - Amravati, INDIA

Anjangaon Bari Raod, Badnera, (C.Rly), Amravati (M.S.) INDIA - 444 701

www.mitra.ac.in icstsd@mitra.ac.in

dramatically. Technology in general and computers specifically, since their introduction and dissemination into mainstream society, have benefited society, there is also a sinister, dark side to this technology when it is abused. In recent years, society has seen the rise in abuse of various kinds— personal or private and corporate, conducted with, through or by technology. Cyber threats are growing in number and complexity. Cyber warfare is becoming a reality. Therefore, it is important to continually study and improve all dimensions of cyber defense. For this purpose different systems, which deals with the detection of new unknown malicious attacks are reviewed in his paper. This paper deals with the comparative analysis of different detection techniques use in forensic analysis like unknown malicious microsoft office documents, geolocation, process memory investigation of the bitcoin clients electrum and bitcoin core, common database forensic investigation processes, network flow watermark for data exfiltration traceback, object-dependent methods to analyze the evidence of illegal activities, Identity-Based integrity auditing and data sharing, e-Supply chain digital forensic readiness systems, automated keyword extraction, dynamically analyzing and monitoring obfuscated android applications, analyzing chat logs using data mining and natural language processing techniques, forensics and deep learning mechanisms for botnets in Internet of Things, machine learning system for Cyber-Attack detection in Large-Scale Smart Grids, framework for detecting manipulated smartphone data, location-based social network homogenous network model etc. Both physical and remote attacks are considered in this analysis.

Keywords- Cyber Forensic, Malicious Attack, Cyber Defense, Forensic Analysis, Cyber-Attack Detection

CS-125

MERGING AI WITH BLOCKCHAIN FOR SECURE ENVIRONMENT FOR DATA SHARING

Ms. Yogita S. Alone, Dr. G. R. Bamnote

Abstract- Artificial intelligence and blockchain are among the most problematic advancements and will on a very basic level reshape how we live, work, and collaborate. Blockchain can be profoundly financially savvy in taking out the requirement for a brought together expert to administer and check cooperations and exchanges among a few members.In blockchain, each exchange is cryptographically marked and confirmed by all mining hubs which hold a copy of the whole record which contains anchored squares all things considered. This makes a safe, synchronized and shared timestamped records that can't be adjusted. Another noticeable field that is increasing enormous footing is counterfeit intelligence(AI) which enables a machine to have intellectual capacities to learn, surmise, and adjust dependent on information it gathers.

Keywords- Artificial Intelligence, Blockchain, Data sharing

CS-126

AN OVERVIEW AND APPROACH FOR HYBRID IMAGE ENCRYPTION AND COMPRESSION

Prof. Kalyani H. Deshmukh, Prof. Pratik S. Deshmukh

Abstract-In an image processing, for proving security to an image many encryption techniques are available. But most of the Encryption techniques mask some amount of data to the source image that always increases the size of image. Encryption makes it difficult to transmit an image through bandwidth constrained channel. To overcome this problem, Image Compression can be applied on the Encrypted image to reduce its size. This paper presents the analysis and overview of some prominent approaches which are relevant to the image encryption and compression. It also discusses an approach to perform joint encryption and compression on image. The scope of implementation for the derived idea exists. Some analytical analysis is also presented from the proposed approach implementation point of view.

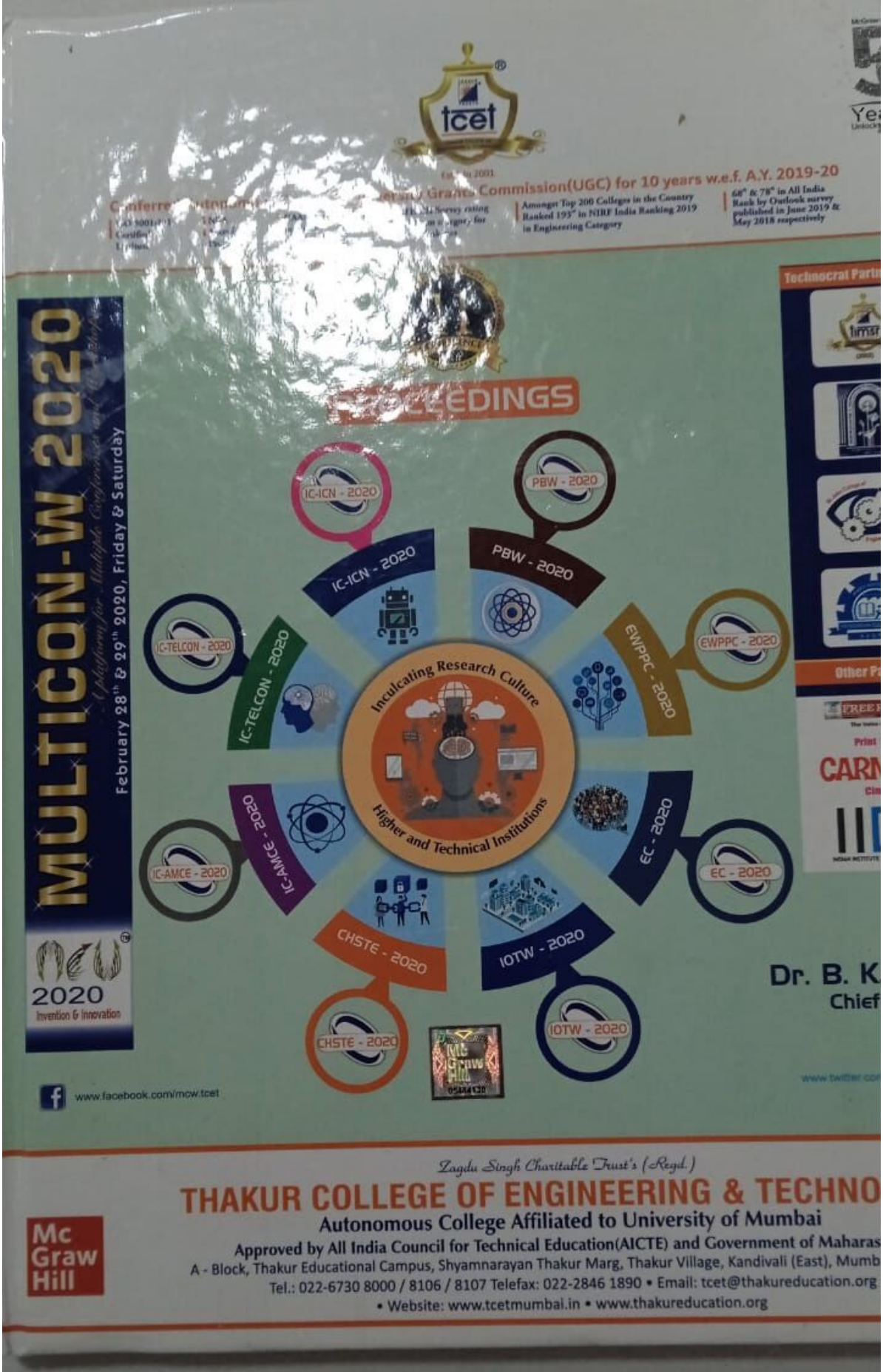
Keywords- image compression; image encryption; auxiliary image data; Huffman encoding

