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Water footprint of a tropical beef cattle production system: impact of individual animal and forage management using the WSM method.

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Abstract: ***Introduction:*** *Balancing the number of micronutrients provided to animals and birds for their intended use is known as feed management. Creating diets that supply the quantities of nutrients required by cattle and poultry for upkeep, production, achievement, and reproductive falls under this category. What Makes Feed Control Critical? Agriculture-related phosphorous and nitrogen can have an impact on the quality of the water. Although these minerals are necessary for plant and animal expansion, an excessive amount in industrial runoff can have negative effects on the environmental and human health. formaldehyde organic acids and related salts, and agents that alter bacterium membranes such fragrances and important oils. Agents under investigation included chlorate derivatives. Alternative: Ecological protection (G), Degree (S), Incidence (O), and Diagnosis (D). Assessing Alternative Indexing precision is greater than the tolerance standard, Reliability accuracy surpasses the acceptability standard, rotational backlash in the forward or reverse direction also does so. Chassis bottom shaking; paint loss affecting machine look. It is solved by using the WSM method. "from the result it is seen that Repeatability accuracy exceeds the tolerance standard and is got the first rank whereas is the Machine appearance affected by paint loss got is having the lowest rank." "The value of the dataset for Range of Turning process in WSM (Weighted sum model) Method shows that it results in Repeatability accuracy exceeds the tolerance standard and top ranking."*

Keywords: *Severity, Occurrence, Frame bottom vibration, Machine appearance affected by paint loss.*

1. INTRODUCTION

One of the main ways that people are exposed to NPs is through contaminants brought on by the unintentional or deliberate extension of non-materials to wildlife feed or by their presence in food. The feed market can equally apply the prevailing and strengths uses of nanomaterials in the food sector, and the succeeding attempts to list some of these potential uses. [1] We fill a gap in the literature by doing this. Few prior EU investigations have examined biological effects beyond greenhouse gas production or land usage, although many have investigated the viability of recycling food waste. As far as the author is aware, it has thus far particularly taken into account using municipality food waste as animals feed. The EU could maintain itself with pig feed if it collected food wastes at a rate comparable to that of nations like Japan and South Korea. [2] Due to the fact that feed and water utilization were evaluated independently, this was particularly true. The goal of this project is to help farmers, businesses, and people improve and analyze water managing and product effectiveness by evaluating the footprint by independent and nutrients maintenance, a novel method to estimate water consumption in beef meat. From the viewpoints of productive systems, trade, and consumption we explore the findings. [3] Cutting "safety" limits and treating the animals in batches in accordance with their biological states can accomplish this. However additional research is needed to measure the effects of applying phytases, especially varieties and application rates, it can increase total dietary and oxalates absorption of P. Over fertilization of meadows can lead to large DRP downstream fluxes in pasture-based treatment schemes.[4] Dioxins, leading up, heavy metals, pesticides, pharmaceutical medications, and polyaromatic aromatic compounds are regarded toxic-unwanted compounds, despite the fact that they are frequently examined in both feed and animal commodities. In contrast, processing and absorbing are essentially missing in animals. Some scientists make the incorrect assumption that these dangerous compounds are completely absorbed, which makes it difficult to forecast the presence of residues in animal products. They avoid the biochemical mechanisms that take place after digestion, following absorption into the circulatory system, and during middle metabolism by doing this. Moreover, this strategy does not make use of current knowledge to determine or put into practice viable control points to lower residue levels in animal commodities. [6] The retail sector, in especially,

