

Cognitive Radio Networks with Flexible Channel Cooperation in Resource Allocation

P. Poomani¹, P. Thirumoorthy²

¹PG Scholar, Department of Computer Science and Engineering, Nandha Engineering College, Erode,
Tamil Nadu, India. poomani814@gmail.com

²Professor, Department of Computer Science and Engineering, Nandha Engineering College, Erode,
Tamil Nadu, India. 4thiru4u@gmail.com

Received 02th Feb 2022, Accepted 08th Mar 2022, Online 7th May 2022

Abstract: The Wireless correspondence networks are a drawn-out that accompanies all kinds of strategies and kinds of associating and human movement between at least two gadgets utilizing a remote transmission through remote correspondence advances and gadgets. Correspondence issues encapsulate impromptu and foundation networks as correspondence properties, conventions, information configurations, and substantial innovations. The essential client (PU) will send the data through the Secondary User (SU). Then, at that point, through how much SU s the information is moved to the base station. The channel is commonly relegated given the two algorithmic principles, the ideal disseminated dealing calculation and concentrated heuristic calculation. Then, at that point, among the current framework, expansion assault is a serious disadvantage. The expansion assault is overwhelmed by executing the Future Peak Detection calculation. This verifies that the Pu will choose to communicate information through that SU. So the expansion tackle issue could likewise survive. Furthermore, the information is crossed to the base station with the entire security.

Keywords: Content and Presence Multicast Protocol, Broadband Wireless Access, inflation attack, Primary Users, secondary users.

I. INTRODUCTION

The dissemination of cells with plentiful remote correspondence and correspondence capacities has carried the new cell configuration process with new present-day accepted practices [16]-[19]. The new, easy-to-use innovation permits clients to search, download, and share top-notch content from their telephone with loved ones. With specially appointed systems administration abilities in cell phones, we are getting down to see them on top of pattern shift from wide-region networks of clients to thick neighbourhood circumstances (e.g., intermittent shops, train stations, football fields, and so on) [1]-[3]. Such a shift presents valuable chances to style mindful closeness frameworks conveying novel social encounters.

For instance, football fans will precisely share films taken on their cell phones with each other, though remarking/rating pictures being taken around them. Planning frameworks for startling conditions presents many captivating examination challenges and the problematic disadvantage of giving versatile, energy proficient presence and content updates [20]-[25].

To keep information contemporary in such conditions, the dissemination systems must be constrained to represent considerable authority in continuous, small metadata refreshes rather than rare monstrous payloads that might even be a reason for extraordinary battery channel from a cell phone [26]-[31]. In System Methodology, the proposition proposes a Content and Presence Multicast Protocol (CPMP) that hubs use to send updates to their neighbours [32]-[37]. The updates contain the general season of their source's next transmission. It proposes to deal with the energy productivity disadvantage by synchronizing the transmission seasons of the multitude of hubs in the framework [38]-[42].

Notwithstanding, in uncontrolled startling conditions, one malevolent client can disturb network dependability and synchronization, contacting either the hubs' power investment funds or their capacity to get refreshes from their neighbors [43]-[47]. Our principle commitment comprises an assortment of synchronization conventions designed on prime of CPMP [48]-[53]. In particular, the proposal presents a weight-based generally Synchronization (WBS) convention that involves the elements of coordinated hub groups as an impetus for change synchronization. While effective, it shows that WBS's dependence on information contained in CPMP refreshes makes it defenceless to straightforward assaults [54]-[59]. The theory proposes the Future Peak Detection (FPD) calculation to deal with this issue [60]. Hubs running FPD use CPMP updates to match up with their biggest arrangement of currently synchronized neighbours, count the number of parcels got inside a given stretch and set the hub's next transmission to be in a state of harmony with the space any place most bundles are gotten [61]-[65]. Though light-weight and proficient, FPD's eager technique groups the organization: hubs arrive at a steady-state while not being simultaneous with every one of their neighbours [66]-[71]. The theory resolves this issue of exploitation randomization [71]-[72]. Our randomized Future Peak Detection (FPDR) calculation, introduced, resembles FPD anyway utilizes a weighted probabilistic procedure to decide a hub's next UTC upheld the bundles [73]-[75].

II. RELATED WORK

In the interest of the security-mindful asset portion in the remote organization, the security-mindful max-min join sub-channel designation and power assignment were intended for multiuser OFDMA framework with one snoop [76]-[98]. For OFDMA organizations, security-mindful asset allotment calculation with various untrusted MTs within sight of an amicable jammer was proposed in [26]. In [27], the critical key arrangement for MTs associated through equal constriction channels was thought of. Consequently, the security-mindful asset allotments were planned individually with full and incomplete busybody's channel state information (CSI). In [28], secure asset distributions for OFDMA two-way transfer remote organizations were examined while not and with helpful sticking separately. One restriction of work for secure asset distribution in heterogeneous multi-homing organizations is that they disregard the effect of the bundle delay and the parcel dropping probability on the mystery transmission. Request to guarantee the security-mindful parcel-level QoS, the line cradle inheritance at the connection layer should likewise be dissected. This influences the asset allotment at the actual layer. During this paper, we will quite often explore the security-mindful energy strength augmentation disadvantage subject to the bundle level QoS imperatives for heterogeneous multi-homing organizations [99-122].