CS-127

REVIEW ON GENETIC ALGORITHM AND MACHINE LEARNING

Ms. Rupali A. Meshram, Dr. A. S. Alvi

Abstract- Genetic Algorithms (GAs) are a type of optimization algorithms which combine survival of the fittest and a simplified version of Genetic Process. Machine Learning provides ability to automatically learn and improve from experience without being explicitly programmed. It uses the data set to train the machine. Genetic Algorithms are used in various fields where Machine Learning algorithm also used. This study shows some examples where this both Genetic Algorithm and Machine learning Algorithms are used to get the best accuracy



Zagdu Singh Charitable Trust's (Regd.)

THAKUR COLLEGE OF ENGINEERING & TECHNO

Autonomous College Affiliated to University of Mumbai

Approved by All India Council for Technical Education(AICTE) and Government of Maharas

A - Block, Thakur Educational Campus, Shyamnarayan Thakur Marg, Thakur Village, Kandivali (East), Mumb

Tel.: 022-6730 8000 / 8106 / 8107 Telefax: 022-2846 1890 • Email: tcet@thakureducation.org

• Website: www.tcetmumbai.in • www.thakureducation.org

Contents

Deep Learning Variants and Application for Intrusion Detection

Maithili S. Deshmukh
Dept. of Information Technology,
PRMIT&R, Badnera
Amravati(M.S)
maithili11687@gmail.com

A. S. Alvi
Dept. of Information Technology,
PRMIT&R, Badnera
Amravati(M.S)
abrar_alvi@rediffmail.com

Abstract: **An important aspect of AI is Machine learning which provides systems able to learn automatically and improve the result from the past experiences. It is mainly required for identifying images from objects, convert of speech into text, to co-relate news items, posts or product with the user's interests and then based on the given inputs reach to a perfect results of search.**

All the applications where, output is given based upon the given input and past experience, makes a techniques known as Deep Learning (DL). It originates from machine learning which in turn is originated from artificial neural network. Deep learning represents data in hierarchical manner and is featured by multiple processing layers in it. There are many deep learning architectures developed till date and still are being made. This paper discuss various variants and use of DL for Intrusion Detection. Deep Learning can be used to identify the unusual patterns in network traffic hence identifying malicious users or intruders.

Keywords: **Intrusion Detection System, Deep Learning, Recurrent Neural Network(RNN), Convolutional Neural Network(CNN)**

I. INTRODUCTION

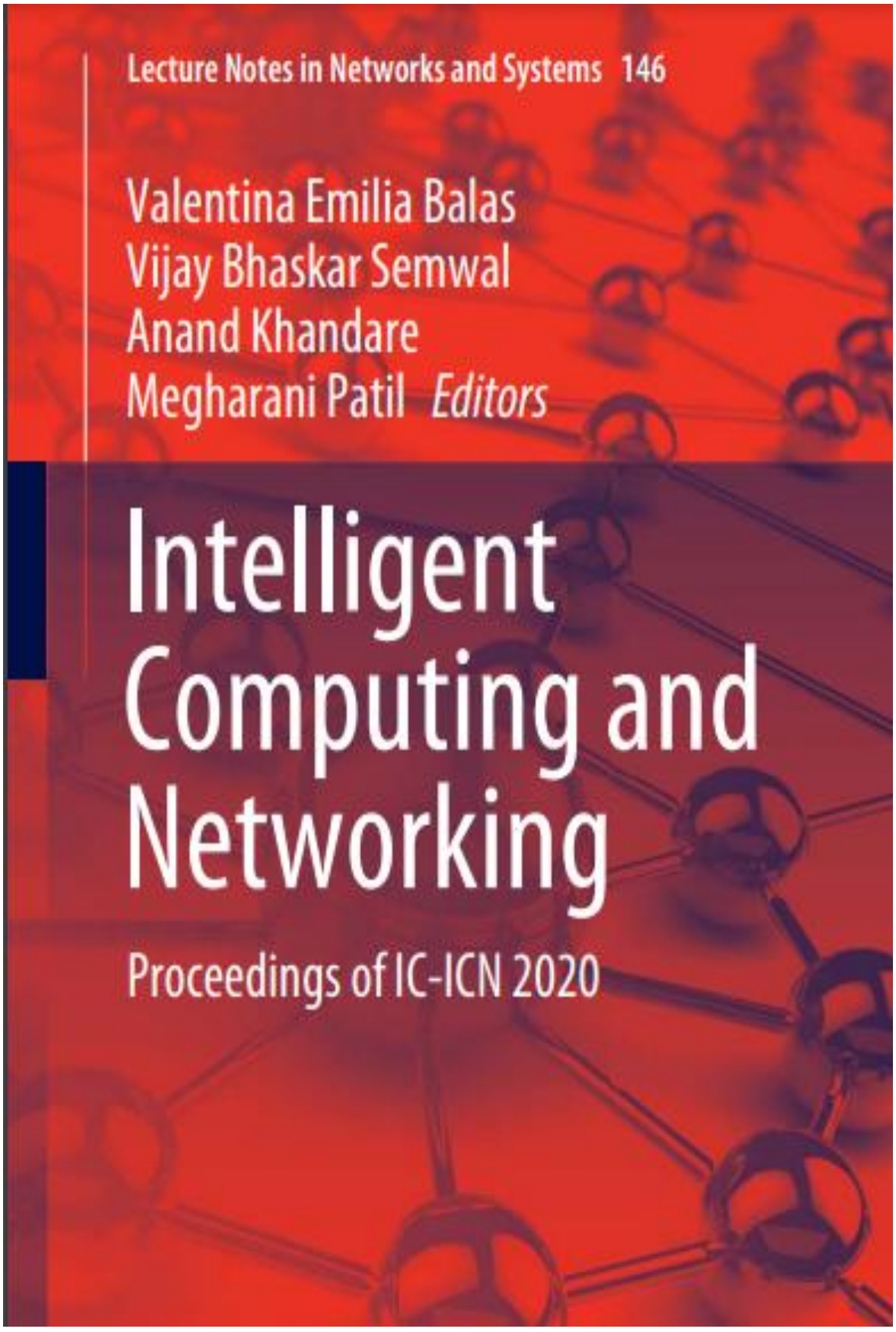
Deep Learning has advanced amazingly in last some years and various breakthroughs have been made in technology, which is being used by billions of people. Research related to the field of deep learning is growing rapidly and need continuous monitoring.

