



A Survey on Digital Communication and Its Characterization

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Abstract. Digital communication is a point-to-point or through point-to-point multidisciplinary communication channel is the physical exchange of data. This is to replace personal messages. In today's world of electronics, digital communication plays an important role. The data transfer rate in digital communications depends on its properties Digital communication provides a seamless experience for customers and partners - eliminating the need for direct communication and digital communication in various forms such as AI, chat bots and automation, making it easier for customers to access companies simultaneously. It is easy, cheap and fast because it can be done over long distances via the internet and other things. Hardware processing in digital circuits Digital is more flexible compared to analog through point-to-point multidisciplinary communication channels and the physical exchange of data. This required more bandwidth compared to analog systems. The development of complex circuits and sophisticated devices is a drawback of the digital system Definitions of digital communication. Electronic transfer of digitally encrypted information (such as storage and processing of computers) similar terms: Data communication

1. Introduction

The purpose of encryption is to cover the content of confidential messages The invisible goes even further, trying to hide the fact that there is no message confidential messages are hidden in seemingly harmless data Encryption algorithm designers assume that the invisible algorithm designer will try to reveal the existence of the enemy's secret message, while the rich enemy will do anything to encrypt the messages the huge adoption of virtual media technologies has generated vast public and academic hobby in understanding the various programs and implications of imposing those media. Although researchers have studied the use of Digital media in the context of coercion, personal properly-being, productivity, tension, aggression, or different bodily, psychological, or political events in all areas of oral science research, the use of technology is generally accepted. As a leading calculator or the effect will vary a particularly clear example is the discussion of the implications of the use of digital media in psychosocial well-being. Some scholars conclude that media use has "destroyed a generation" 2, while others have refuted these claims, suggesting that the current concern is only an expression of the Sicilian cycle of "technological panic" of this generation. Resolving these debates and developing a deeper understanding of the role of media use in human behaviour requires "transparent and robust analytical practices", but also the belief that the steps taken to evaluate the use of digital media are accurate indicators of actual use Forms 5,6 Before making decisions about media usage and its effects, one must first trust not only the theoretical models presented in the studies, but most importantly, the steps used to generate data to test these models. The validity of media application activities is the validity of empirical research on media applications and implications. Although media usage is a naturally observable behaviour, long-term reviews of the accuracy and validity of media use 7-12, most research considers media usage to be a hidden variable, scholars in general retrograde self-reporting functions Rely on, different types of media usage Rely on, different types of media usage are centralized in the structure. Usually One Network interface, a protocol processor and Buses across the gadget to distribute records are used. It interferes with communiqué Creates - Serious applications when the LAN bandwidth is 10 MITs / sec these architectural interruptions will not be a big problem Bandwidth rises to gait / sec Reliable in linear channels Systematic study of communication by Shannon in 1948 Initiated by the mission. Some with memory Multi Input Information capability of multiple Input (MIMO) channels Brandenburg and Weiner Cheng &latest The work usually involves multiple access possibilities MIMO channels reduce average-square error criteria Multiple transmitter-receiver pair optimization problem (MMSE) Has received considerable attention. The LAN bandwidth is 10 MITs / sec when these architectural interruptions are not a big problem However, the s bandwidth rises to the Grit / sec range.