wants the feedstuffs sector of the supply chain to be adequately protected in terms of product safety. Because of this, the pig and chicken industries began establishing comprehensive chain quality control procedures in the early 1990s, concentrating on regulating feed quality as well as the use of medications, animal housing facilities, etc. in stock raising. [7] Nevertheless, the amount of lysine, alanine, leucine, and phosphonate in the food obtained from BSF tend to differ was a little lower than the corresponding proportion in fish diet. BSF prepupae, compressed cake, and meal are effective sources of energy for animal diets because they include more prevalent limitation amino acids in amounts equivalent to those found in conventional animal feed preparations. [8] Producers are keeping an eye on how well their businesses are working, and they estimate that by implementing these feeding techniques—which were previously still crude—the yield has progressively expanded. Farmer registration This shows that existing yields are significantly more than those attained with fertilizing alone. The feeds employed by Andhra farmers, which do not comprise any animal protein, may thus considerably contribute to the sustenance of cultivated species, according to circumstantial data on agricultural methods. significant contributions to the cultured species' sustenance. [9] AFOs are becoming a substantial source of water degradation since they release a lot of unprocessed animal faeces on the ground. In large businesses when there is not enough area available for waste use, it is standard practice to use excessive amounts of waste, which exacerbates issues. Problems can also occur when trash is applied to streams and naturally drain-ways, when activities are conducted on precipitous slopes, or when specific climatic or soil variables exist, such as rain, snowy or frozen ground, saturation soil, or low soil permeability. [10] Vegetable waste may be used in animal feed, according to certain studies in this area. As a result, the solid organically waste produced in Salamanca was examined to identify the molecular compositions, microbiology traits, and levels of dioxin, furan, PCBs, and sand minerals in various organic wastes, including meat, fish, fruits, and greens, restaurants, and residential garbage. Because of from fruits and vegetables can be employed in the manufacture of animal feed. [11] To reduce environmentally problems, cultured animal feed and fungus development media were examined as value-added replacements to WCP. This was done using an incorporated economic and environmentally cost model. From reading, fieldwork, and case studies, primary and supplementary data were gathered. The data categories are constrained to a gate-to-gate configuration with processing capabilities and predicated on a new manufacturing unit being installed in a starch facility. [12] Small company owners can launch creative ventures with little investments to provide insect feed for agriculture and insects waste sources. The item can be employed as organic fertilizers for growing crops. Sales from the resultant crop and animal yields might add to domestic incomes or supply food. By properly closing nutrients cycles, insects prevent food waste since waste produces fertile ground. [13] This is also a result of certain cows' difficulties. suffer from biochemical aberrations as a result of lactating because animals' autonomic and home or active regulation systems are adequate for their proper operation. Physiologically unbalanced cows are thus defined. Deviations in bovine characteristics increase the risk of reproductive illnesses and lower productivity and/or reproduce. [14] Rapid advancements in animal management necessitate research on low-cost technical methods and nutritious assessments of the target animals. A nutritious evaluation of digestion, feeding value, contaminants, and waste possibility should be included. Administration and application. Despite the evident promise of agricultural leftovers, there are many mechanical and physiological limitations that severely restrict the use of waste feed in food composition. [15]

2. MATERIALS AND METHOD

The approach is A uses prior A significant amount of DM preference information is interesting for generating solutions, which saves a large amount of computational time. This is optional correlation area is extensive, an advantage over the known weighted sum basis, however, unlike the classic weighted sum model, pruning is not required for unsupported solutions with this optional coupling. To the best of our knowledge, only solutions of preference relations and iterative multi-objective optimization have been used. [19]. The most complicated they try Filterable high schools. First, the criteria weighted score for entry and shall be based on school data evaluation criteria entered by the Assistant Superintendent of data and analysis of their performance. Then, a senior assistant manager for the School of Marketing and Public Relations and the data must be manually calculated. Then, high score, high score, low score manually sorted. All actions will use the worksheet for all users [20]. Values assigned by expert panel for both factor weights and subjective factor values We present an inclusive Revised weighted sum model. In robot selection. This model means that there is no group consensus on values. A high degree of high and low expertise in weights and subjective factors to select robots values will be removed. Key to delete these values The reason is that the finality is to reduce the impact of potential distorted will. segment. To illustrate the model, this extreme the rank change when compared to the model without removal of values A numerical example is also provided to demonstrate. [21].

Step 1. Design of decision matrix and weight matrix

$$D = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \ddots & \cdots \\ x_{m1} & x_{m2} & \cdots & x_{mn} \end{bmatrix}$$

The weight vector may be expressed as,

$$w_j = [w_1 \quad \cdots \quad w_n], \qquad where \ \sum_{j=1}^{n}(w_1 \quad \cdots \quad w_n) = 1$$

Step 2. Normalisation of DM

$$n_{ij} = \begin{cases} \dfrac{x_{ij}}{max.x_{ij}} & | \ j \in B \\ \dfrac{min.x_{ij}}{x_{ij}} & | \ j \in C \end{cases}$$

Where n_{ij} is the normalized value of the i^{th} alternative for the j^{th} criterion, $max.x_{ij}$ and $min.x_{ij}$ are maximum and minimum value of x_{ij} in the j^{th} column for the benefit (B) and cost criteria (C) respectively.

Step 3. Weighted normalized Decision Matrix

$$W_{n_{ij}} = w_j n_{ij}$$

Step 4. Ranking of alternatives

$$S_i^{WSM} = \sum_{j=1}^{n} w_j n_{ij}$$

Where, S_i^{WSM} is the ranking score of the i^{th} alternative, w_j is weight of the j^{th} criterion. Then the alternatives are ranked in descending order with highest S_i^{WSM} being ranked highest

Strengths

With detailed descriptions of the alternatives, criteria, and their respective scores and weights, WSM enables well-structured issue formulation. It is a more straightforward, convenient, and ideal strategy for resolving problems with several criteria. The depiction of the weighted criterion and the complete process is reasonably simple and obvious.

Weakness

The fact that the weight is assigned voluntarily and demands not just significant insight but also relatively accurate distribution is a significant limitation that can be seen in nearly all MCDM systems (accuracy itself is a voluntary entity and may differ from problem to problem and situation to situation). When qualities are additive, or different from one another in some way, weight summing can be accurate, albeit this requirement is sometimes unachievable.