DL has successfully been adopted in different areas like automatic speech recognition (ASR), audio recognition, bioinformatics, computer vision (CV) and natural language processing. DL algorithms shows better results in terms of learning and classification in areas like speech, handwritten and character recognition. It's about automatically learning representations stacked in multiple layers which lies under the distribution of data that needs to be modelled.

In other words, algorithms for Deep Learning are able to separate the low and high level features automatically that are essential for classification. High level features, means those feature which hierarchically are dependent on other features. For instance, in context of computer vision, this implies that an algorithm connected with deep learning will learn its own low level representations from a raw image, then build representations that depend on those low level representations and successively repeat the same process for higher levels.

Due to some of these following aspects, Deep Learning is popular today:

- **Increase in Data Size:** Undoubtedly an era of Big Data has come. Today our activities are mostly digitized and recorded by computers or some sensors, Internet connectivity is available, and cloud storage is also available. As mentioned in one of the application of Deep Learning for Big Data, According to an industry-related applications of DL for Big Data thousands of exabytes are generated every year and a 20 times increase is expected in the coming decade.
- **Increase in Computing Power:** The advances in graphics processor unit (GPU), less cost of the hardware, the upgraded software and the rapid growth in network connectivity, all these helped in reducing the required execution time of Deep Learning algorithms. Say for example, the time that is needed to learn from a four-layer Deep Belief Network with millions of free parameters will be reduced drastically from several weeks to one day using Deep Learning architecture.
- **Advancement in research of Deep Learning:** Training method for each layer has been proven to reduce time and increase efficiency of Deep Learning algorithms.


Lecture Notes in Networks and Systems 146
Valentina Emilia Balas
Vijay Bhaskar Semwal
Anand Khandare
Megharani Patil Editors
Intelligent Computing and Networking
Proceedings of IC-ICN 2020

Development of Agriculture Field Using Machine Learning

Rupali A. Meshram and A. S. Alvi

Abstract Indian farmers are behind as compared to other countries just not because of economic condition, but it has many reasons like they are lacking in the latest technologies, unaware about soil analysis, plant diseases, water table, quality of seeds and most important is a traditional way of farming. Indian farmers are not aware of modern way of farming. Various machine learning techniques are developed to improve farming techniques. The farmers can improve fruits quality and crop production with the help of machine learning. In this paper, we review agriculture problems that solved by using machine learning and also provide common steps that used to identify the objects from image dataset. In a nutshell, smart farming is the need of today's farmer.

Keywords Machine learning · Deep learning · Big data · Deep convolutional neural networks (CNNs) · Support vector machine (SVM)

1 Introduction

Farmers are facing various crop problems like diseases on plant, fruits ripeness, diseases on flowers, etc. Machine learning techniques are used to solve agriculture problems. Machine learning is an imminent field of computer science which can be

2nd International E-Conference

May 19th & 20th, 2020

On "Environment Sustainability & Teaching Tools in COVID-19 Scenario"

In Association with....

VMS RESEARCH FOUNDATION
(VIRTUAL MULTIDISCIPLINARY STUDIES) RESEARCH FOUNDATION
(REG. No. NAGPUR/0000167/2019)

SEVADAL MAHILA MAHAVIDYALAYA
NAAC RE-ACCREDITED WITH 'A' GRADE

- Organized by -

INTERNATIONALLY ACCREDITED COLLEGE

JAGADAMBHA
COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL
Maharashtra (India)
NAAC ACCREDITED

CERTIFICATE

This Certificate is proudly presented to,

Mr. HARSHAL DEVIDAS MISALKAR

of

PROF RAM MEGHE INSTITUTE OF TECHNOLOGY AND RESEARCH BADNERA AMRAVATI

has actively participated in 2nd International E-Conference on "Environment Sustainability & Teaching Tools in COVID-19 Scenario (ICESTT-2020)" during May 19th & 20th, 2020 held at Jagadambha College of Engineering & Technology, Yavatmal, Maharashtra, India

He/She has presented Paper / Poster Entitled

"INTERNET OF THINGS IN DEVELOPMENT OF SMART CITIES WITH DATA MANAGEMENT & BLOCK CHAIN BASED SECURITY"

Dr. Shittal A. Watile
Secretery
JBGVS, Yavatmal

Dr. H. M. Baradkar
Convener & Principal
JCOET, Yavatmal

Dr. Pravin Charde
Principal
Sevadal Mahila Mahavidyalaya & Research Academy, Nagpur

Dr. Ashish P. Lambat
Organizing Secretery
ICSETT-2020

Dr. Vijay S. Wadhai
President
VMS Research Foundation, India

Proceedings of
International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

ICI INDUSTRY 4.0 2019

Organised by

Vidharbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research,

Badnera - Amravati, India

29th Nov. - 1st Dec. 2019

ISBN 13 : 978-93-87278-67-7

Sponsored by

In Association with

The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

I E (India) Amravati Local Center

IWWA Amravati Center

Vidarbha Youth Welfare Society's

Prof Ram Meghe Institute of Technology & Research

Badnera - Amravati, INDIA

Anjangaon Bari Raod, Badnera, (C.Rly), Amravati (M.S.) INDIA - 444 701

www.mitra.ac.in icstsd@mitra.ac.in

Certificate

We are pleased to award this certificate to

Himanshu Kale

for contributing / presenting the research paper entitled

Design of Model for Data Security in Cloud Computing Environment

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

I E (India) Amravati Local Center

IWWA Amravati Center

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

DESIGN OF MODEL FOR DATA SECURITY IN CLOUD COMPUTING ENVIRONMENT

Himanshu Kale
Information Technology Department,Prof.Ram Meghe Institute of Technology & Research Amravati,India

Pravin Nerkar
Information Technology Prof.Ram Meghe Institute of Technology & Research Amravati,India

Rupesh Hushangabade
Information Technology Prof.Ram Meghe Institute of Technology & Research Amravati,India

DOI: https://doi.org/10.17605/OSF.IO/B2PS8

Keywords: security, cloud computing, virtualization, distributed collaborative services, data encryption.

