International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 12 | December - 2022 Impact Factor: 7.185 ISSN: 2582-3930

ARTIFICAL NEURAL NETWORKS

Dr CK Gomathy, Assistant Professor, Department of CSE, SCSVMV Deemed to be University, India

Mr.T. Giridhar Reddy, Mr. Y. Praveen Kumar

UG Scholars, Department of CSE, SCSVMV Deemed to be University, India

ABSTRACT

This is a survey of neural network applications within the real-world situation. It provides a taxonomy of artificial neural networks (ANNs) and furnishes the reader with data of current and rising trends in ANN applications analysis and space of focus for researchers. The study assesses ANN contributions, compare performances and critiques strategies. The study found that neural-network models like feedforward and feedback propagation artificial neural networks is performing arts higher in its application to human issues. Therefore, we tend to plan feedforward and feedback propagation ANN models for analysis focus supported information analysis factors like accuracy, process speed, latency, fault tolerance, volume, measurability, convergence, and performance. Moreover, we tend to suggest that instead of applying one technique, future analysis will concentrate on combining ANN models into one network-wide application.

I. INTRODUCTION

In recent time's artificial neural networks (ANNs) has become well-liked and useful model for classification, clustering, pattern recognition and prediction in several disciplines. ANNs square measure one style of model for machine learning (ML) and has become comparatively competitive to traditional regression and applied mathematics models relating to utility. Currently, AI (machine learning, neural network, deep learning, robotic), data security, big data, cloud computing, internet, and forensic science are all hotspots and exciting topics of information and communication technology (ICT). ANNs full applications are often evaluated with reference to information analysis factors like accuracy, process speed, latency, performance, fault tolerance, volume, measurability, and convergence. the nice potential of ANNs is that the high-speed process provided in an exceedingly large parallel implementation, and this has heightened the requirement for

analysis during this domain. ANNs are often developed and used for image recognition, language processing and therefore on. Nowadays, ANNs square measure principally used for universal operate approximation in numerical paradigms owing to their excellent properties of self-learning, adaptivity, fault tolerance, nonlinearity, associated advancement in input to an output mapping.

II. LITERATURE SURVEY

These information analysis factors offer additional reason why ANNs square measure effective, economical, and productive in providing a high level of capability in handling advanced and non-complex issues in several spheres of life. ANNs square measure capable of handling issues in agriculture, science, bioscience, education, finance, management, security, engineering, commerce goods and art. together with issues in producing, transportation, laptop security, banking, insurance, properties management, marketing, energy, and people challenges that can't be solve by the machine ability of ancient procedures and traditional arithmetic. Despite these in-depth applications of ANNs, there's associate increasing have to be compelled to address the matter of adopting a scientific approach in ANNs development section to boost its performance. as an example, associate approach to handle major factors and topics in an exceedingly selection of information sets (size, volume, small, massive and otherwise), the accuracy of information, information instrument, data standardization, style of information inputs, information division, and data preprocessing, validations, process and output techniques.

III. Proposed Methodology

The alternative key challenges or problems that square measure common with ANN modeling that have received interest and need any investigation in future. together with organic process techniques that may improve planning of sturdy models, up pattern transparency and permitting helpful data from trained ANNs. additional is also the challenges of up extrapolation ability, new approaches to uncertainty and up convergences. More also, there's continuous gradient enigma and division of variable issues and noise. what is more, there's a desire to handle the traversal of the error surface by utilizing division of variable and long

convergence issues common to most artificial neural systems (ANS) that use supervised coaching. a number of these issues square measure highlights as follows:

(i) Improve planning of sturdy models: model lustiness suggests that prognosticative capability of ANN sorts in generalizing vary of information like those used for coaching. associate example is mistreatment of matter information or data to boost modeling prediction of the money market. Some consultants believe if that ANNs become globally accepted and reach apex potentiality, they'll not solely give a decent suitable standardization and validation of information. however, can change predictions which will be plausible relating to model's correlation and lustiness in any vary of conditions. ANNs valid of error will offer correct predictions for conditions like those found in trained information.

(ii) up of model transparency and the sanctionative of information extraction from trained ANNs: suggests that the chance of decoding ANN models in an exceedingly method that gives a deep understanding of the impact of model inputs to outputs.

(iii) up extrapolation ability: extrapolation of ANN models is that the capability of the model to predict accurately outward vary of information used for ANN model standardization. ANNs perform best if they are doing not extrapolate on top of the vary of information used for style or model standardization.

IV.METHODOLOGY

New approaches to uncertainty: another limitation of ANNs together with uncertainty in predictions which cannot be taken to account. once uncertainty isn't accounted, it becomes tough to live ANN predictions quality, which may critically limit or reduces their effectuality. though ANNs has had their problems, new approaches like psychological feature computing and deep learning have considerably raised the support in these fields. an artificial machine may still be out of reach, however systems like ANNs that facilitate improve people's lives square measure here these days.