III. PROPOSED SYSTEM

In the proposed framework, all the current framework approach is executed. Also, for appropriate booking among PUs and SUs, synchronizing hubs are introduced that occasionally distinguish the reasonable SUs

for the given PUs. Thus, the subchannel task is superior to the existing framework [123-147]. Best SU Detection algorithmic rule is wanted to stay away from the expansion assault that is made by sending misleading most weight among the SUs. The new framework disposes of the issue by wise the transmission plan utilizing the weight data because of the proposed calculation steps. In the new framework, synchronization among PUs and SUs happened rapidly [148-168]. The next transmission timetable of PUs for synchronization with SUs is exact. Auxiliary User determination among numerous SUs turns out to be simple for a given Primary User [169-175]. The expansion assault is stayed away from. The fundamental issue in the power designation calculation and the channel portion issue is helpful multiuser symmetrical recurrence division multiplexing mental radio (CR) frameworks (figure 1).

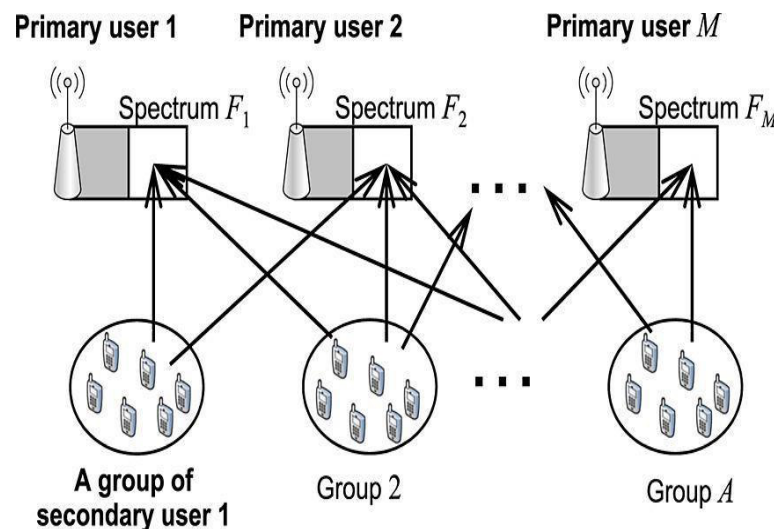


Fig. 1. Cognitive network

Optimal Distributed Bargaining For FLEC

In this module, the essential clients and optional clients are included in listing box controls. In the wake of instating the power and band width necessity, the essential clients select the auxiliary clients that are competent to give the prerequisites [176-181]. The auxiliary clients keep up with the rundown of essential clients for which the channels are assigned. The optional organization infers the meaning of a legitimate structure. Utilizing this data, the sub-channels can be doled out to such an extent that every Secondary client relegates the essential clients in the request for the least bandwidth [182-189]. The bartering issue of an agreeable game model could be depicted as follows. Let $k = \{1, 2\}$ be the set of users in a bargaining algorithm. S is a closed and convex subset of to reflect the set of potential payoff allocations. Let U_i be the cooperative payoff of node i and U_j be the minimal payoff that node i does not participate a cooperative communication. According to the definition of cooperative game theory, node i will not proceed with a cooperative action [190-198]. At the same time, U_i is less than U_j to ensure that it can benefit from cooperative communication.

$$S = \{U = (U_1, U_2) \mid U_1 \in S_1, U_2 \in S_2\} \quad (1)$$

where, $S_i = \{U_i \mid U_i = U_i(p_i, m, n), m \geq 0, n \geq 0, m+n \leq 1\}$ is the potential payoff allocation for user i .

Node Synchronization

In this module, an undertaking to deal with the energy proficiency disadvantage by synchronizing the transmission seasons of the relative multitude of hubs inside the framework is proposed. The transmission synchronization presents energy-saving an open door through unique power on the organization's connection point board. That is, hubs will switch their remote connection points between transmissions. In this paper, a synchronization plot is intended to understand synchronization in muddled networks that hub comprises the perplexing tumultuous framework. The confounded input regulator is intended to see entirely unexpected pieces of intricate state vector synchronize up to very surprising scaling progressed work. Simultaneously, synchronization inconsistent time postpones convoluted organizations, and synchronization in time-changing coupling defer muddled networks are researched. Synchronization in the mental radio framework could be the main issue today since it can empower consistent signs based on planning jitter. In this manner, there are numerous symmetrical recurrence division multiplexing (OFDM) based signal recognition procedures.