ABSTRACT

Using cloud storage, users can remotely store their data and enjoy the on-demand high-quality applications and services from a shared pool of configurable computing resources, without the burden of local data storage and maintenance. However, the fact that users no longer have physical possession of the outsourced data makes the data integrity protection in cloud computing a formidable task, especially for users with constrained computing resources. However, when outsourcing the data and business application to a third party causes the security and privacy issues to become a critical concern. Throughout the study at hand, the authors obtain a common goal to provide a comprehensive review of the existing security and privacy issues in cloud environments. This paper will discuss security issues in cloud computing and propound a new solution to secure data storage in the cloud environment.

PDF

PUBLISHED

20-07-2019

HOW TO CITE

Himanshu Kale, Pravin Nerkar, and Rupesh Hushangabade, "DESIGN OF MODEL FOR DATA SECURITY IN CLOUD COMPUTING ENVIRONMENT", *IEJRD - International Multidisciplinary Journal*, vol. 4, no. 5, p. 5, Jul. 2019.

More Citation Formats

ISSUE

MAKE A SUBMISSION

Focus & scopes

Submission

Manuscript template

Publication ethics

Guidelines for authors

Editorial team

...stract- In this p... posed for the diagnosis of liver disorder using Fuzzy Expert ...stem for medical diagnosis problems are reviewed. It also characterizes its advantages and problems in the ...ntext of the medical background. Literature survey indicates that human diagnostic capabilities are worse ...en it comes to accurate diagnosis. It is also found that Fuzzy expert diagnostic systems has shown promising ...sults.

...this paper, paradigm of Fuzzy Expert System is shortly introduced. The main problems of medical database ...d the basic approaches for diagnosing liver by using medical data are described. Additionally, the problem of ...ecting damaged liver and its results are given. The Fuzzy approach using Mamdani inference method is ...esented. Finally, as a case study of liver diagnosis rule based expert system with input and output membership ...nctions are described. The results presented in this paper are very promising.

CS-147

DESIGN OF MODEL FOR DATA SECURITY IN CLOUD COMPUTING ENVIRONMENT

Himanshu Kale, Pravin Nerkar, Rupesh Hushangabade

...stract- Using cloud storage, users can remotely store their data and enjoy the on-demand high-quality ...plications and services from a shared pool of configurable computing resources, without the burden of local

Certificate

We are pleased to award this certificate to

Nikhil S.Band

for contributing / presenting the research paper entitled

A Survey on different techniques in Artificial Intelligence that can be enforced in cybersecurity

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh
Coordinator, ICI4.0

Dr. D. S. Ingole
Convener, ICI4.0

Dr. A. P. Bodkhe
Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

IOSR Journal of Engineering (IOSRJEN) **www.iosrjen.org**
ISSN (e): 2250-3021, ISSN (p): 2278-8719
Vol. 10, Issue 1, January 2020, ||Series -III|| PP 45-48

A Survey on different techniques in Artificial Intelligence that can be enforced in cybersecurity

Nikhil S.Band, Shilesh P.Thakare, Avinash G.Mahalle
Assistant Professor Department. of Information Technology PRMIT & R,Badnera Amravati,India
Assistant Professor Department. of Information Technology PRMIT&R,Badnera Amravati,India
Assistant Professor Department. of Information Technology PRMIT&R,Badnera Amravati,India
Received 01January 2020; Accepted 15 January 2020

Abstract— AI is a branch of Computer Science concerned with the study and creation of computer systems.AI is a study of how to make computers do things which at a moment, people do better. Today businesses using modern technologies like cloud, big data, mobile, and social media. Although these technologies unlock a whole new set of capabilities and rewards for businesses, they also expose them to to hitherto unknown risks. when hackers would deploy adware, malware, Trojan viruses, phishing attacks or standard keyloggers on private systems for small gains, the focus of hackers and cybercriminals has shifted from individual users to big businesses and corporations since they make for more lucrative targets. But financial rewards are not the only motive behind cyber-attacks. Gaining access to sensitive data and using it for illegal purposes, cause enterprises far more damage, not only in terms of financial losses but also hurting the reputation they have painstakingly built over several years. now, before cyberattack occurs it will be prevented by using modern technology. This paper proposes techniques to prevent cyber attacks by the development of cybersecurity skills and how artificial intelligence can be implied to improve skills through the use of artificial neural networks and machine learning algorithms.
Keywords— Artificial Intelligence, Cybercrime, Cyber-attacks, Cyber Security, Artificial Neural Networks and Machine Learning Algorithms.

I. INTRODUCTION

Artificial intelligence (AI) is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction. In another word the importance of artificial intelligence is the ability to create a never-ending thought process and collective that could solve our problems. Accomplishing this by thinking of every possible solution. For modern enterprises, the road to digital transformation is fraught with several obstacles, most notably, those concerning the issue of cybersecurity. Today, when we talk about cybersecurity threats, it's more a question of 'when', rather than 'if', an attack will occur. This is true especially in a time when enterprises around the world are shifting their focus towards achieving greater mobility and connectivity of technologies with the help of cloud applications and infrastructures, Internet of Things (IoT), etc. to help them achieve the level of efficiency they require.

Artificial Intelligence (AI) is now at the center of the cybersecurity industry. Artificial intelligence is a term that is relatively over these days, but it actually refers to a few techniques that can be very valuable for security. It consists of machine learning algorithms that can identify and respond to threats as they occur. They can predict whether incoming data are potentially malicious or safe. Many attacks that happen in these days are not new. In fact, these attacks have happened to some other people in some other places before. Thus, if we establish a database that collects all the information that has ever occurred and feeds it to machine algorithms, attacks can be prevented before they occur.

In classification one, we can look at the features of the data to decide whether or not it is malicious. Other techniques involve detecting anomalies in the processing of data quickly in real time, so that incoming data is treated as a stream that collects every single point and then uses an algorithm that can track what standard of behavior that appears to be normal and looks at deviations that could mean that there has been a hack or intrusion. And then there is a third one which uses a technique called probabilistic programming. This is a set of computer languages that do not write a computer program with deterministic rules but can distribute probabilities and there is some very interesting research in analytics to actually do a whole genealogy of malware so that we can track the history of these infectious viruses to inform future responses.