3. ANALYSIS AND DISSECTION

TABLE 1. Animal Feed Management in Data Set

	DATA SET			
	Severity (S)	Occurrence (O)	Detection (D)	Environmental protection (G)
Indexing accuracy exceeds the tolerance standard	35.080	169.530	34.150	26.050
Repeatability accuracy exceeds the tolerance standard	57.120	162.970	36.690	23.300
Backlash of forward/reversal rotation exceeds the tolerance standard	97.080	142.580	27.180	63.100
Frame bottom vibration	47.170	178.280	25.600	47.590
Machine appearance affected by paint loss	67.330	166.410	27.960	68.890

Table 1 show the Animal Feed Management shows the Severity (S) it is seen that Backlash of forward/reversal rotation exceeds the tolerance standard the highest value for Indexing accuracy exceeds the tolerance standard is showing the lowest value. Occurrence (O) it is seen that Frame bottom vibration is showing the highest value for Backlash of forward/reversal rotation exceeds the tolerance standard is showing the lowest value. Detection (D) it is seen that Repeatability accuracy exceeds the tolerance standard is showing the highest value for Frame bottom vibration is showing the lowest value. Environmental protection (G) it is seen that the Machine appearance affected by paint loss is showing the highest value for Repeatability accuracy exceeds the tolerance standard is showing the lowest value. Alternative: Ecological protection (G), Degree (S), Incidence (O), and Diagnosis (D). Assessing Alternative Indexing precision is greater than the tolerance standard, Reliability accuracy surpasses the acceptability standard, rotational backlash in the forward or reverse direction also does so. Chassis bottom shaking; paint loss affecting machine look. It is solved by using the WSM method. It is the data set of this paper.

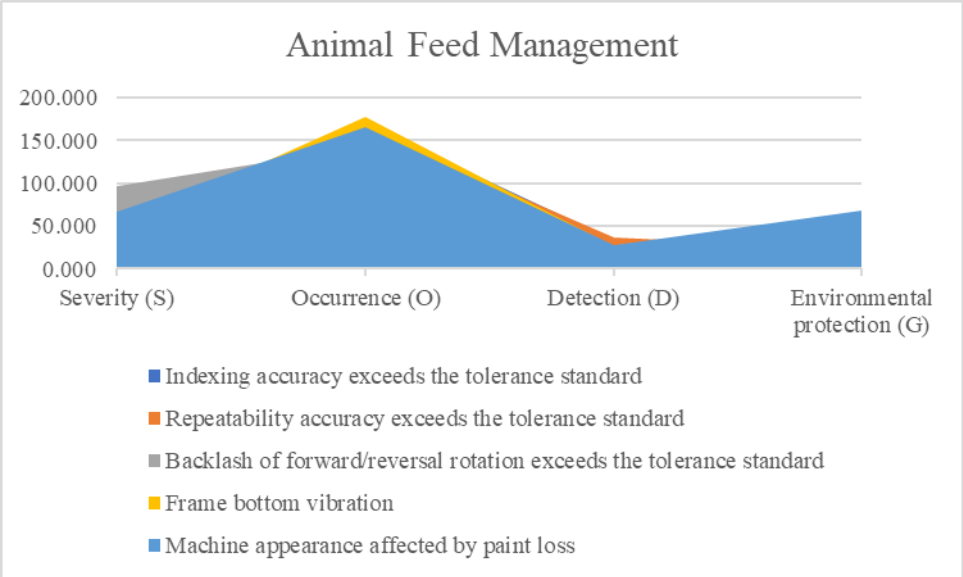

FIGURE 1. Animal Feed Management

Figure 1 shows the Alternative: Ecological protection (G), Degree (S), Incidence (O), and Diagnosis (D). Assessing Alternative Indexing precision is greater than the tolerance standard, Reliability accuracy surpasses the acceptability standard, rotational backlash in the forward or reverse direction also does so. Chassis bottom shaking; paint loss affecting machine look. It is solved by using the WSM method. It is the data set of this paper.

TABLE 2. Animal Feed Management in Normalized Data

Normalized			
0.36135	0.95092	0.74963	0.89443
0.58838	0.91412	0.69774	1.00000
1.00000	0.79975	0.94187	0.36926
0.48589	1.00000	1.00000	0.48960
0.69355	0.93342	0.91559	0.33822

Table 2 Shows the Normalized Data Matrix of Ecological protection (G), Degree (S), Incidence (O), and Diagnosis (D). Assessing Alternative Indexing precision is greater than the tolerance standard, Reliability accuracy surpasses the acceptability standard, rotational backlash in the forward or reverse direction also does so. Chassis bottom shaking; paint loss affecting machine look.

TABLE 3. Animal Feed Management in Weight age

Weight			
0.25000	0.25000	0.25000	0.25000
0.25000	0.25000	0.25000	0.25000
0.25000	0.25000	0.25000	0.25000
0.25000	0.25000	0.25000	0.25000
0.25000	0.25000	0.25000	0.25000

Table 3 Shows the Animal Feed Management in Weight age of Alternative: Ecological protection (G), Degree (S), Incidence (O), and Diagnosis (D). Assessing Alternative Indexing precision is greater than the tolerance standard, Reliability accuracy surpasses the acceptability standard, rotational backlash in the forward or reverse direction also does so. Chassis bottom shaking; paint loss affecting machine look.