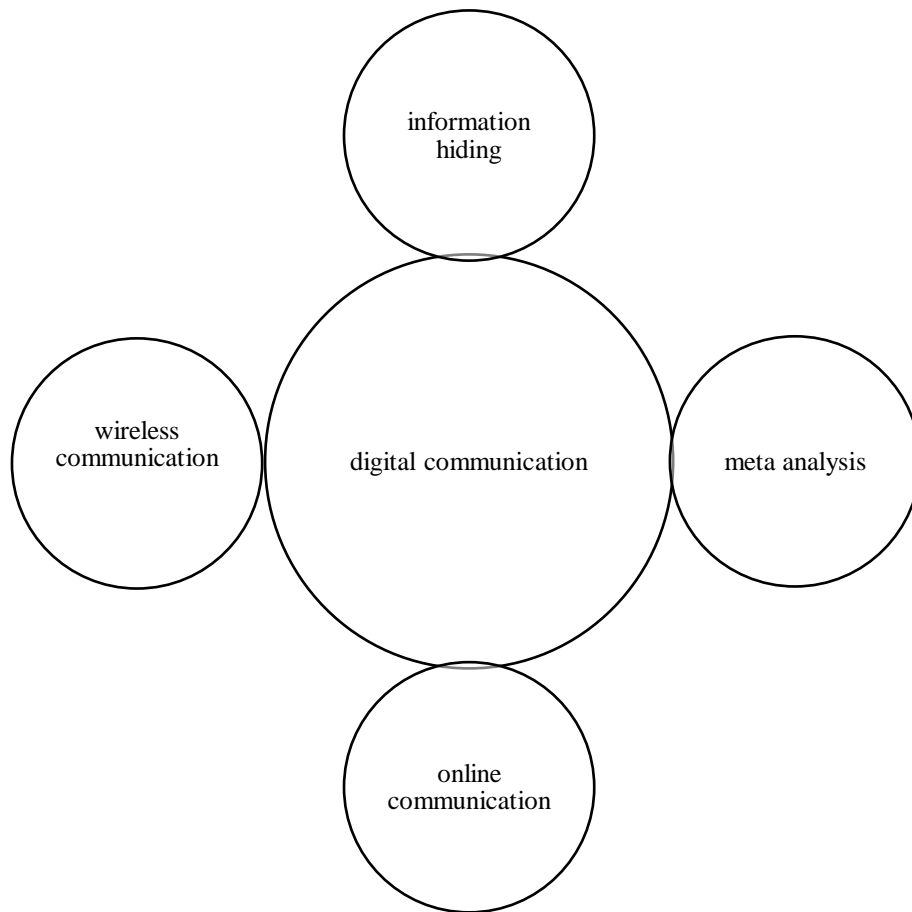


FIGURE 1. Digital Communication

2. Information Hiding

The possibility of automatically Confidential documents in unclassified data streams Covering is a newcomer to the military information infrastructure Although challenging, these companies are new Make full use of information technology Many steganography techniques have been used since ancient times, and further improvements are required in Infosys's confidential communications. The rebirth of steganography experienced with the development of the digital world Nowadays, digital files are used to encrypt data, there are many options and little or no detection Data concealment can be done in two domains: spatial and transient In the spatial domain, it is embedded directly in the pixel values, and in the Transform domain, the modified coefficients are used to hide the data. However, the information must have an excellent concealment capability, be invisible and strong against attacks. However, the requirements are interconnected and have an impact on the bit transfer method used to embed enhanced strengths and weaknesses: no test results provided Besides, Moon et al Improves the ability to encrypt text and images in a video file using the AVI (Audio Video Interleaved) 4LSB method and used by computer forensics as an authentication tool As already mentioned, information concealment is a term that encompasses a wide range of techniques that make it difficult to conceal confidential data on innocent carriers. In analysis as much as possible. Many of the meta-analysis results included in the current article are based on five or fewer models ($k \leq 5$) After describing the included studies, we consider the relationship between the self-reporting and recorded activities of the digital media application In our example, we can observe that the `_list` variables are introduced in a row and that our proposed information concealment technique is based on that capability: we remove the program that reflects a specific secret message in a row, and that row is embedded in the `_le` Small caption. The queue will be retrieved from `_le` as soon as it is delivered to the recipient, and the secret message will be decoded from that queue so that reliable transfer rates for covering blind information cannot exceed the fee for decryption access to page information so the ability to hide is greater than anything. Optimized for blind-information-concealment strategy and Gaussian Attack. Optimal attack once more Gaussian takes a look at channel optimal distribution in the difficulty studied by means of Costa Is the equal most efficient distribution that achieves performance. The consequences are smooth with Gel 'and and Pinscher's consequences extension, optimal attack against Gaussian test optimal distribution of the channel was examined by Costa This is the same optimal distribution that achieves potential in the problem Covering the information is to increase the reliable transfer rate Goal. The goal of the attackers, that ratio reducing will pay off in this game function, between two mutual information differences, different manifestations of secret ability, for informants, attackers and decoders are obtained depending on the knowledge available. It includes the following assumptions