Suspicious Node Detection Based on Neighbor Nodes Behaviour during Previous Transmissions

The Node identification module proposes the future pinnacle location calculation to beat the expansion assault. The presence of vindictive clients can fundamentally influence the exhibition of the CR agreeable detecting framework. So, the vicious client can then childishly communicate its sign on the free channel. One strategy to recognize the malignant clients in the framework is to look at the sizes of the anomaly factors registered to utilize bi-weight as the area. On the off chance that the essential sign is available, a non-malevolent mental client with an amazing channel between its beneficiary and subsequently the Pu could have a high exception issue, especially assuming the dissemination of the Pu signal/clamor proportion (SNR) at the cr clients is slanted. Subsequently, a lower limit worth θ_1 would increment the possibilities of misdetection of such a client as malignant, that could seriously diminish the opportunity of discovery of the Pu signal by the helpful detecting framework rather than depending on emotional data (the weight esteem contained in CPMP refreshes), FPD licenses hubs to make a local estimate of this measurement, utilizing just genuine data got from the perception the hour of update gatherings. FPD works by examining how many parcels hang on in each space of the current dynamic span.

IV. Experimental and Result Analysis

Our .NET Framework design might be facilitated by un oversight components that can stack the normal language runtime into their cycles and start the execution of overseen code, along these lines making a code set that will take advantage of both oversight and unmanaged highlights. Visual C# upholds execution legacy, interfaces, and over-burdening. Moreover, Visual C#. Moreover, .NET backs the multi-stringing idea. In this stage, the three calculations were utilized for communicating the information with the security; the dealing calculation is utilized to distinguish the dubious hub and hub synchronization, both by the essential and the auxiliary client. The incorporated heuristic calculation is utilized to assign the channel exclusively by the base station. Then, at that point, to defeat the expansion assault, the future pinnacle location calculation is utilized. In this segment, we assess the proposed plot as obstructing likelihood, dropping likelihood, and throughput. The limit of SUs possibly happens when an appearance SU observes that there are no accessible sub-bands in the framework. This implies that all the SUs in the framework are type 1 or type 0 and that there are no free sub-bands.

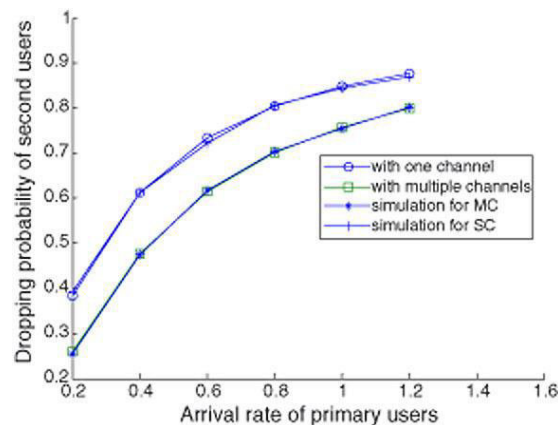


Fig. 2. Blocking Probability

In Figure 2, two bends address our scientific outcomes, and consequently, the other two address the reproduction results. These four bends are covered because the recreation results align with the scientific outcomes, which exhibited our demonstration's adjustment. What's more, with a high PU appearance rate, the limit probabilities of SUs with/without are extremely close. Figure 3 shows that the new plan can get a lot higher energy proficiency than the old one.

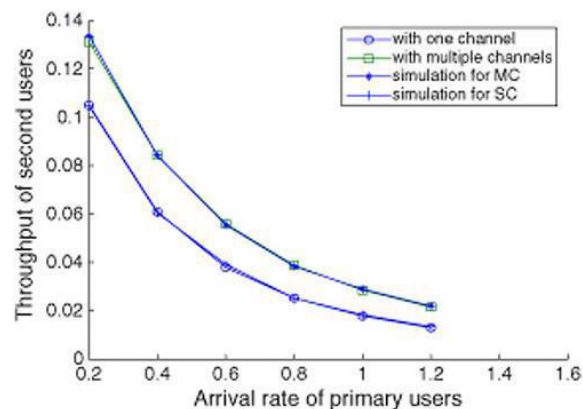


Fig. 3. Energy Efficiency

V. CONCLUSION AND FUTURE WORK

In this paper, some of the algorithmic procedures were proposed for the synchronization techniques. Be that as it may, the utilization of irregular qualities in victor opening computation doesn't guarantee penny percent exactness. So, the expansion of proposed calculations with another calculation is expected for exceptionally proficient correspondence. The security-mindful asset portion calculation was planned to utilize the Lagrangian double disintegration strategy. A security-mindful heuristic asset allotment calculation was also proposed to diminish the calculation intricacy. The new framework will become valuable, assuming this is done by looking at changed algorithmic methods made in the future. In ongoing, we will believe the dubious hub discovery strategies to be further dependable by utilizing different algorithmic variables.

Conflicts of Interest: The authors declare that they have no conflicts of interest to report regarding the present study.