Neural networks and deep learning algorithms can process a lot of data quickly and discern features of all sorts of things, whether the images or texts on the internet and use these features to decide whether or not the data is malicious. Using past data, they can learn and never make mistakes again. It is complex and difficult for

IOSR

IOSR-JEN

INTERNATIONAL ORGANIZATION OF SCIENTIFIC RESEARCH

e-ISSN : 2250-3021 Volume 10, Issue 1, Series-3 p-ISSN : 2278-8719

Contents

IOSR

INTERNATIONAL ORGANIZATION OF SCIENTIFIC RESEARCH

Volume 10, Issue 1, Series-3 January 2020

Contents

Jagadambha Bahuuddeshiya Gramin Vikas Sanstha's

JAGADAMBHA

COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Approved by AICTE, Recognized by DTE & Affiliated to S.G.B. Amravati University, Amravati

A NATIONAL E-CONFERENCE
ON
INNOVATIVE RESEARCH IN ELECTRONICS & TELECOMMUNICATION
(NCIRET-2020)

CERTIFICATE

This Certificate is given to Mr. Harshal D. Misalkar in appreciation of his participation in the National E-Conference on "Innovative Research in Electronics & Telecommunication - 2020"(NCIRET-2020) held at Jagadambha College of Engineering & Technology, Yavatmal organized by Electronics & Telecommunication Engineering Department on 15^{th} May 2020.

He is also Presented a Paper Title "Big Data Analytics with Block chain based Security".

Prof. V. R. Thakare	Prof. V. K. Barbudhe	Dr. A. D. Shelotkar	Dr. H. M. Baradkar
Co-Convenor	Co-Convenor	Convenor & HOD	Principal
NCIRET-2020	NCIRET-2020	E&TC Engg. Deptt.	JE, Yavatmal

Big Data Analytics with Block chain based Security

Harshal D. Misalkar
Department of Information Technology
PRMIT&R, Badnera-444701
Maharashtra, India
Email : harshalmisalkar@gmail.com

***Abstract*— Big data is more than storage of and access to data. Big data Analytics plays an vital role in making sense of the data and exploiting its value. But it's a momentous confront to learn and develop new types of machine learning algorithms. Machine learning algorithms can face challenge of proper, well managed dimensions scaling is, plus there are challenges of dealing with velocity, volume and many more machine learning algorithms. Here, in this paper , we are first see the sights of big data concept, bringing with an urgent need for advanced data acquisition, management, and analysis mechanisms, we have elaborated the concept of big data and draw attention to the four phases of big data that are engendering data, acquisition of data, storing this large data, and then analyzing data. The next segment of this paper, center of attention is on dealing with big data using machine learning (ML), and highlighted the three ML methods: supervised learning, unsupervised learning and reinforcement learning and its impact on big data.**

One of the most essential problems of Big Data is the lack of security and privacy protection of information in the Big Data. In this paper we focus on reinforcing the security of Big Data platforms by proposing a blockchain-based access control framework.

***Index Terms*—Big Data, Machine Learning, Supervised learning, unsupervised learning. Reinforcement learning.**

I. INTRODUCTION

The emerging big-data paradigm, owing to its broader impact, has strongly transformed our society and will continue to attract diverse attentions from technological experts as well as the public in general. It is palpable that we are living a data deluge era that is evidenced by the absolute volume of data from a variety of sources and its growing rate of generation. For instance, an IDC report [1] predicts that, from 2005 to 2020, the global data volume will grow by a factor of 300, from 130 exabytes to 40,000 exabytes, representing a double growth every two years. The term of ``big-data" was coined to capture the profound meaning of this data-explosion trend and indeed the data has been touted as the new oil, which will transform our society.

Machine learning can summarize as a "Study by which computer develop the ability to learn itself without having explicitly programmed".

Science of algorithms says that, the algorithms "learn" from the dataset, rectifying patterns for instance, and then automates output- whether that's sorting data into categories or making predictions on future outputs.

Machine Learning is a era, defined any activity that involves automated learning from data or experience. At the core of machine learning is the ability of a machine to enhance the performance of particular tasks through being exposed to data. Machine learning gathers the knowledge from the data it is exposed to and then applies this knowledge to deliver predictions about the new data which is previously unseen data [1] [7].

The quality of the predictions delivered by machine learning model depends on a number of factors:

- Well the relevant knowledge is represented by the module.
- Affectivity to complete and learn data.
- Easier way to forecast the problem in general.

Most of the times, machine learning became a very good technology at certain recognition, identification or categorization tasks like fingerprint detection, voice or faces recognition [1][4]. Likewise recent clustering algorithms machine learning is very good at automatically grouping people according to their profiles, identify market segments, forming communities, and even segment images or distinguish genes [1], [6]. The successful application of machine learning models to these problems was possible not only thanks to the learning model ingenuity but primarily thanks to the very careful data with the properties like transformative, identifiable, and generation of multidimensional that made the learning problem discriminative enough to make easy distinctions between the predicted targets based on the data [1], [2], [6].

Depending upon the depth of knowledge that is available for learning, machine learning models can be categorized into supervised, unsupervised and semi-supervised learning algorithms [1], [3], [5], [7].

Big data is categories into two types: Structured data and Semi structured data. Structured data are sequence of words and numbers that can be easily categorized and analyzed. These data are generated by things like network sensors embedded in electronic devices, smart phones, and global positioning system (GPS) devices. Structured data also include

Certificate

We are pleased to award this certificate to

Nikhil S. Band

for contributing / presenting the research paper entitled

Hardware Implementation of Image Enhancement Techniques in Spatial Domain

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research, Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly), Amravati (M.S.) INDIA - 444701

www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com

Phone No.: +91 721-2681246, Fax: +91 721-2681337

I E J R D

E-ISSN - 2349-0721
SJIF- 6.03

Volume 4 -Issue 6

INTERNATIONAL ENGINEERING JOURNAL FOR RESEARCH & DEVELOPMENT

www.iejrd.com
ceditor@iejrd.com
9975783998

International Engineering Journal For Research & Development

Vol.4
Issue 6

E-ISSN NO:-2349-0721

Impact factor : 6.03

HARDWARE IMPLEMENTATION OF IMAGE ENHANCEMENT TECHNIQUES IN SPATIAL DOMAIN

Avinash G. Mahalle
Assistant Professor
(Department of EXTC)
PRMIT&R-Badnera
Amravati, India
agmahalle10@gmail.com

Nikhil S. Band
Assistant Professor
(Department of IT)
PRMIT&R-Badnera
Amravati, India
nikhil.band08@gmail.com

Chetan W. Rawarkar
Assistant Professor
(Department of EXTC)
PRMIT&R-Badnera
Amravati, India
chetanrawarkar@gmail.com

Abstract-

Image Enhancement is the process of improving the quality and the information content of original image so that resultant image becomes more suitable for display or further analysis. The main objective of image enhancement is to make image appropriate for the certain applications. Image enhancement techniques have been widely used in many applications of image processing where the subjective quality of images is important for human interpretation. Spatial domain refers to the image plane itself and is based on direct manipulation of pixels in an image. In this paper, various point processing and spatial filtering techniques are discussed in spatial domain. These techniques are implemented using reconfigurable hardware platform of field programmable gate array (FPGA). System Generator is used in order to integrate Xilinx FPGA design process with MATLAB/Simulink. It provides a high-level description to easily realize the complex computations of a digital image.