V.IMPLEMENTATION

Given this description of neural networks (NNs), however its work, and their real-world applications and uses, indeed, NNs have wide applied to real-world drawback in business, education, political economy and in several aspects of life issues. NNs also are applicable to improvement technique intrusion detection and information classification. Classification thought to be a sort of tough improvement challenge. Most researchers applied machine learning (ML) techniques in determination classification drawback. NNs square measure glorious symbol of trends in information and patterns, they're fitted to foretelling and prediction desires together with those things listing.

VI.RESULTS

The correlation among the distinct fields any reveals that ANN will apply to any areas of studies, industries, and profession. The bar graph reveals the areas of application of ANN in security, science, engineering, bioscience, agriculture, finance, banking, weather and climate, education, environmental, energy, mining, insurance, selling etc. Therefore, interested researchers will explore the ANN application in these areas or many other emerging areas for future research for better solution to problems in their fields. Since there is always an algorithm, model, scheme, and framework for any problem.

VII.CONCLUSION

The survey was comprehensive with a discussion on how NN could applied to address human needs. ANNs has many names as found in the literature such as; connectionism/connectivity models, adaptive systems, parallel distributed processing models, self-organizing systems, neuromorphic and neurocomputing systems. Creating analytics from the available data that aid in largely prioritizing information and provide its human business value. The ANN analytics in turn help in combating challenges and mitigate any possible risks.

VIII. REFERENCES

1. Dr.C K Gomathy and et al, Machine Learning-Based Clinical Decision Support System, International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 06 Issue: 10 | October - 2022 Impact Factor: 7.185 ISSN: 2582-3930

2.Dr.C K Gomathy et al,Web Service Composition In A Digitalized Health Care Environment For Effective Communications, Published by International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 5 Issue 4, April 2016, ISSN: 2278 – 1323.

3. Vishnupriya C K and et al,Dimensional and Morphologic Variations of palatal Rugae-a hospital based study among Chennai populations, International Journal Of Science Research, ISSN No: 2277-8179 Volume 7, Issue 7,P.No-19-20,July ’2018

4. Dr.C K Gomathy et al, Machine Learning-Based Clinical Decision Support System, International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 06 Issue: 10 | October - 2022 Impact Factor: 7.185 ISSN: 2582-3930

5. Dr.C K Gomathy et al,A Review On IOT Based Covid-19 Patient Health Monitor In Quarantine, International Research Journal of Engineering and Technology (IRJET),e-ISSN: 2395-0056 Volume: 08 Issue: 09 | Sep 2021 www.irjet.net p-ISSN: 2395-0072`

6. Dr.C K Gomathy, et al, A Medical Information Security Using Cryptosystem For Wireless Sensor Networks, International Journal Of Contemporary Research In Computer Science And Technology (Ijcrcst) E-Issn: 2395-5325 Volume3, Issue 4, P.No-1-5,April ’2017

7. Dr.C K Gomathy and et al, The Parkinson’s Disease Detection Using Machine Learning Techniques, International Research Journal of Engineering and Technology (IRJET), Volume: 08 Issue: 10 | Oct 2021, e-ISSN: 2395-0056, p-ISSN: 2395-0072.

8.Dr.C K Gomathy, V Geetha , T.Jayanthi, M.Bhargavi, P.Sai Haritha: A Medical Information Security Using Cryptosystem For Wireless Sensor Networks, International Journal Of Contemporary Research In Computer Science And Technology (Ijcrcst) *E*-Issn: 2395-5325 Volume3, Issue 4, P.No-1-5,April ’2017

9. Dr.C K Gomathy and et.al, The Smart Stick Assistant For Visually Challenged People Using Ai Image Recognition, International Research Journal of Engineering and Technology (IRJET), Volume: 08 Issue: 9 | Sep 2021, e-ISSN: 2395-0056, p-ISSN: 2395-0072.

10. Dr. C.K. Gomathy , Dr. V.Geetha ,G.S.V.P.Praneetha , M.Sahithi sucharitha. (2022). Medicine Identification Using Open Cv. Journal of Pharmaceutical Negative Results, 3718–3723. https://doi.org/10.47750/pnr.2022.13.S09.457

11. Dr. V.Geetha ,Dr. C.K. Gomathy , Kommuru Keerthi , Nallamsetty Pavithra. (2022). Diagnostic Approach To Anemia In Adults Using Machine Learning. Journal of Pharmaceutical Negative Results, 3713–3717. https://doi.org/10.47750/pnr.2022.13.S09.456

Author's Profile

- Mr. T. Girdhar Reddy, Student, B.E. Computer Science, and Engineering , Sri Chandrasekharendra Saraswathi Viswa Maha Vidhyalaya Enathur, Kanchipuram, India. His area of interest: Data Science and Data Analytics

- Mr. Y. Praveen Kumar, Student, B.E. Computer Science, and Engineering , Sri Chandrasekharendra Saraswathi Viswa Maha Vidhyalaya Enathur, Kanchipuram, India. His area of interest: Data Science and Data Analytics

- Dr. C.K. Gomathy is Assistant Professor in Computer Science and Engineering at Sri Chandrasekharendra Saraswathi Viswa MahaVidyalaya, Enathur, Kanchipuram, India. Her area of interest in Software Engineering, Web Services, Knowledge, Management and IOT.