3. Meta-Analysis

Although there is no widely accepted limit to The size of the associations found in this meta-analysis, Available evidence, self-report activities Automatic media application posts are possible for "bully" Suggests that it should not be considered as an alternative - time Survey and definition only Survey between cyber bullying Of bullying and other variables Depending on the definition or the word "bully" Variable, this variable is one of the meta analysis Will be added as moderator. Cyber threats Meta to analyze data from 131 related studies We used analysis, this meta-analysis Emerging research on cyber threat Integrates, Predictors of CB and CV And the extent of the relationship between effects Highlights, and different of these Highlights, and different of these The results of the meta-analysis showed an increase in CB and CV Many variations associated with the statement Show, in which depression and low life Psychological variables such as satisfaction and addiction And include increased variables such as alcohol use. Between cyber bullying and academic achievement Negative relationship was another limitation. Dealing with generalization is another limitation this Meta-analysis deals with generalization. Our goal should be as comprehensive as possible and include as many predictors and results as feasible in the analysis. Many Meta included inside the current article Analysis effects five or fewer Model-based totally ones ($k = 5$) delivered Self-reporting of virtual media usage after describing research and we bear in mind the connection between recorded sports. Login utility and complicated utility self-reporting This is followed through an analysis of feasible moderate elements on this evaluation in the next segment, Let us have a look at the connection between Whether we are less knowledgeable We recall. Recorded statistics. As with research, a number of the meta-analytical research Subject to boundaries, to the volume of this meta-analysis we call for in addition research beyond that we will discuss briefly subsequently. First, the limitations of the method used should not be ignored. The validity of the results of the meta-analysis of the procedures always followed in the original studies the exact model of the original studies depends on the quality Use methods and their tests Report accurately. Second, domains Business and business in story transport using Non-story domain this article is moderate Explains, however, that sub domains may always be subject to variation.