Keywords—Image Enhancement, Point Processing Techniques, Spatial Filtering, Xilinx System Generator, Spartan-3E FPGA

INTRODUCTION

The field of image analysis research has undergone a rapid evolution over the past decade. Image processing nowadays has various applications in the fields of medical imaging, weather meteorology, machine learning, computer vision and even artificial intelligence. The main objective of image processing is to improve the quality of the image for human interpretation and analysis [1]. Image enhancement techniques serve as a preprocessing step in various image processing applications such as segmentation, object detection and recognition. These techniques change an image to make it perfect to human observer or to make it enhanced for an automatic computer algorithm. The main objective is to prominence certain features of interest in an image for advance analysis and image display. It is a method used to increase the visual quality of image due to non-ideal acquisition method. The processed images results are more suitable than the original image for a specific application [2].Spatial domain techniques directly deal with the image pixels. The pixel values are manipulated to achieve desired enhancement. The main advantage of spatial domain techniques is that they are conceptually simple to understand and their complexity is low which suits real-time implementations [3].The versatility of spatial filtering is more compared to transform domain as it can be used for both linear and nonlinear filtering. Spatial domain filtering deals with various practical applications like image sharpening, blurring and noise removal [4]. The need to process the image in real time is time consuming and leads to the only method of implementing the algorithm at hardware level. FPGAs are inherently parallel; this gives the speed to those real time applications while retaining the programmable flexibility of software at a relatively low cost [5]. Xilinx System Generator (XSG) allows common environment for MATLAB/Simulink and Integrated System Environment (ISE) Design Suit. XSG provides an efficient way of designing complex algorithms. It automatically generates required hardware description language along with test bench. Field Programmable Gate Array (FPGA) is used for prototyping purpose. Spartan-3E Starter Kit can be programmed by downloading generated bit stream file [6].

Certificate

We are pleased to award this certificate to

S. V. Dhopte

for contributing / presenting the research paper entitled

A Review on Secured image sharing and privacy preserving in Social Network

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers | Indian Concrete Institute | I E (India) Amravati Local Center | IWWA Amravati Center

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

International Engineering Journal For Research & Development

Vol.4
Issue 5

E-ISSN NO:-2349-0721

Impact factor : 6.03

A NOVEL APPROACH TO ARTIFICIAL INTELLIGENCE FOR EFFECTIVE KIND OF CYBER SECURITY

Gaurav K. Wadnere
Department of Information Technology
P.R.M.I.T & R, Badnera
Amravati, INDIA
gauravwadnere@gmail.com

Aditya O. Sable
Department of Computer Science & Engineering
P.R.M.I.T & R, Badnera
Amravati, INDIA
adityasable89@gmail.com

Smeet D. Thakur
Department of Information Technology
P.R.M.I.T & R, Badnera
Amravati, INDIA
smeet87@gmail.com

Abstract-

Cyber infrastructures are vastly vulnerable to intrusions and other threats. Physical devices and human interference are not sufficient for monitoring and protection of these infrastructures. Cyber security is the main concern for today's digital world, there are still uncertainties about the impact of AI. Corporates and government sectors are trying to master AI and Machine Learning for the protection of data and creating more opportunities in the respective field. AI permits you to automate the finding of threat and combat even without the involvement of the humans. Controlling your data to stay more secure than ever. Since AI is totally machine language driven, it gives surety you complete error-free cyber-security services. Researchers have also started to put more resources than ever for boosting AI driven technologies. The most important component used to detect cyber attacks or malicious activities is the intrusion detection system (IDS). Artificial intelligence plays a vital role in detecting intrusions and widely considered as the better way in adapting and building IDS. This paper focuses on different current AI techniques that can be used in support of Intrusion Detection Systems to provide better Intrusion Detection & Prevention.

***Keywords*— Artificial Intelligence, Network Intrusion Detection and Prevention, Machine Learning, Cyber security, Network security**

I. INTRODUCTION

The Internet has become a part of daily life and an important tool today. It helps people in many areas, such as business, entertainment and education, etc. In particular, Internet has been used as an main component of business models. For the business process, both business and customers apply the Internet application such as website and e-mail on business activities. Thus, information security of using Internet as the media needs to be carefully concerned. Intrusion detection is one most important research problem for business and personal networks. As there are a lot of risks of network attacks under the Internet environment, there are various systems designed to block the Internet-based attacks. Mainly, intrusion detection systems (IDSs) aid the network to resist external attacks. That is, the goal of IDSs is to provide a wall of protection to confront the attacks of computer systems on Internet. IDSs can be used on detect difference types of malicious network communications and computer systems usage, whereas the conventional firewall cannot perform this task. Intrusion detection is based on the assumption that the behavior of intruders different from an authorized user. In general, IDSs can be divided into two groups: anomaly and misuse (signature) detection based on their detection approaches. Anomaly detection tries to find out whether deviation from the established normal usage patterns can be flagged as intrusions. On the other hand, misuse detection uses patterns of well-known attacks or weak spots of the system to recognize intrusions. Numbers of anomaly detection systems are developed based on several different machine learning techniques. For example, some studies apply single learning methods, such as neural networks, genetic algorithms, support vector machines, etc. On the other hand, a few systems are based on combining different learning techniques, such as hybrid or ensemble techniques. In particular, these methods are developed as classifiers, which are used to classify or recognize whether the incoming Internet access is the normal access or an attack [1].