REFERENCES

1. H. Xu and B. Li, "Efficient resource allocation with flexible channel cooperation in OFDMA cognitive radio networks," in Proc. IEEE INFOCOM, 2010.
2. J. Zhang and Q. Zhang, "Stackelberg game for utility-based cooperative cognitive radio networks," in Proc. ACM MobiHoc, 2009.
3. M. Andrews and L. Zhang, "Scheduling algorithms for multi-carrier wireless data systems," in Proc. ACM MobiCom, 2007.
4. S. Deb, V. Mhatre, and V. Ramayan, "Wimax relay networks: Opportunistic scheduling to exploit multiuser diversity and frequency selectivity," in Proc. ACM MobiCom, 2008.
5. IEEE 802.16j task group. "Air Interface for Fixed and Mobile Broadband Wireless Access Systems: Multihop Relay Specification", 802.16j-06/026r4 edition, June 2007.
6. M. Charafeddine, O. Oymant, and S. Sandhu. "System-level performance of cellular multihop relaying with multiuser scheduling." In CISS, March 2007.
7. T. S. Rappaport. "Wireless Communications: Principles and Practice." Prentice Hall, 2001.
8. O. Oyman. OFDMA2A: "A centralized resource allocation policy for cellular multi-hop networks", In IEEE Asilomar Conference on Signals, Systems and Computers, Nov 2006.
9. IEEE 802.16e task group. "Air Interface for Fixed and Mobile Broadband Wireless Access Systems using mobile operation", Amendment 2: Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands, 802.16e-2005 edition, February 2006.
10. J. Padhye R. Draves and B. Zill. "Routing in multi-radio, multi-hop wireless mesh network", In ACM Mobicom, September 2004.
11. I. Akyildiz, W.-Y. Lee, M. Vuran, and S. Mohanty, "Next Generation/Dynamic Spectrum Access/Cognitive Radio Wireless Networks: A Survey", Elsevier Computer Networks Journal, vol. 50, pp. 2127–2159, September 2006.
12. J. Zhang and Q. Zhang, "Stackelberg Game for Utility-Based Cooperative Cognitive Radio Networks", in Proc. of ACM MobiHoc, 2009.
13. IEEE Standard, "802.16TM: "Air Interface for Fixed Wireless Access Systems", 2005.
14. C. Cordeiro, K. Challapali, D. Birru, and S. Shankar, "IEEE 802.22: "An Introduction to the First Wireless Standard based on Cognitive Radios", IEEE Journal of Communications, vol. 1, no. 1, pp. 38–47, April 2006.
15. O. Simeone, I. Stanojev, S. Savazzi, Y. Bar-Ness, U. Spagnolini, and R. Pickholtz. "Spectrum leasing to cooperating secondary ad hoc networks: Selected Areas in Communications", IEEE Journal on, 26(1):203–213, Jan. 2008.
16. C. Blázquez, P. Álvarez, N. Bronfman and J. Espinosa, "Factores que influncian la motivación de escolares por las áreas tecnológicas e ingeniería.", Calidad en la Educación, no. 31, p. 46, 2009. Available: 10.31619/caledu.n31.162.
17. Espinosa-Cristia, J. Feregrino and P. Isla, "Emerging, and old, dilemmas for food security in Latin America", Journal of Public Affairs, vol. 19, no. 3, p. e1999, 2019. Available: 10.1002/pa.1999.
18. A. Vega-Muñoz, P. González-Gómez-del-Miño and J. Espinosa-Cristia, "Recognizing New Trends in Brain Drain Studies in the Framework of Global Sustainability", Sustainability, vol. 13, no. 6, p. 3195, 2021. Available: 10.3390/su13063195.