TABLE 4. Animal Feed Management in weighted normalized decision matrix

Weighted normalized decision matrix			
0.09034	0.23773	0.18741	0.22361
0.14710	0.22853	0.17443	0.25000
0.25000	0.19994	0.23547	0.09231
0.12147	0.25000	0.25000	0.12240
0.17339	0.23335	0.22890	0.08456

TABLE 4 Shows the Animal Feed Management in weighted normalized decision matrix of Alternative: Ecological protection (G), Degree (S), Incidence (O), and Diagnosis (D). Assessing Alternative Indexing precision is greater than the tolerance standard, Reliability accuracy surpasses the acceptability standard, rotational backlash in the forward or reverse direction also does so. Chassis bottom shaking; paint loss affecting machine look.

TABLE 5. Animal Feed Management in Preference Score

	Preference Score
Indexing accuracy exceeds the tolerance standard	0.73908
Repeatability accuracy exceeds the tolerance standard	0.80006
Backlash of forward/reversal rotation exceeds the tolerance standard	0.77772
Frame bottom vibration	0.74387
Machine appearance affected by paint loss	0.72020

TABLE 5 shows the Animal Feed Management in Preference Score value of the Indexing accuracy exceeds the tolerance standard 4th value 0.73908, Repeatability accuracy exceeds the tolerance standard 1st value 0.80006, Backlash of forward/reversal rotation exceeds the tolerance standard 2nd value 0.77772, Frame bottom vibration 3rd value 0.74387, and Machine appearance affected by paint loss 5th value 0.72020.

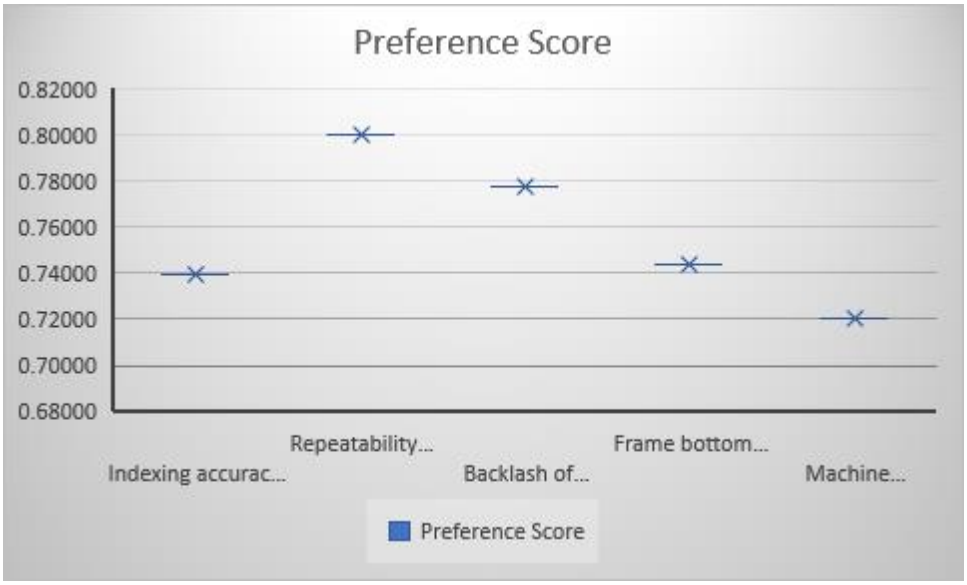

FIGURE 2. Animal Feed Management in Preference Score

Figure 2 shows the Animal Feed Management in Preference Score value of the Indexing accuracy exceeds the tolerance standard 4th value 0.73908, Repeatability accuracy exceeds the tolerance standard 1st value 0.80006, Backlash of forward/reversal rotation exceeds the tolerance standard 2nd value 0.77772, Frame bottom vibration

3rd value 0.74387, and Machine appearance affected by paint loss 5th value 0.72020.

TABLE 6. Animal Feed Management in Rank

	Rank
Indexing accuracy exceeds the tolerance standard	4
Repeatability accuracy exceeds the tolerance standard	1
Backlash of forward/reversal rotation exceeds the tolerance standard	2
Frame bottom vibration	3
Machine appearance affected by paint loss	5

table 6 shows the from the result it is seen that Repeatability accuracy exceeds the tolerance standard and is got the first rank whereas is the Machine appearance affected by paint loss got is having the lowest rank.