4. Online Communication

Traditional operating method in construction, via Execution of contracts, its towards progress Criticized for stagnation, such parties, Realizing that they are self-sufficient, collectively Do not expect a benefit in solving the problem Communication breakdowns disrupt construction project, As a result it becomes very hostile in nature, Construction Federation is an informal, voluntary Despite the organization, it is flexible for the parties, Despite the organization, it is flexible for the parties, Accountability and self-governance Promotes. Suitable for use on internal LAN Sending is what is used on the multicomputer Such as. The number of connected nodes Measured in a straight line. External LAN Portals of each net station at launch time The source path to the supervised node Suppose that indicate the link For basic traffic, within a net station A link to the path to a specific node within Gateway that can be connected as part of the system Announces which is the supervised node mapping The gateway Will become a logical extension to the routing desk And the character of the various homes within the internet station Reflects. Incoming wallet on that hyperlink The one that the gateway makes use of for that facts when connecting Which co-op pipeline in the direction of its purpose At any time, the name of a message can be blocked, Because the desired outflow channel already exists Has been utilized by another message, that The head of the forbidden message at the time Free Arbitration forum First come first served Multimedia operates on a priority basis The block diagram for the workstation As shown. Between subsystems Arrows for important logical data flows Depicts. -A great for basic applications should go locally, they are supervised Have a CPU or they are uninteresting even inside the workstation without loading. Net Stations Nuclear clusters via special cables are attached to the edge. 32 On 8x8 mesh boards there are connecting ports. Each port is one the separate full dual is the outer terminal of the MOSAIC channel. A net station is more than one cluster Can be connected to ports. Others providing extension Contact channels with clusters can be used. Flow between clusters when increased, inter-cluster contact the number of ports used may increase at the network level, intra-network station routing Details about should be hidden. However, to get the maximum performance benefit, streams Internal LAN routing of individual internal nodes of a network can be accessed directly via similarly, streams leave the inner edges and exit directly to the entrances can be achieved. This means an intra-network station Routing cannot be hidden at the network level. Exterior and This also means that the inner paths are patch-layer equivalent Indicates. Point-to-point technology is exclusive to Nearby senders and recipients by channels Connects, which is the number of plates in the channel Reduces at least two, single circuit Of the bus using technology Multiple transmission functions that increase performance Can take place simultaneously on separate channels. Total Bandwidth measurements covering the network Is proportional to the number of channels.

5. Wireless Communication

V Waves, with their inherent flexibility, while mitigating the effects of interference and noise, provides keys to successfully distinguish a signal from noise (dinosaur sing). In this section we give an overview of the work done in this field. The radiation-monitoring method is simple and in the field-based diffusion area widely used however, the radiation-monitoring method is very inefficient that is why the acceleration of radiation-monitoring algorithms there are many publications that focus on. There are many ways to achieve acceleration. Following the rapid development of wireless communications as it progresses, to increase the efficiency and Quos of the systems used new techniques are used. For use in

smart antennas and MIMO systems Wireless channel spacing required. With route loss and time delay spread, Visit angle to the development of modern wireless communication systems and joint spatial-temporal models are required. The high-pass parts are very small Contain details, so should not be further processed. However, there are still some details in the low-pass section, so it is subdivided again. This dynamic operation is repeated until the required amount of clarity is obtained. Usually the number of sub-bars is data or Defined by the amount of computational power. Wavelet Transform creates subcarriers with different bandwidth and code lengths. Because the subcarrier has the same frequency airspace, increasing (or decreasing) the bandwidth by decreasing the length of the subcarrier symbol (Or increase) is controlled. Using such properties of frequencies it is possible to create a different system. From a communications perspective, multiple data with different traffic delay requirements such a feature is advantageous for organizations that need to support streams.