19. J.J. Espinosa-Cristia, "Gestionando la innovación desde la óptica de los estudios de ciencia, tecnología y sociedad: por una perspectiva constructivista y crítica de la gestión de la innovación", *Cadernos EBAPE.BR*, vol. 17, no. 1, pp. 68-83, 2019. Available: 10.1590/1679-395171625.
20. N. Contreras-Barraza, J. Espinosa-Cristia, G. Salazar-Sepulveda and A. Vega-Muñoz, "Entrepreneurial Intention: A Gender Study in Business and Economics Students from Chile", *Sustainability*, vol. 13, no. 9, p. 4693, 2021. Available: 10.3390/su13094693.
21. A. Vega-Muñoz, G. Salazar-Sepulveda, J. Espinosa-Cristia and J. Sanhueza-Vergara, "How to Measure Environmental Performance in Ports", *Sustainability*, vol. 13, no. 7, p. 4035, 2021.
22. N. Contreras-Barraza, J. Espinosa-Cristia, G. Salazar-Sepulveda, A. Vega-Muñoz and A. Ariza-Montes, "A Scientometric Systematic Review of Entrepreneurial Wellbeing Knowledge Production", *Frontiers in Psychology*, vol. 12, 2021. Available: 10.3389/fpsyg.2021.641465.
23. O. Bernasconi and J. Espinosa-Cristia, "No Politics, No Society: Questioning The Justification Of Entrepreneurship In Chilean Public Policies", *Revista de Administração de Empresas*, vol. 60, no. 2, pp. 131-143, 2020. Available: 10.1590/s0034-759020200206.
24. J. Espinosa-Cristia and J. Alarcón, "TransBank POS machines and bill receipts: Socio-technical mediations in the normalization of tipping [Máquinas POS de TransBank y boletas: Mediaciones sociotécnicas en la normalización de las propinas]", *Psicoperspectivas. Individuo y Sociedad*, vol. 18, no. 2, 2019. Available: 10.5027/psicoperspectivas-vol18-issue2-fulltext-1675.
25. J. Garrido Wainer, J. Espinosa, N. Hirmas and N. Trujillo, "Free-viewing as experimental system to test the Temporal Correlation Hypothesis: A case of theory-generative experimental practice", *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, vol. 83, p. 101307, 2020. Available: 10.1016/j.shpsc.2020.101307.
26. J. Espinosa, "Innovation as a Parasitic Process: Towards Dark Organizational Theory", *Knowledge Management: An International Journal*, vol. 17, no. 1, pp. 1-19, 2017.
27. J. Garrido Wainer, C. Fardella and J. Espinosa Cristia, "Arche-writing and data-production in theory-oriented scientific practice: the case of free-viewing as experimental system to test the temporal correlation hypothesis", *History and Philosophy of the Life Sciences*, vol. 43, no. 2, 2021.
28. J. Espinosa Cristia and J. Hernández Aracena, "Recruitment and Selection Devices in Financial Services Companies: Exploring the case of Chilean Banking", *Cuadernos de Administración*, vol. 30, no. 54, p. 125, 2018.
29. J. Espinosa Cristia, B. Batiz-Lazo, and J. Alarcón "Confianza y redistribución de agencia en ecosistema de pagos de CajaVecina en Chile", *Revista de Ciencias Sociales*, vol. 26, no. 2, 2020.
30. J. Garrido, J. Espinosa and T. Undurraga, "La autonomía de la producción de conocimiento como política de la universidad", *Atenea (Concepción)*, vol. 25, no. 522, pp. 83-100, 2020.
31. S. Kumar, P. K Baag, and S. K. V, "Impact of ESG Integration on Equity Performance between Developed and Developing Economy: Evidence from S and P 500 and NIFTY 50.", *Empirical Economics Letters*, vol. 20, no.4,2021
32. S. Kumar, P. K Baag, and S. K. V, "Financial Engineering and Quantitative Risk Analytics", *SYBGEN Learning*, vol.1,no.1. pp. 01-360, 2021
33. A.Kakti, S.Kumar, N.K. John, V. V Ratna, S. Afzal, and A.D Gupta, " Impact of Patients Approach towards Healthcare Costs on their perception towards Health: An Empirical Study." *Tobacco Regulatory Science*, vol. 7, no. 6-1, pp 7380-7390, 2021

34. G. Roland, S. Kumaraperumal, S.Kumar, A.D. Gupta, S. Afzal, and M. Suryakumar, "PCA (Principal Component Analysis) Approach towards Identifying the Factors Determining the Medication Behavior of Indian Patients: An Empirical Study." Tobacco Regulatory Science, vol. 7, no. 6-1, pp 7391-7401, 2021
35. S.Kumar and P.K. Baag, "Ethics Erosion in Capital Market: Lehman Brothers' Case Study of Repo 105," in AIMS-18, March 4, 2021, India, AIMS Texas USA, A1872-Final.pdf (aims-international.org)
36. S.Kumar and P.K. Baag, "Erosion of Ethics in Credit Derivatives: A Case Study," in AIMS-18, March 4, 2021, India, AIMS India & Texas USA, A1873-Final.pdf (aims-international.org)
37. S. Kumar, "Risk rationalization of OTC derivatives in SOFR (secured overnight funding rate) transition: evidence from linear interest rate derivatives." Academy of Accounting and Financial Studies Journal, vol. 26, no.3, pp. 1-22. 2022
38. S. Kumar, "Strategic management of carbon footprint using carbon collectible non-fungible tokens (NFTS) on blockchain." Academy of Strategic Management Journal, vol. 21, no. 3, pp. 1-10, 2022
39. S. Kumar, "Review of geothermal energy as an alternate energy source for Bitcoin mining." Journal of Economics and Economic Education Research, vol. 23, no. 1, pp. 1-12, 2022
40. S. Kumar, "A quest for sustainium (sustainability Premium): review of sustainable bonds." Academy of Accounting and Financial Studies Journal, vol. 26, no.2, pp. 1-18, 2022.
41. P. Sehgal, B. Kumar, M. Sharma, A.A Salameh, S. Kumar, P. Asha, "Role of IoT In Transformation of Marketing: A Quantitative Study of Opportunities and Challenges." Webology, vol. 18, no.3, pp 1-11, 2022.
42. S. Monteiro, S. Kumar, S. R. Manjre, R. Agrawal, N. Tiwari, "Analysis of The Psychographic Character of A Leader For Determining Leadership Effectiveness." Manager-The British Journal of Administrative Management, vol.58, no. 146, 2022
43. Roy Setiawan, S. Suman Rajest, Kanchan Rani, Luigi Pio Leonardo Cavaliere, Ngo Tan Hiep, Sudipta Halder, Ismail Raisal, Ruby Mishra, "References for Shopping Online Versus in Stores What Do Customers Prefer and How Do Offline Retailers Cope with It?" Productivity Management, Vol.25, No.1S, pp. 874-898, 2020.
44. Dr. S. Suman Rajest Dr. Bhopendra Singh, P. Kavitha, R. Regin, Dr.K. Praghash, S. Sujatha, "Optimized Node Clustering based on Received Signal Strength with Particle Ordered-filter Routing Used in VANET" Webology, Vol.17, No.2, pp. 262-277, 2020.
45. Sooraj Kumar Maurya, Professor Vipin Jain, S. Suman Rajest, Roy Setiawan, Alliyarov Ashraf, Kartikey Koti, K.Niranjan, Nik Alif Amri Nik Hashim, "The Conditional Analysis of Principals Bullying Teachers Reasons in The Surroundings of The City", Productivity Management, Vol.25, No.5, pp. 1195-1214, 2020.
46. Roy Setiawan, Keshav Nath, S. Suman Rajest, Luigi Pio Leonardo Cavaliere, Klinge Orlando Villalba-Condori, Dennis Arias-Chavez, Kartikey Koti, Girish Bagale, "The Impact of Teaching Innovative Strategy on Academic Performance in High Schools" Productivity Management, Vol.25, No.5, pp. 1296-1312, 2020.
47. K.K.D. Ramesh, G. Kiran Kumar, K. Swapna, Debabrata Datta, and S. Suman Rajest, "A Review of Medical Image Segmentation Algorithms", EAI Endorsed Transactions on Pervasive Health and Technology, 2021.
48. R. Regin, S. Suman Rajest and Bhopendra Singh, "Fault Detection in Wireless Sensor Network Based