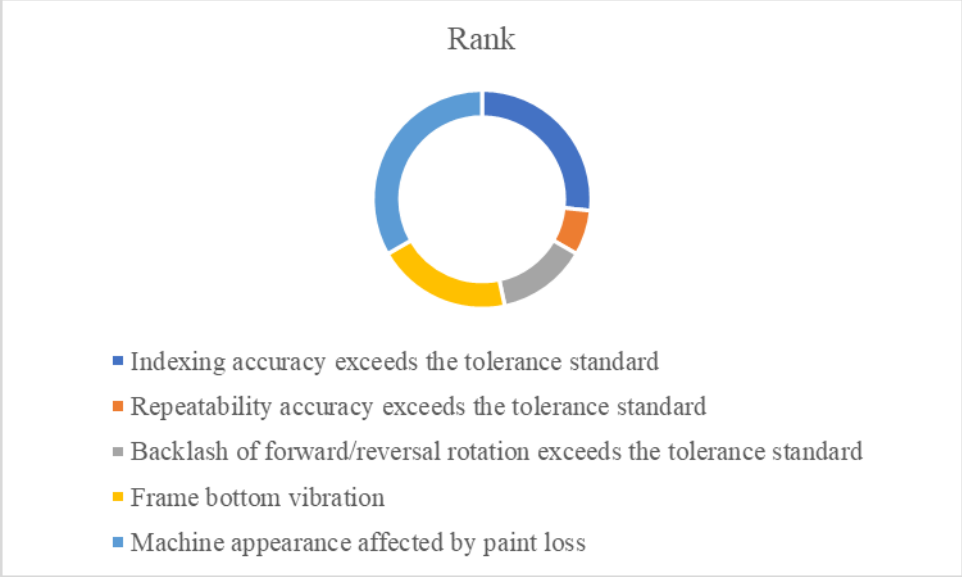

FIGURE 3. Animal Feed Management in Rank

Figure 3 shows the form the result it is seen that Repeatability accuracy exceeds the tolerance standard and is got the first rank whereas is the Machine appearance affected by paint loss got is having the lowest rank.

4. CONCLUSION

Misunderstanding and/or the incorrect application of study findings are factors in disputes between producers, feedlots, and consumers. Consequently, disseminating knowledge regarding the water impact of meat and implementing more effective dehydration procedures can aid in minimizing these issues. The correlation between the development of beef cattle and the usage of water may be understood and demonstrated using this knowledge, which will help governments and private institutions market meat more sustainably for domestic and worldwide markets. The structure's digestion, processing, and excretion have an impact on the transit of toxicants from food to food. The colon and other tissues are where absorption and excretion take place. Characterization of feeding and diet does not indicate the possibility of competing functions; it merely conceals the proportional contributions of various methods in the animal. However, detailed testing, quantization, and optimizing of organic waste, insect biomass translation capability, insects' oil to gasoline redevelopment, and description of the resulting biodiesel's fuel characteristics are all required. An effective technique for the concurrent generation of biodiesel and animal feed in the inorganic waste analysis has been successfully applied using the nutrient degradation and accessibility of insect material prior to creating an insect the biorefinery plant.

REFERENCES

[1]. Mehrazar, Elham, Mahdi Rahaie, and Somayeh Rahaie. "Application of nanoparticles for pesticides, herbicides, fertilisers and animals feed management." International Journal of Nanoparticles 8, no. 1 (2015): 1-19. DOI: https://doi.org/10.1504/IJNP.2015.070339

[2]. Kanulla, Lakshman Kumar, G. Gokulkumari, M. Vamsi Krishna, and Santhosh Kumar Rajamani. "IoT Based Smart Medical Data Security System." In *International Conference on Intelligent Computing and Networking*, pp. 131-142. Singapore: Springer Nature Singapore, 2023.

[3]. Salemdeeb, Ramy, Erasmus KHJ Zu Ermgassen, Mi Hyung Kim, Andrew Balmford, and Abir Al-Tabbaa. "Environmental and health impacts of using food waste as animal feed: a comparative analysis of food waste management options." Journal of cleaner production 140 (2017): 871-880. DOI: https://doi.org/10.1016/j.jclepro.2016.05.049

[4]. Palhares, Julio Cesar Pascale, Marcela Morelli, and Taisla Inara Novelli. "Water footprint of a tropical beef cattle production system: The impact of individual-animal and feed management." Advances in Water Resources 149 (2021): 103853. DOI: https://doi.org/10.1016/j.advwatres.2021.103853

[5]. Al-Shourbaji, I., & Duraibi, S. (2023). IWQP4Net: An Efficient Convolution Neural Network for Irrigation Water Quality Prediction. *Water*, *15*(9), 1657.

[6]. Prasad, G. N. R., Lakshman Kumar Kanulla, Vivek Ijjagiri, and S. Suma Christal Mary. "Implementation and Health Monitoring System of Vehicle by using IoT and Cloud Computing." In *2022 6th International Conference on Electronics, Communication and Aerospace Technology*, pp. 518-521. IEEE, 2022.