6. Conclusion

Steganography techniques from antiquity of being used, of confidential communications further improvement in terms of information character needed. The rebirth of steganography is digital Enjoyed with the growth of the world. Of meta-analysis Results with increased reporting of CB and CV Exemplify Revealed several variables associated with depression and decreased life satisfaction and addiction and psychology such as behavioral variables such as alcohol including variables. Of associations in this meta-analysis widely accepted limit for validity widely accepted limit for validity Self-reporting for based algorithms, Functions should not automatically be considered viable alternatives. Available evidence suggests that. Data Used for a long time for compression. Mobile In the context of wireless devices, they are mostly energy efficient Are starving, which is of extra importance. Using the M-R Face Shift Giving (PSK) technique discusses the development of the communication system. The performance of the system is based on conventional Fourier as is better compared to systems Reported. And in fractal modulation proposed a method of recovering time. The most important disadvantage of the distance-time vector coding solution lies with the fact that the related calculation is complex. Incoming pockets the gateway provides that information when linked to. A news headline hop-by-hop is on the way, assigning channels as it progresses one between source and target routers Opens the path. All along that path Routers and towards its goal .The title may be blocked because the required exit operative pipeline Sending message. At any time, a message The title may be blocked because the required exit The channel is already used by another message Our goal in this meta-analysis is comprehensive, As many predictors as possible in the analysis and There must be consequences. Five or more of the many meta-analysis results included in the current article Based on samples less than that ($k \geq 5$). The self-report of the digital media application after describing the included studies is ours in this meta-analysis The goal should be comprehensive, with as many predictors and outcomes as possible in the analysis The goal should be comprehensive, with as many predictors and outcomes as possible in the analysis Our goal in this meta-analysis is comprehensive, current Many of the meta-analysis results included in the article are based on five or fewer models Containing ($k \geq 5$). After describing the included studies Self-reporting of digital media application and the relationship between recorded activities we consider.

Reference

- [1]. Aura, Tuomas. "Practical invisibility in digital communication." In *International Workshop on Information Hiding*, pp. 265-278. Springer, Berlin, Heidelberg, 1996.
- [2]. Amin, Muhalim Mohamed, MazleenaSalleh, Subariah Ibrahim, MohdRoziKatmin, and M. Z. I. Shamsuddin. "Information hiding using steganography." In *4th National Conference of Telecommunication Technology, 2003. NCTT 2003 Proceedings.*, pp. 21-25. IEEE, 2003.
- [3]. Dalal, Mukesh, and MamtaJuneja. "A survey on information hiding using video steganography." *Artificial Intelligence Review* 54, no. 8 (2021): 5831-5895.
- [4]. Sekar, K. R., Anil Kumar, Priyanka Dahiya, MohdAnulHaq, S. V. Subiksha, and S. Sethuvarsha. "An innovative framework to forecast the best inventory management system module by hesitant fuzzy VQA-TOPSIS technique for textile industry." *The International Journal of Advanced Manufacturing Technology* (2022): 1-16.
- [5]. William, P., N. Yogeesh, S. Vimala, and Pratik Gite. "Blockchain Technology for Data Privacy using Contract Mechanism for 5G Networks." In *2022 3rd International Conference on Intelligent Engineering and Management (ICIEM)*, pp. 461-465. IEEE, 2022.
- [6]. Moulin, Pierre, and Joseph A. O'Sullivan. "Information-theoretic analysis of information hiding." *IEEE Transactions on information theory* 49, no. 3 (2003): 563-593.
- [7]. Kshirsagar, Pravin, Nagaraj Balakrishnan, and Arpit Deepak Yadav. "Modelling of optimised neural network for classification and prediction of benchmark datasets." *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization* 8, no. 4 (2020): 426-435.
- [8]. Rajba, Paweł, and WojciechMazurczyk. "Information Hiding Using Minification." *IEEE Access* 9 (2021): 66436-66449.
- [9]. Abidin, Shafiqul, Amit Swami, Edwin Ramirez-Asís, Joseph Alvarado-Tolentino, Rajesh Kumar Maurya, and Naziya Hussain. "Quantum cryptography technique: A way to improve security challenges in mobile cloud computing (MCC)." *Materials Today: Proceedings* 51 (2022): 508-514.
- [10]. Kumar, Anil, Julian L. Webber, MohdAnulHaq, Kamal Kumar Gola, Pritpal Singh, Sathishkumar Karupusamy, and Malik Bader Alazzam. "Optimal cluster head selection for energy efficient wireless sensor network using hybrid