- on Deep Learning Algorithms”, EAI Endorsed Transactions on Scalable Information Systems, 2021,
49. Worakamol Wisetsri, Krishnabhaskar Mangalasserri, Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Praveen Mittal, M. Kalyan Chakravarthi, Kartikey Koti, Ashish Gupta, R. Regin, “The Impact of Marketing Practices on NGO Performance: The Pestel Model Effect”, Turkish Online Journal of Qualitative Inquiry, Volume 12, Issue 3, July 2021:2884- 2903.
 50. Roy Setiawan, V. Ramesh Kumar, S. Suman Rajest, M. Kalyan Chakravarthi, Klinge Orlando Villalba-Condori, Cesar Gonzalo Vera-Vasquez, Tamil Selvan Subramaniam, Kartikey Koti, Regin Rajan., The Empirical Results of Conditional Analysis of Principals' Reasons in Bullying Teachers, Turkish Online Journal of Qualitative Inquiry, Volume 12, Issue 3, July 2021:2737- 2756.
 51. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Balbir Singh, M Jagadish Kumar, Kartikey Koti, M. Kalyan Chakravarthi, S. Arun, R. Regin, Sonia Singh., Achieving United Nations Goals Throughout the Youth Leadership, Turkish Online Journal of Qualitative Inquiry, Volume 12, Issue 3, July 2021:2859- 2883.
 52. Roy Setiawan, Luigi Pio Leonardo Cavaliere, Arup Roy Chowdhury, S. Suman Rajest, Kartikey Koti, Praveen Mittal, Tamil Selvan Subramaniam, R. Regin, Sonia Singh, “The Impact of Motivation on Employees Productivity in The Retail Sector: The Mediating Effect of Compensation Benefits” Turkish Online Journal of Qualitative Inquiry, Volume 12, Issue 6, July, 2021: 8159-8190.
 53. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, N. Subhash, P. Venkata Durga Rao, Praveen Mittal, Kartikey Koti, M. Kalyan Chakravarthi, R. Duraipandian, R. Regin, “ The Impact of Internet Fraud on Financial Performance of Banks”, Turkish Online Journal of Qualitative Inquiry (TOJQI), Volume 12, Issue 6, July, 2021: 8126-8158.
 54. Roy Setiawan, Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Kartikey Koti, Gabriel Ayodeji Ogunmola, Nasir Abdul Jalil, M. Kalyan Chakravarthi, R. Regin, Sonia Singh, “The Artificial Intelligence and Inventory Effect on Banking Industrial Performance” Turkish Online Journal of Qualitative Inquiry. Volume 12, Issue 6, July, 2021: 8100-8125.
 55. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Ajay Poddar, Shobhna Poddar, Satuluri Padma, Kartikey Koti, M. Kalyan Chakravarthi, R. Regin, “Emotional Intelligence and Driving Change in Public Sector: The Mediating Role of Culture”, Turkish Online Journal of Qualitative Inquiry. Volume 12, Issue 7, July, 2021: 2071 - 2115.
 56. Luigi Pio Leonardo Cavaliere, Ajay Poddar, S. Suman Rajest, Shobhna Poddar, Vinod B Patel, Prasuna Kuragayala, M. Kalyan Chakravarthi, R. Regin, “ The Impact of Employees' Personality on the Organizational Performance: Studying the Five Dimensions of Personality”, Turkish Online Journal of Qualitative Inquiry. Volume 12, Issue 7, July 2021: 9527 – 9554.
 57. Luigi Pio Leonardo Cavaliere, Zakariya Chabani, S. Suman Rajest, Dr Arup Roy Chowdhury, Dr. Satuluri Padma, Kartikey Koti, M. Kalyan Chakravarthi, R. Regin, “The Impact of Part-Time and Full-Time Work on Employees' Efficiency the Importance of Flexible Work Arrangements, “Turkish Online Journal of Qualitative Inquiry. Volume 12, Issue 7, July 2021: 9580 – 9613.
 58. Luigi Pio Leonardo Cavaliere, Dr. Krishnabhaskar Mangalasserri, S. Suman Rajest, Dr P.S.Venkateswaran, Dr. Rameshwaran Byloppilly, Femmy Effendy, Dr. Amrita Baid More, R. Regin, “ The Impact Of Brand Counterfieting on Consumer Behavior In the Fashion Sector, “ Turkish Journal of Physiotherapy and Rehabilitation. Volume 32, Issue 3, 2021: 19831 – 19846.
 59. Luigi Pio Leonardo Cavaliere, Evis Garunja, S. Suman Rajest, Dr. Hajra Ihsan, Dr. Vinod B Patel, Dr. Girish Bagale, M. Kalyan Chakravarthi, R. Regin, “The Impact of Corporate Image on Employees