Security personnel and everyone who has a accountability for providing protection for a network and its users, have serious concerns about intruder attacks. Network administrators try to provide a protected environment for users' accounts, network resources, personal files and passwords. Attackers may behave in two

129

Shri Shivaji Education Society, Amravati's

Shri Shivaji Science College, Amravati

Accredited "A" Grade with CGPA 3.13

Identified as UGC-CPE, DST-FIST, SGBAU-Lead College

National Conference on

Innovative Research in Science & Technology

NCIRST-2019

Organized by the Department of Chemistry

17 & 18, December, 2019

Certificate

This is to certify that ***Amit A. Jadhao*** *of* ***Ram Meghe Enng. College, Amravati***

has presented a research paper entitled ***"Green synthesis, morphology and antimicrobial activity of copper nanoparticles, A Review"*** *in the National Conference on* ***"Innovative Research in Science & Technology"****, held at this college on 17 & 18 December, 2019 in collaboration with* **JETIR.**

SHRI SHIVAJI SCIENCE COLLEGE, AMRAVATI

2019 IYPT

SCIENCE - SOCIETY - WORLD - SUSTAINABLE DEVELOPMENT

Dr. A. S. Burghate
Organizing Secretary
NCIRST - 2019

Dr. G. N. Chaudhari
Convener, NCIRST - 2019 &
Professor & Head
Department of Chemistry

Dr. V. G. Thakare
Chairman, NCIRST - 2019 &
Principal
Shri Shivaji Science College, Amravati

UGC, CSIR, DST, DRDO, ACT, SGBAU & AUCTA *Sponsored*

Certificate

We are pleased to award this certificate to

Niraj A. Dakhore

for contributing / presenting the research paper entitled

Experimental Investigation of Solar Air Heater by Varying Ribs in Free Convection

in

International Conference on
INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research, Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh
Coordinator, ICI4.0

Dr. D. S. Ingole
Convener, ICI4.0

Dr. A. P. Bodkhe
Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

I E (India) Amravati Local Center

IWWA Amravati Center

PRMIT&R, Badnera - Amravati
Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

Certificate

We are pleased to award this certificate to

Niraj A. dakhore

for contributing / presenting the research paper entitled

Analysis of spur gear by using composite material

in

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh
Coordinator, ICI4.0

Dr. D. S. Ingole
Convener, ICI4.0

Dr. A. P. Bodkhe
Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers

Indian Concrete Institute

I E (India) Amravati Local Center

IWWA Amravati Center

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

1st International Conference

of

Maharashtra State Commerce Association

Universities Commerce & Management Teachers Association,Gujarat

Organized by

Shegaon Education Society`s

Seth G.B.Murarka Arts And Commerce College,Shegaon Dist - Buldhana (M.S.)

Affiliated to Sant Gadge Baba Amravati University,Amravati

Re-accredited by NAAC Bangalore "B" with C.G.P.A.2.77

CERTIFICATE

This to certify that Dr./~~Prof~~. Gauri S. Kalmegh

has Participated / ~~Presented~~ a Paper entitled "Working Capital Management : An Overview At Basic Concept helpful Towards Business Growth"

in the 1st International Conference of Maharashtra State Commerce Association & Universities Commerce & Management Teachers Association,Gujarat on "**Role of Commerce, Management and Technology in Modern World**" Organized by Seth G.B.Murarka Arts And Commerce College,Shegaon Dist - Buldhana (M.S.) on 29th- 30th Novmber 2019 held at Shegaon.

Dr. B. B. Taywade	Dr. T. A. Shiware	Dr. G. Y. Shitole	Dr. Anilkumar L. Rathod	Dr. Rajkumar Sharma
President	Executive President	General Secretory	Conference Secretary	Conference Coordinator
Maharashtra State Commerce Association	Maharashtra State Commerce Association	Maharashtra State Commerce Association	Principal, G.B.M.C.,Shegaon	G.B.M.C.,Shegaon

Certificate

We are pleased to award this certificate to

Gauri Sarang Kalmegh

for contributing / presenting the research paper entitled

Role of Microfinance Institutions in Rural Development – Overview of Relationship, Avenues &

in

International Conference on

INDUSTRY 4.0

Innovations in Engineering, Technology and Management

29th Nov. to 1st Dec. 2019

Organised by

Vidharbha Youth Welfare Society's

Prof. Ram Meghe Institute of Technology & Research,

Badnera - Amravati

Sponsored by

All India Council for Technical Education, New Delhi

(vide letter no. F.No. 67-78/RIFD/GOC/Policy-1/2017-18 dated 22.04.2019)

Dr. S. J. Deshmukh	Dr. D. S. Ingole	Dr. A. P. Bodkhe
Coordinator, ICI4.0	Convener, ICI4.0	Chairperson, ICI4.0

In Association with

The Institution of Electronics and Telecommunication Engineers · Indian Concrete Institute · I E (India) Amravati Local Center · IWWA Amravati Center

PRMIT&R, Badnera - Amravati

Anjangaon Bari Road, Badnera (C.Rly),
Amravati (M.S.) INDIA - 444701
www.mitra.ac.in/ici4.0 icindustry4.0@gmail.com
Phone No.: +91 721-2681246, Fax: +91 721-2681337

IQAC

CMCS

NAAC
National Assessment & Accreditation Council
CGPA 2.21 (B)

Certificate

Sr. No.

Organized by

College Of Management And Computer Science, Yavatmal

In Collaboration With

Smt. Nankibai Wadhwani Kala Mahavidyalay, Yavatmal.

27th & 28th December 2019

This is to certify that

Shri. / Smt. / Ku. / Dr. / Prof Gauri S. Kalmegh

of Prof. Ram Meghe college has actively participated in the two days International Conference organized by College Of Management And Computer Science, Yavatmal in Collaboration with Smt. Nankibai Wadhwani Kala Mahavidyalaya, Yavatmal on **"Academic Research and Innovation in Teaching & Arising Inclination in Professional Education."** He/She has presented / published a paper on An enquiry into the employees Resistance to organizational change

Prakash H. Jajoo
President
Harikisan Jajoo Education Sanstha

Jagdish G. Wadhwani
President
Yavatmal Zilla Vikas Samiti, Yavatmal

Dr. Jayant M. Chatur
Principal
Smt. Nankibai Wadhwani Kala Mahavidyalaya

Prof. Ritesh D. Chandak
Principal
College Of Management And
Computer Science, Yavatmal

IQAC

CMCS

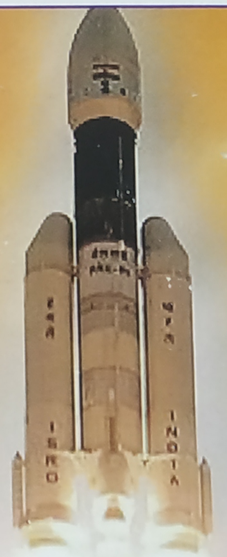
NAAC

National Assessment & Accreditation Council

CGPA 2.21 (B)

Certificate

Sr. No.