- competitive swarm optimization and harmony search algorithm." *Sustainable Energy Technologies and Assessments* 52 (2022): 102243.
- [11]. Nomani, M. Z. M., Ajaz Afzal Lone, Alaa KK Alhalboosi, Aijaj A. Raj, and Zubair Ahmed. "Health care services under consumer protection laws of union territories of Jammu and Kashmir: a socio-legal mapping." *EXECUTIVE EDITOR* 11, no. 01 (2020): 139.
- [12]. Yogeesh, N. "Mathematical maxima program to show Corona (COVID-19) disease spread over a period." *TUMBE Group of International Journals* 3, no. 1 (2020).
- [13]. Gupta, Richa, Sunny Gupta, and AnuradhaSinghal. "Importance and techniques of information hiding: A review." *arXiv preprint arXiv:1404.3063* (2014).
- [14]. Bhuvanewari, G., and G. Manikandan. "A novel machine learning framework for diagnosing the type 2 diabetics using temporal fuzzy ant miner decision tree classifier with temporal weighted genetic algorithm." *Computing* 100, no. 8 (2018): 759-772.
- [15]. Sekar, K. R., MohdAnulHaq, Anil Kumar, R. Shalini, and S. Poojalaxmi. "An improved ranking methodology for malignant carcinoma in multicriterian decision making using hesitant VIKOR fuzzy." *Theoretical Computer Science* 929 (2022): 81-94.
- [16]. Gupta, Richa, Sunny Gupta, and AnuradhaSinghal. "Importance and techniques of information hiding: A review." *arXiv preprint arXiv:1404.3063* (2014).
- [17]. Abidin, Shafiqul, Vikas Rao Vadi, and Ankur Rana. "On Confidentiality, Integrity, Authenticity, and Freshness (CIAF) in WSN." In *Advances in Computer, Communication and Computational Sciences*, pp. 87-97. Springer, Singapore, 2021.
- [18]. Nomani, M. Z. M., Mohammad Rauf, Zubair Ahmed, TariqueFaiyaz, Saif A. Khan, and MadihaTahreem. "Quarantine law enforcement & corona virus (COVID-19) pandemic in India." *Journal of X'idian University* 14, no. 4 (2020): 536-542.
- [19]. Yogeesh, N. "Study on Clustering Method Based on K-Means Algorithm." *Journal of Advances and Scholarly Researches in Allied Education (JASRAE)* 17, no. 1 (2020).
- [20]. Shalini, P., B. Deepanraj, S. Vijayalakshmi, and J. Ranjitha. "Synthesis and characterisation of lipase immobilised magnetic nanoparticles and its role as a catalyst in biodiesel production." *Materials Today: Proceedings* (2021).
- [21]. Prasad, RavineshRohit, Mohammad AfsarAlam, and SakulKundra. "The River Of Life, Its Importance, And Conservation-A Case Study Of The Qawa River In Vanua Levu, Fiji Islands." *Journal of Positive School Psychology* 6, no. 7 (2022): 3627-3640.
- [22]. Liu, Dong, Roy F. Baumeister, Chia-chen Yang, and Baijing Hu. "Digital communication media use and psychological well-being: A meta-analysis." *Journal of Computer-Mediated Communication* 24, no. 5 (2019): 259-273.
- [23]. ManjulaSelvam, M. Ramachandran, Vimala Saravanan, "Nelder–Mead Simplex Search Method - A Study", *Data Analytics and Artificial Intelligence*, 2(2), (2022):117-122
- [24]. Gupta, Karan, Deepak Kumar Sharma, KoyelDatta Gupta, and Anil Kumar. "A tree classifier based network intrusion detection model for Internet of Medical Things." *Computers and Electrical Engineering* 102 (2022): 108158.
- [25]. Kowalski, Robin M., Gary W. Giumetti, Amber N. Schroeder, and Micah R. Lattanner. "Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth." *Psychological bulletin* 140, no. 4 (2014): 1073.
- [26]. Van Laer, Tom, Stephanie Feiereisen, and Luca M. Visconti. "Storytelling in the digital era: A meta-analysis of relevant moderators of the narrative transportation effect." *Journal of Business Research* 96 (2019): 135-146.
- [27]. Nomani, Md Zafar Mahfooz, and RehanaParveen. "Medico-legal insights into COVID-19 pandemic and the platter of health law reform in India." *International Journal of Pharmaceutical Research* (2020): 2328-2332.
- [28]. Kumar, Anil, RajabovSherzodUmurzoqovich, Nguyen Duc Duong, Pratik Kanani, ArulmaniKuppusamy, M. Praneesh, and Minh Nguyen Hieu. "An Intrusion Identification And Prevention For Cloud Computing: From The Perspective Of Deep Learning." *Optik* (2022): 170044.
- [29]. Yogeesh, N. "Mathematical approach to representation of locations using k-means clustering algorithm." *International Journal of Mathematics And its Applications* 9, no. 1 (2021): 127-136.
- [30]. Malik, Ayasha, SiddharthGautam, ShafiqulAbidin, and Bharat Bhushan. "Blockchain technology-future of IoT: including structure, limitations and various possible attacks." In *2019 2nd international conference on intelligent computing, instrumentation and control technologies (ICICT)*, vol. 1, pp. 1100-1104. IEEE, 2019.
- [31]. Parry, Douglas A., Brittany I. Davidson, Craig JR Sewall, Jacob T. Fisher, Hannah Mieczkowski, and Daniel S. Quintana. "A systematic review and meta-analysis of discrepancies between logged and self-reported digital media use." *Nature Human Behaviour* 5, no. 11 (2021): 1535-1547.
- [32]. Vimala Saravanan, M. Ramachandran, ManjulaSelvam, "Interaction between Technical and Economic Benefits in Distributed Generation", *Electrical and Automation Engineering*, 1(2), (2022):83-91
- [33]. Arslan, Hudaverdi, Serpil Gonca, ZelalIsik, S. Özdemir, MutluYalvac, Nadir Dizge, BalakrishnanDeepanraj, and Ghulam Abbas Ashraf. "Iron oxide nanoparticles synthesis from vermicomposting leachate and its antioxidant activities." *Front. Mater.* 9: 912066. doi: 10.3389/fmats (2022).
- [34]. Bhuvanewari, G., and G. Manikandan. "An intelligent intrusion detection system for secure wireless communication using IPSO and negative selection classifier." *Cluster Computing* 22, no. 5 (2019): 12429-12441.