- Productivity: The Mediating Effect of Reputation, “ Turkish Journal of Physiotherapy and Rehabilitation. Volume 32, Issue 3, 2021: 21378 – 21394.
60. Luigi Pio Leonardo Cavaliere, Dr. Ruby Khan, S. Suman Rajest, Suja Sundram, Dr. Kirti Jainani, Dr. Girish Bagale, M. Kalyan Chakravarthi, R. Regin, “ The Impact Of Customer Relationship Management On Customer Satisfaction And Retention: The Mediation Of Service Quality,” Turkish Journal of Physiotherapy and Rehabilitation. Volume 32, Issue 3, 2021: 22107– 22121.
 61. Alabdullah, T. T. Y. (2016). Agency Theory Perspective: A Quantitative Study Of Accounting Performance Measures In Emerging Economies. ICTE Proceedings, New York.
 62. Alabdullah, T. T. Y. (2021). Management accounting insight via a new perspective on the risk management - companies' profitability relationship. International Journal of Intelligent Enterprise 7, In press.
 63. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Melanie Elizabeth Lourens, Arup Roy Chowdhury, Dr. N. L. Balasudarsund, Leo Rathinaraj Antony Soundararajane, Sreeja Mannickal Thankappan, R. Regin, “Impact of Leadership on Organizational Performance at Pharmaceutical Companies”, Turkish Journal of Physiotherapy and Rehabilitation. Volume 32, Issue 3, 2021: 25484– 25504.
 64. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Melanie Elizabeth Lourens, Kannapat Kankaew, Dr. Mohammad Almahirah, Dr. M. Sathish, Kartikey Koti, R. Regin, “The Impact of Leadership on Organizational Justice on Employees Turnover Intention Addressing the Three Dimensions of Organizational Justice”, Turkish Journal of Physiotherapy and Rehabilitation. Volume 32, Issue 3, 2021: 27750- 27764.
 65. Worakamol Wisetsri, S. Suman Rajest, Melanie Elizabeth Lourens, Luigi Pio Leonardo Cavaliere, M. Kalyan Chakravarthi, Gitu Nijhawan, Shibili Nuhmani, R. Regin, “The Effect of Layoffs on the Performance of Survivors at Healthcare Organizations,” NVEO – Natural Volatiles & Essential Oils, Volume 8, Issue 5, pp:5574-5593, 2021.
 66. Luigi Pio Leonardo Cavaliere, Sarika Keswani, S. Suman Rajest, Satish Kumar, Shaju Mathew, Sanjib Das, Mohammed Faez Hasan, R. Regin, “The Impact of Portfolio Diversification on Risk Management Practices” NVEO – Natural Volatiles & Essential Oils, Volume 8, Issue 5, pp:8447-8469, 2021.
 67. Saba Alyasiri, Ahmed J. Obaid, 2018. A New Approach for Object Detection, Recognition and Retrieving in Painting Images, Journal of Advanced Research in Dynamical and Control Systems, Vol. 10, No. 2: 2345-2359.
 68. Ahmed J. Obaid, 2020. An Efficient Systematized Approach for The Detection of Cancer in Kidney, International Journal of Scientific and Engineering Research, Vol. 7, No. 1: 1-7.
 69. Obaid A. J. and Sharma S. 2020 Recent Trends and Development of Heuristic Artificial Intelligence Approach in Mechanical System and Engineering Product Design Saudi Journal of Engineering and Technology 5 86-93
 70. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Iskandar Muda, Ruby Khan, Shameem C C, Vijayalakshmi N.S, M. Kalyan Chakravarthi, and R. Regin, “The Impact of the monetary policy on the performance of deposit money banks in MENA Region,” NVEO – Natural Volatiles & Essential Oils, Volume 8, Issue 5, pp: 10805-10826, 2021.
 71. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Rakesh, Sarika Keswani, Iskandar Muda, Aruna Polisetty, Bhavik U Swadia, R. Regin, “The Determinants of Audit Quality and Impact on Overall