Organized by

College Of Management And Computer Science, Yavatmal

In Collaboration With

Smt. Nankibai Wadhwani Kala Mahavidyalay, Yavatmal.

27th & 28th December 2019

This is to certify that

Sh. / Sm. / Ku. / Dr. / Prof Kamini S. Bijawe

of Prof. Ram meghe college has actively participated in the two days International Conference organized by College Of Management And Computer Science, Yavatmal in Collaboration with Smt. Nankibai Wadhwani Kala Mahavidyalaya, Yavatmal on **"Academic Research and Innovation in Teaching & Arising Inclination in Professional Education."** He/She has presented / published a paper on An enquiry into the employee's Resistance to Organizational change

Prakash H. Jajoo
President
Harikisan Jajoo Education Sanstha

Jagdish G. Wadhwani
President
Yavatmal Zilla Vikas Samiti, Yavatmal

Dr. Jayant M. Chatur
Principal
Smt. Nankibai Wadhwani Kala Mahavidyalaya

Prof. Ritesh D. Chandak
Principal
College Of Management And
Computer Science, Yavatmal

One Day National Conference
on
"NEO INDIAN ECONOMICAL ISSUES AND DEVELOPMENTS" (NIEID - 2020)

Organized by

Shri Datta Prasadik Shikshan Prasarak Mandal's

L. R. B. Arts, Commerce & Smt. S. R. Bharti Science College, Arni, Dist.Yavatmal.

(Affiliated to S.G.B.Amravati University, Amravati & NAAC Accredited)

Department of Commerce & IQAC

24th February 2020

CERTIFICATE

This is to certify that, Prof./Dr./Mr./Miss. Miss. Gauri S. Kalmegh of Prod. R.M.I.T. & Research, Badnera

has succesfully participated in One Day National Conference on "NEO INDIAN ECONOMICAL ISSUES AND DEVELOPMENTS" (NIEID - 2020) organized by Department of Commerce & IQAC, L. R. Bharati Arts, Commerce & Smt. S. R. Bharati Science College, Arni, Dist.Yavatmal on dated 24/2/2020.

He / She has presented a paper on "A Study On Cash, Less-cash and Cash-less-economy- The Indian Scenario"

Principal G. M. Agrawal
Chief Organizer

Prof. Vinit R. Mahure
Convener

1st International Conference

of

Maharashtra State Commerce Association

Universities Commerce & Management Teachers Association,Gujarat

Organized by

Shegaon Education Society`s

Seth G.B.Murarka Arts And Commerce College,Shegaon Dist - Buldhana (M.S.)

Affiliated to Sant Gadge Baba Amravati University,Amravati

Re-accredited by NAAC Bangalore "B" with C.G.P.A.2.77

CERTIFICATE

This to certify that Dr./Prof. **S. B. Diwan**

has Participated / Presented a Paper entitled *Consumer Decision Making - A Descriptive Study*

in the 1st International Conference of Maharashtra State Commerce Association & Universities Commerce & Management Teachers Association,Gujarat on **"Role of Commerce, Management and Technology in Modern World"** Organized by Seth G.B.Murarka Arts And Commerce College,Shegaon Dist - Buldhana (M.S.) on 29th - 30th Novmber 2019 held at Shegaon.

Dr. B. B. Taywade	Dr. T. A. Shiware	Dr. G. Y. Shitole	Dr. Anilkumar L. Rathod	Dr. Rajkumar Sharma
President	Executive President	General Secretory	Conference Secretary	Conference Coordinator
Maharashtra State Commerce Association	Maharashtra State Commerce Association	Maharashtra State Commerce Association	Principal, G.B.M.C.,Shegaon	G.B.M.C.,Shegaon

IQAC

CMCS

B NAAC
National Assessment & Accreditation Council
CGPA 2.21 (B)

Sr. No.

Certificate

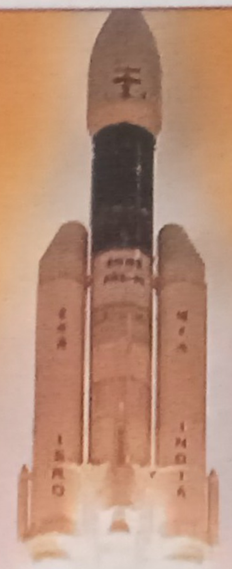
Organized by

College Of Management And Computer Science, Yavatmal

In Collaboration With

Smt. Nankibai Wadhwani Kala Mahavidyalay, Yavatmal.

27th & 28th December 2019



This is to certify that

Shri. / Smt. / Ku. / Dr. / Prof Shrikant B. Diwan

of Prof Ram Meghe Institute has actively participated in the two days International Conference organized by College Of Management And Computer Science, Yavatmal in Collaboration with Smt. Nankibai Wadhwani Kala Mahavidyalaya, Yavatmal on **"Academic Research and Innovation in Teaching & Arising Inclination in Professional Education."** He/She has presented / published a paper on Celebrity Endorsement : A Review of its Effectiveness in Advertisements

Prakash H. Jajoo
President
Harikisan Jajoo Education Sanstha

Jagdish G. Wadhwani
President
Yavatmal Zilla Vikas Samiti, Yavatmal

Dr. Jayant M. Chatur
Principal
Smt. Nankibai Wadhwani Kala Mahavidyalaya

Prof. Ritesh D. Chandak
Principal
College Of Management And
Computer Science, Yavatmal

IQAC

NAAC
National Assessment & Accreditation Council
CGPA 2.21 (B)

Certificate

Sr. No.

Organized by

College Of Management And Computer Science, Yavatmal

In Collaboration With

Smt. Nankibai Wadhwani Kala Mahavidyalay, Yavatmal.

27th & 28th December 2019

This is to certify that
Shri. / Smt. / Ku. / Dr. / Prof. Yuvaraj R. Vaidya
of Prof. Ram Meghe Institute has actively participated in the two days International Conference organized by College Of Management And Computer Science, Yavatmal in Collaboration with Smt. Nankibai Wadhwani Kala Mahavidyalaya, Yavatmal on **"Academic Research and Innovation in Teaching & Arising Inclination in Professional Education."** He/She has presented / published a paper on Skill Gap Bridging : A way Towards Development of Employability

Prakash H. Jajoo President Harikisan Jajoo Education Sanstha	**Jagdish G. Wadhwani** President Yavatmal Zilla Vikas Samiti, Yavatmal	**Dr. Jayant M. Chatur** Principal Smt. Nankibai Wadhwani Kala Mahavidyalaya	**Prof. Ritesh D. Chandak** Principal College Of Management And Computer Science, Yavatmal