[7]. Kebreab, Ermias, A. V. Hansen, and A. B. Leytem. "Feed management practices to reduce manure phosphorus excretion in dairy cattle." Advances in Animal Biosciences 4, no. s1 (2013): 37-41. DOI: https://doi.org/10.1017/S2040470013000290

[8]. Kan, C. A., and G. A. L. Meijer. "The risk of contamination of food with toxic substances present in animal feed." Animal feed science and technology 133, no. 1-2 (2007): 84-108. DOI: https://doi.org/10.1016/j.anifeedsci.2006.08.005
[9]. Davuluri, Sandeep Kumar, Haewon Byeon, Ismail Keshta, and Herison Surbakti. "Spatial federated learning and blockchain-based 5G communication model for hiding confidential information." In *Networks Attack Detection on 5G Networks using Data Mining Techniques*, pp. 40-63. CRC Press, 2024.
[10]. Al-Shourbaji, I., Kachare, P. H., Abualigah, L., Abdelhag, M. E., Elnaim, B., Anter, A. M., & Gandomi, A. H. (2022). A deep batch normalized convolution approach for improving COVID-19 detection from chest X-ray images. *Pathogens*, *12*(1), 17.
[11]. Chidipothu, Vamsi Krishna, Lakshman kumar Kanulla, Chaitanya Kiran Pandey, Sandeep Kumar Davuluri, Mohit Tiwari, and Devesh Pratap Singh. "Design and Implementation of Block Chain with Cybersecurity Scheme for Fog Based Internet of Things." In *2023 6th International Conference on Contemporary Computing and Informatics (IC3I)*, vol. 6, pp. 1409-1415. IEEE, 2023.
[12]. Sudhir, Ramadass. "A survey on image mining techniques: theory and applications." *Computer Engineering and Intelligent Systems* 2, no. 6 (2011): 44-52.
[13]. Ruviaro, Clandio Favarini, Jaqueline Severino da Costa, Thiago José Florindo, Whanderson Rodrigues, Giovanna Isabelle Bom de Medeiros, and Paulo Sérgio Vasconcelos. "Economic and environmental feasibility of beef production in different feed management systems in the Pampa biome, southern Brazil." Ecological indicators 60 (2016): 930-939. https://doi.org/10.1016/j.ecolind.2015.08.042
[14]. Sudhir, Ramadass, and L. D. S. S. Baboo. "An efficient CBIR technique with YUV color space and texture features." *Computer Engineering and Intelligent Systems* 2, no. 6 (2011): 78-85.
[15]. Kalpurniya, Shanthini, Rajesh Ramachandran, and Neeradha Chandramohan. "A Study on Stress Level, Happiness, Challenges, and Emotional Bonds of Parents having Children with Disabilities Availing Services at NIEPMD, Chennai." *Integrated Journal for Research in Arts and Humanities* 3, no. 5 (2023): 72-88.
[16]. Jakka, Geethamanikanta, N. S. L. K. Kanulla, and Oludotun Oni. "Analysing The Need Of Big Data Owners To Regularly Update Security Measures." *Journal of Pharmaceutical Negative Results* (2022): 8417-8425.
[17]. Kachare, P. H., Sangle, S. B., Puri, D. V., Khubrani, M. M., & Al-Shourbaji, I. (2024). STEADYNet: Spatiotemporal EEG analysis for dementia detection using convolutional neural network. Cognitive Neurodynamics, 1-14.
[18]. den Hartog, Johan. "Feed for food: HACCP in the animal feed industry." Food control 14, no. 2 (2003): 95-99. https://doi.org/10.1016/S0956-7135(02)00111-1
[19]. Tholkapiyan, M., Sudhir Ramadass, J. Seetha, Ananda Ravuri, Pellakuri Vidyullatha, S. Siva Shankar, and Santosh Gore. "Examining the Impacts of Climate Variability on Agricultural Phenology: A Comprehensive Approach Integrating Geoinformatics, Satellite Agrometeorology, and Artificial Intelligence." *International Journal of Intelligent Systems and Applications in Engineering* 11, no. 6s (2023): 592-598.