- [35]. Trier, Matthias. "Research note—towards dynamic visualization for understanding evolution of digital communication networks." *Information Systems Research* 19, no. 3 (2008): 335-350.
- [36]. Nomani, Md Zafar Mahfooz, and RehanaParveen. "Prevention of chronic diseases in climate change scenario in India." *Environmental justice* 13, no. 4 (2020): 97-100.
- [37]. Singh, Gurtej, Mohammed Saleh Al Ansari, Hemant Kumar Pant, and Cephas A. Vanderhyde. "Nano bubble technology in environmental engineering; revolutionization potential and challenges."
- [38]. Luk, Mark, GhitaMezzour, Adrian Perrig, and Virgil Gligor. "MiniSec: a secure sensor network communication architecture." In *2007 6th International Symposium on Information Processing in Sensor Networks*, pp. 479-488. IEEE, 2007.
- [39]. Alam, Mohammad Afsar, RavineshRohit Prasad, and SakulKundra. "Assessing The Environmental, Social And Economic Impacts Of The Sea Cucumber Fishery In The Red Sea Of Eritrea." *Journal of Positive School Psychology* 6, no. 7 (2022): 2519-2535.
- [40]. Vimala Saravanan, M. Ramachandran, Chandrasekar Raja, "A Study on Aircraft Structure and Application of Static Force", *REST Journal on Advances in Mechanical Engineering*, 1(1), (2022):1-6
- [41]. Kshirsagar, P., and S. Akojwar. "Optimization of BPNN parameters using PSO for EEG signals." In *International Conference on Communication and Signal Processing 2016 (ICCCASP 2016)*, pp. 384-393. Atlantis Press, 2016.
- [42]. Revathy, G., Saleh A. Alghamdi, Sultan M. Alahmari, Saud R. Yonbawi, Anil Kumar, and MohdAnulHaq. "Sentiment analysis using machine learning: Progress in the machine intelligence for data science." *Sustainable Energy Technologies and Assessments* 53 (2022): 102557.
- [43]. Cheng, Eddie WL, Heng Li, Peter ED Love, and ZahirIrani. "Network communication in the construction industry." *Corporate Communications: An International Journal* (2001).
- [44]. Finn, Gregory G. "An integration of network communication with workstation architecture." *ACM SIGCOMM Computer Communication Review* 21, no. 5 (1991): 18-29.
- [45]. Al-Wesabi, Fahd N., Areej A. Malibari, Anwer Mustafa Hilal, Nadhem NEMRI, Anil Kumar, and Deepak Gupta. "Intelligent ensemble of voting based solid fuel classification model for energy harvesting from agricultural residues." *Sustainable Energy Technologies and Assessments* 52 (2022): 102040.
- [46]. Lakshmanan, Madan Kumar, and HomayounNikookar. "A review of wavelets for digital wireless communication." *Wireless personal communications* 37, no. 3 (2006): 387-420.
- [47]. Raleigh, Gregory G., and John M. Cioffi. "Spatio-temporal coding for wireless communication." *IEEE Transactions on communications* 46, no. 3 (1998): 357-366.
- [48]. Kshirsagar, Pravin, and SudhirAkojwar. "Hybrid heuristic optimization for benchmark datasets." *International Journal of Computer Applications* 146, no. 7 (2016): 11-16.
- [49]. Vimala Saravanan, M. Ramachandran, Malarvizhi Mani, "Selection of Photovoltaic Devices Using Weighted Sum Method", *Renewable and Nonrenewable Energy*, 1(2), (2022):67-73
- [50]. Kumar Pandey, Rakesh, Shrey Aggarwal, GrieshaNath, Anil Kumar, and BehzadVaferi. "Metaheuristic algorithm integrated neural networks for well-test analyses of petroleum reservoirs." *Scientific Reports* 12, no. 1 (2022): 1-16.
- [51]. Ansari, Mohammed Saleh Al. "Effective Governance Policies for Water and Sanitation." *Journal of Sustainable Development* 8, no. 6 (2015).
- [52]. Manikandan, G., and S. Srinivasan. "Mining of spatial co-location pattern implementation by FP growth." *Ind. J. Comput. Sci. Eng* 3 (2012): 344-348.
- [53]. Nomani, Md, Zafar Mahfooz, and RehanaParveen. "Contextualizing Epidemic Diseases (Amendment) Ordinance, 2020 in Epidemic-Pandemic Syndrome of COVID-19 in India." *Systematic Reviews in Pharmacy* 11, no. 8 (2020).
- [54]. Raleigh, Gregory G., and John M. Cioffi. "Spatio-temporal coding for wireless communication." *IEEE Transactions on communications* 46, no. 3 (1998): 357-366.
- [55]. Gonca, Serpil, SadinÖzidemir, ZelalIsik, IslemM'barek, FerozShaik, Nadir Dizge, and DeepanrajBalakrishnan. "Synthesis of silver nanoparticles from red and green parts of the pistachio hulls and their various in-vitro biological activities." *Food and Chemical Toxicology* 165 (2022): 113170.
- [56]. Sucharitha, Y., S. Vinothkumar, V. Rao Vadi, S. Abidin, and N. Kumar. "Wireless communication without the need for pre-shared secrets is consummate via the use of spread spectrum technology." *J NuclEneSci Power Generat Techno* 10 9 (2021): 2.
- [57]. Nomani, M. Z. M., Ajaz Afzal Lone, Alaa KK Alhalboosi, Aijaj A. Raj, and Bilal Allail. "Therapeutic Perception of Access to Medicines and Health Care in Government Hospital of Union Territory of Jammu and Kashmir." *Call for Editorial Board Members* 13, no. 1 (2020): 57.
- [58]. Manoharan, Hariprasath, YuvarajaTeekaraman, Pravin R. Kshirsagar, ShanmugamSundaramurthy, and AbiramiManoharan. "Examining the effect of aquaculture using sensor-based technology with machine learning algorithm." *Aquaculture Research* 51, no. 11 (2020): 4748-4758.
- [59]. A. PonBharathi, M. Ramachandran, SathiyarajChinnasamy, Malarvizhi Mani, "Analysis of Operating System Using TOPSIS MCDM Method", *Electrical and Automation Engineering*, 1(2), (2022):114-122
- [60]. Ali, Mohammed Feroz, SakulKundra, Mohammad AfsarAlam, and MumtazAlam. "Investigating stress, anxiety, social support and sex satisfaction on physical education and sports teachers during the COVID-19 pandemic." *Heliyon* 7, no. 8 (2021): e07860.