[20]. Surendra, K. C., Robert Olivier, Jeffery K. Tomberlin, Rajesh Jha, and Samir Kumar Khanal. "Bioconversion of organic wastes into biodiesel and animal feed via insect farming." Renewable energy 98 (2016): 197-202. https://doi.org/10.1016/j.renene.2016.03.022
[21]. Dixit, Varun, and Davinderjit Kaur. "A Systematic Review for Sustainable Software Development Practice and Paradigm." *Journal of Computational Analysis and Applications (JoCAAA)* 33, no. 06 (2024): 170-185.
[22]. Ramachandran, Rajesh, and Anuragini Singh. "The Effect of Hindustani Classical Instrumental Music Santoor in improving writing skills of students with Learning Disability." *International Journal of Humanities and Social Science Invention* 3, no. 6 (2014): 55-60.
[23]. Pande, Sagar Dhanraj, and Aditya Khamparia, eds. *Networks Attack Detection on 5G Networks Using Data Mining Techniques*. CRC Press, 2024.
[24]. Al-Shourbaji, I., Alhameed, M., Katrawi, A., Jeribi, F., & Alim, S. (2022). A Comparative Study for Predicting Burned Areas of a Forest Fire Using Soft Computing Techniques. In ICDSMLA 2020: Proceedings of the 2nd International Conference on Data Science, Machine Learning and Applications (pp. 249-260). Springer Singapore.
[25]. Kanulla, Naga Sathya Lakshman Kumar. "A Qualitative Examination of SAP Enterprise Resource Planning System in Pharmaceutical Distribution Companies." PhD diss., University of the Cumberlands, 2021.
[26]. Tacon, Albert GJ, and Sena S. De Silva. "Feed preparation and feed management strategies within semi-intensive fish farming systems in the tropics." Aquaculture 151, no. 1-4 (1997): 379-404. https://doi.org/10.1016/S0044-8486(96)01494-9
[27]. Graham, Jay P., and Keeve E. Nachman. "Managing waste from confined animal feeding operations in the United States: the need for sanitary reform." Journal of water and health 8, no. 4 (2010): 646-670. https://doi.org/10.2166/wh.2010.075
[28]. Al-Shourbaji, I., & Zogaan, W. (2022). A new method for human resource allocation in cloud-based e-commerce using a meta-heuristic algorithm. *Kybernetes*, *51*(6), 2109-2126.
[29]. Vidhya, R. G., J. Seetha, Sudhir Ramadass, S. Dilipkumar, Ajith Sundaram, and G. Saritha. "An efficient algorithm to classify the mitotic cell using ant colony algorithm." In *2022 International Conference on Computer, Power and Communications (ICCPC)*, pp. 512-517. IEEE, 2022.
[30]. Dixit, Varun, and Davinderjit Kaur. "Development of Two-Factor Authentication to Mitigate Phishing Attack." *Journal of Software Engineering and Applications* 17, no. 11 (2024): 787-802.
[31]. Shiju, K. K., Minakshi Breja, Nibedita Mohanty, Rajesh Ramachandran, and Indrajit Patra. "Importance of Special Education and Early Childhood General Education Teachers' Attitudes toward Culturally Linguistically Diverse People." *Journal for ReAttach Therapy and Developmental Diversities* 6, no. 9s (2) (2023): 1544-1549.
[32]. San Martin, D., S. Ramos, and J. Zufía. "Valorisation of food waste to produce new raw materials for animal feed." Food chemistry 198 (2016): 68-74. https://doi.org/10.1016/j.foodchem.2015.11.035
[33]. Trakulvichean, Sivalee, Pawinee Chaiprasert, Julia Otmakhova, and Warinthorn Songkasiri. "Comparison of fermented animal feed and mushroom growth media as two value-added options for waste cassava pulp management." Waste Management & Research 35, no. 12 (2017): 1210-1219. https://doi.org/10.1177/0734242X17730135