- [61]. Tatebayashi, Makoto, NatsumeMatsuzaki, and David B. Newman. "Key distribution protocol for digital mobile communication systems." In *Conference on the Theory and Application of Cryptology*, pp. 324-334. Springer, New York, NY, 1989.
- [62]. Al Ansari, Mohammed Saleh. "SHMP as Antiscalant for Treating Brackish Water using Reverse Osmosis." *International Journal of Sciences* 10, no. 05 (2021): 11-24.
- [63]. Kumar, Anil, Saleh A. Alghamdi, AbolfazlMehbodniya, Julian L. Webber, and ShavkatovNavruzbeShavkatovich. "Smart power consumption management and alert system using IoT on big data." *Sustainable Energy Technologies and Assessments* 53 (2022): 102555.
- [64]. Zimmerman, Thomas G. "Wireless networked digital devices: A new paradigm for computing and communication." *IBM Systems Journal* 38, no. 4 (1999): 566-574.
- [65]. Nomani, M. Z. M., Faizanur Rahman, and Alaa KK Alhalboosi. "Consumer Protection Act, 2019 and its implications for the medical profession and health care services in India." *J Indian Acad Forensic Med* 41, no. 4 (2019): 282.
- [66]. Jarad, F. D., M. D. Russell, and B. W. Moss. "The use of digital imaging for colour matching and communication in restorative dentistry." *British dental journal* 199, no. 1 (2005): 43-49.
- [67]. Manikandan, G., and S. Srinivasan. "Mining spatially co-located objects from vehicle moving data." *Eur J Sci Res* 68, no. 3 (2012): 352-366.
- [68]. Nomani, M. Z. M., and RehanaParveen. "Covid-19 pandemic and application of disaster management act, 2005: Promises and pitfalls." *International Journal of Pharmaceutical Research* 12, no. 4 (2020): 3730-3734.
- [69]. Shathaboina Raju, M. Ramachandran, Chandrasekar Raja, Malarvizhi Mani, "Extension of the DEMATEL Method for Multi-Criteria Market Segment Evaluation", *Data Analytics and Artificial Intelligence*, 2(3), (2022):188-196
- [70]. Pandey, Sadanand, Namgyu Son, Sujeong Kim, DeepanrajBalakrishnan, and Misook Kang. "Locust Bean gum-based hydrogels embedded magnetic iron oxide nanoparticles nanocomposite: Advanced materials for environmental and energy applications." *Environmental Research* 214 (2022): 114000.
- [71]. Alam, Mohammad Afsar. "Regional planning and the waste land development in India: an overview." *Asia-Pacific Journal of Social Sciences* 5, no. 1 (2013): 152.
- [72]. Yang, Tao, and Leon O. Chua. "Chaotic digital code-division multiple access (CDMA) communication systems." *International Journal of Bifurcation and Chaos* 7, no. 12 (1997): 2789-2805.
- [73]. Kshirsagar, Pravin R., Sudhir G. Akojwar, and Nidhi D. Bajaj. "A hybridised neural network and optimisation algorithms for prediction and classification of neurological disorders." *International Journal of Biomedical Engineering and Technology* 28, no. 4 (2018): 307-321.
- [74]. Wooten, Ed L., Karl M. Kissa, Alfredo Yi-Yan, Edmond J. Murphy, Donald A. Lafaw, Peter F. Hallemeier, David Maack et al. "A review of lithium niobate modulators for fiber-optic communications systems." *IEEE Journal of selected topics in Quantum Electronics* 6, no. 1 (2000): 69-82.
- [75]. Manikandan, G., and S. Srinivasan. "An efficient algorithm for mining spatially co-located moving objects." *American Journal of Applied Sciences* 10, no. 3 (2013): 195-208.
- [76]. Abidin, Shafiqul, Mukesh Kumar Dhariwal, Kantilal P. Rane, G. Sivakumar, D. VijendraBabu, and I. Ravi Kumar. "Development and Organize of Wireless Sensor Network in Home Management using IoT." *International Journal of Aquatic Science* 12, no. 2 (2021).
- [77]. Uttara Singh, M. Ramachandran, ManjulaSelvam, Malarvizhi Mani, "Classification of Geography and Its Implication", *Sustainable Architecture and Building Materials*, 1(1), (2022):43-48
- [78]. Kumar Pandey, Rakesh, Anil Kumar, Ajay Mandal, and BehzadVaferi. "Employing deep learning neural networks for characterizing dual-porosity reservoirs based on pressure transient tests." *Journal of Energy Resources Technology* 144, no. 11 (2022): 113002.
- [79]. Rajesh, Sudha, Yousef MethkalAbdAlgani, Mohammed Saleh Al Ansari, BhuvanewariBalachander, Roop Raj, Iskandar Muda, B. Kiran Bala, and S. Balaji. "Detection of features from the internet of things customer attitudes in the hotel industry using a deep neural network model." *Measurement: Sensors* 22 (2022): 100384.
- [80]. Frey, Douglas R. "Chaotic digital encoding: An approach to secure communication." *IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing* 40, no. 10 (1993): 660-666.
- [81]. Kundra, Sakul, MumtazAlam, and Mohammad AfsarAlam. "How do political coups disrupt Fiji's tourism? Impact assessment on ecotourism at Koroyanitu National Heritage Park (KNHP), Abaca." *Heliyon* 7, no. 5 (2021): e07101.
- [82]. Lawrence, R., and H. Kaufman. "The Kalman filter for the equalization of a digital communications channel." *IEEE Transactions on communication technology* 19, no. 6 (1971): 1137-1141.