[34]. Joseph, J. Armstrong, K. Keshav Kumar, N. Veerraju, Sudhir Ramadass, Sreekumar Narayanan, and R. G. Vidhya. "Artificial intelligence method for detecting brain cancer using advanced intelligent algorithms." In *2023 4th International Conference on Electronics and Sustainable Communication Systems (ICESC)*, pp. 1482-1487. IEEE, 2023.
[35]. Verma, Pradeep. "Sales of Medical Devices–SAP Supply Chain." *International Journal of Computer Trends and Technology* 70, no. 9 (2022): 6-12.
[36]. Varun Dixit, "Optimizing Cost and Carbon Footprint With Smart Scaling Using SQS Queue Triggers: Part 1" 2024
[37]. Dixit, Varun, and Davinderjit Kaur. "Secure and Efficient Outsourced Computation in Cloud Computing Environments." *Journal of Software Engineering and Applications* 17, no. 9 (2024): 750-762.
[38]. Singh, Anuragini, and Rajesh Ramachandran. "Study on the effectiveness of smart board technology in improving the psychological processes of students with learning disability." *Sai Om Journal of Arts & Education* 1, no. 4 (2014): 1-6.
[39]. Davuluri, Sandeep Kumar, Lakshman Kumar Kanulla, and Lakshmi Narayana Pothakamuri. "A Hybrid ML Sentiment Analysis for Climate Change Management in Social Media." *Text Mining and Sentiment Analysis in Climate Change and Environmental Sustainability* (2024): 1.
[40]. Al-Shourbaji, I., Kachare, P. H., Abualigah, L., Abdelhag, M. E., Elnaim, B., Anter, A. M., & Gandomi, A. H. (2022). A deep batch normalized convolution approach for improving COVID-19 detection from chest X-ray images. *Pathogens*, *12*(1), 17.
[41]. Chia, Shaphan Y., Chrysantus M. Tanga, Joop JA van Loon, and Marcel Dicke. "Insects for sustainable animal feed: inclusive business models involving smallholder farmers." Current Opinion in Environmental Sustainability 41 (2019): 23-30. https://doi.org/10.1016/j.cosust.2019.09.003
[42]. Sudhir, Ramadass, and S. Santhosh Baboo. "A Efficient Content based Image Retrieval System using GMM and Relevance Feedback." *International Journal of Computer Application* 72, no. 22 (2013).
[43]. Chidipothu, Vamsi Krishna, Lakshman kumar Kanulla, Chaitanya Kiran Pandey, Sandeep Kumar Davuluri, Mohit Tiwari, and Devesh Pratap Singh. "Design and Implementation of Block Chain with Cybersecurity Scheme for Fog Based Internet of Things." In *2023 6th International Conference on Contemporary Computing and Informatics (IC3I)*, vol. 6, pp. 1409-1415. IEEE, 2023.
[44]. Ingvartsen, K. L. "Feeding-and management-related diseases in the transition cow: Physiological adaptations around calving and strategies to reduce feeding-related diseases." Animal feed science and technology 126, no. 3-4 (2006): 175-213. https://doi.org/10.1016/j.anifeedsci.2005.08.003
[45]. Yadav, Amar Pal, Sandeep Kumar Davuluri, Piyush Charan, Ismail Keshta, Juan Carlos Orosco Gavilán, and Gaurav Dhiman. "Probabilistic scheme for intelligent jammer localization for wireless sensor networks." In *International conference on intelligent computing and networking*, pp. 453-463. Singapore: Springer Nature Singapore, 2023.
[46]. Sudarsanan, Sajeesh, Hiran Das K. Ramkumar Thirumal, Salim Shaikh, and Rajesh Ramachandran. "Identifying the Scope of Reattach Therapy for Social Rehabilitation for Children with Autism." *Journal for ReAttach Therapy and Developmental Diversities* 6, no. 10s (2023): 681-686.
[47]. Prabakaran Nanjundan, M. Ramachandran, Ramya Sharma, Sathiyaraj Chinnasamy, "A Reappraisal of the Osteoarticular Manifestations of Psoriasis Using the WSM Method", Journal on Applied and Chemical Physics 2(4), December 2023, 10-17.
[48]. Singh, Prabhjot, Varun Dixit, and Jaspreet Kaur. "Green healthcare for smart cities." In *Green and Smart Technologies for Smart Cities*, pp. 91-130. CRC Press, 2019.
[49]. Davuluri, Sandeep Kumar, Deepak Srivastava, Manisha Aeri, Madhur Arora, Ismail Keshta, and Richard Rivera. "Support vector machine based multi-class classification for oriented instance selection." In *2023 International Conference on Inventive Computation Technologies (ICICT)*, pp. 112-117. IEEE, 2023.
[50]. AlShourbaji, I., Helian, N., Sun, Y., Hussien, A. G., Abualigah, L., & Elnaim, B. (2023). An efficient churn prediction model using gradient boosting machine and metaheuristic optimization. *Scientific Reports*, *13*(1), 14441.
[51]. Ajila, C. M., S. K. Brar, M. Verma, R. D. Tyagi, S. Godbout, and J. R. Valéro. "Bio-processing of agro-byproducts to animal feed." Critical reviews in biotechnology 32, no. 4 (2012): 382-400. https://doi.org/10.3109/07388551.2012.659172
[52]. Verma, Pradeep. "Effective Execution of Mergers and Acquisitions for IT Supply Chain." *International Journal of Computer Trends and Technology* 70, no. 7 (2022): 8-10.
[53]. Sathiyaraj Chinnasamy, M. Ramachandran, Vimala Saravanan, Prabakaran Nanjundan, "Performance Analysis of Agricultural Waste Using Gray Relational Analysis (GRA) Method", uilding Materials and Engineering Structures, 1(4), December 2023, 22-28.
[54]. Sundar, R., Sudhir Ramadass, D. Meeha, Balambigai Subramanian, S. Siva Shankar, and Gayatri Parasa. "Evaluating the Solutions to Predict the Impact of Lung Cancer with an Advanced Intelligent Computing Method." In *2023 5th International Conference on Smart Systems and Inventive Technology (ICSSIT)*, pp. 1733-1737. IEEE, 2023.
[55]. Jawarneh, Malik, M. Jayakrishna, Sandeep Kumar Davuluri, S. V. Ramanan, Pavitar Parkash Singh, and J. Armstrong Joseph. "Energy Efficient Lightweight Scheme to Identify Selective Forwarding Attack on Wireless Sensor Networks." In *International Conference on Intelligent Computing and Networking*, pp. 425-436. Singapore: Springer Nature Singapore, 2023.
[56]. Ramachandran, Rajesh, and J. Sujathamalini. "Promoting Diversity And Inclusion In Higher Education: Strategies And Best Practices." *Educational Administration: Theory and Practice* 30, no. 4 (2024): 6997-7007.
[57]. Davuluri, Sandeep Kumar, Syed Ahad Murtaza Alvi, Manisha Aeri, Abhishek Agarwal, Mohammad Serajuddin, and Zafarul Hasan. "A Security Model for Perceptive 5G-Powered BC IoT Associated Deep Learning." In *2023 International Conference on Inventive Computation Technologies (ICICT)*, pp. 118-125. IEEE, 2023.
[58]. Chandrasekar Raja, Chinnasami Sivaji, M. Ramachandran, Ramya Sharma, "An Overview of Qualitative Comparative Analysis Using GRA Methodology", Journal on Innovations in Teaching and Learning,2(4), December 2023,28-35.