- Audit Performance.” NVEO – Natural Volatiles & Essential Oils, Volume 8, Issue 5, pp: 12963-12984, 2021.
72. Luigi Pio Leonardo Cavaliere, S. Suman Rajest, Melanie Elizabeth Lourens, Iskandar Muda, Anil Kumar, Zakariya Chabani, Bhavik U Swadia, R. Regin, “ The Impact of Internal Control Practices on Minimizing Fraud in Companies,” NVEO – Natural Volatiles & Essential Oils, Volume 8, Issue 5, pp: 12920-12941, 2021.
 73. Alabdullah, T. T. Y. (2017). Compensation committee, company board attributes, and company performance: The moderating effect of leadership position. Paper presented at the 2017 Wei International Academic Conference Proceedings, July 24-27, 2017, Business and Economics.
 74. Ahmed, E. R., Alabdullah, T. T. Y &Shaharudin, M. S. (2020). Approaches to Control Mechanisms and Their Implications for Companies’ Profitability: a Study in UAE. *Journal of accounting Science*, Vol. 4, no. 2, pp. 11-20.
 75. Alabdullah, T. T. Y., Ahmed, E. R., & Ahmed, R. R. (2021). Organization features and profitability: Implications for a sample of Emerging Countries. *Journal of Accounting and Business Education*, 5(2), 43-52.DOI: <http://dx.doi.org/10.26675/jabe.v5i2.16351>.
 76. M.S Almahirah, V. N.S, M.Jahan,S. Sharma, and S. Kumar, “Role of Market Microstructure in Maintaining Economic Development.” *Empirical Economics Letters*, vol. 20, no.2.2021.
 77. N.R Nayak, S. Kumar, D. Gupta, A. Suri, M. Naved and M. Soni, “ Network mining techniques to analyze the risk of the occupational accident via bayesian network.” *International Journal of System Assurance Engineering and Management*,2022.
 78. S. Kumar, “Relevance of Buddhist Philosophy in Modern Management Theory,” *Psychology and Education*, vol. 58, no. 3, pp. 2104–2111, 2021.
 79. A. K. Maji, S. Jana, and R. K. Pal, “An algorithm for generating only desired permutations for solving sudoku puzzle,” *Procedia Technology*, vol. 10, pp. 392–399, 2013.
 80. A. K. Maji, S. Jana, S. Roy, and R. K. Pal, “An exhaustive study on different sudoku solving techniques,” *International Journal of Computer Science Issues (IJCSI)*, vol. 11, no. 2, p. 247, 2014.
 81. S. Warjri, P. Pakray, S. Lyngdoh, and A. Kumar Maji, “Identification of pos tag for khasi language based on hidden markov model pos tagger,” *Computacion y Sistemas*, vol. 23, no. 3, pp. 795–802, 2019.
 82. S. Jana, A. K. Maji, and R. K. Pal, “A novel spn-based video steganographic scheme using sudoku puzzle for secured data hiding,” *Innovations in Systems and Software Engineering*, vol. 15, no. 1, pp.65–73, 2019.
 83. R. K. Das, F. H. Pohrmen, A. K. Maji, and G. Saha, “Ft-sdn: a fault-tolerant distributed architecture for software defined network,” *Wireless personal communications*, vol. 114, no. 2, pp. 1045–1066, 2020.
 84. R. K. Das, N. Ahmed, F. H. Pohrmen, A. K. Maji, and G. Saha, “6le-sdn: an edge-based software-defined network for internet of things,” *IEEE Internet of Things Journal*, vol. 7, no. 8, pp. 7725–7733, 2020.
 85. D. Shrivastava, D. Kandar, and A. K. Maji, “Automated segmentation of bone computed tomography image using deep convolution neural network,” *Journal of Computational and Theoretical Nanoscience*, vol. 15, no. 6-7, pp. 2036–2039, 2018.
 86. S. Warjri, P. Pakray, S. Lyngdoh, and A. Kumar Maji, “Khasi language as dominant part-of-speech

- (pos) ascendant in nlp,” International Journal of Computational Intelligence & IoT, vol. 1, no. 1, 2018.
87. A. K. Maji, S. Roy, and R. K. Pal, “A novel algorithmic approach for solving sudoku puzzle in guessed free manner,” European Academic Research, vol. 1, 2013.
 88. I. Wahlang, P. Sharma, G. Saha, and A. K. Maji, “Brain tumor classification techniques using mri: a study,” Research Journal of Pharmacy and Technology, vol. 11, no. 10, pp. 4764–4770, 2018.
 89. I. Wahlang, A. K. Maji, G. Saha, P. Chakrabarti, M. Jasinski, Z. Leonow-icz, and E. Jasinska, “Deep learning methods for classification of certain abnormalities in echo cardiography,” Electronics, vol. 10, no. 4, p. 495, 2021.
 90. R. Kumar Das, W. Khongbuh, F. Hazel Pohrmen, A. Kumar Maji, and G. Saha, “Controller placement and selection strategy for sdn,” International Journal of Computational Intelligence & IoT, vol. 2, no. 2, 2019.
 91. S. Warjri, P. Pakray, S. A. Lyngdoh, and A. K. Maji, “Part-of-speech (pos) tagging using conditional random field (crf) model for khasi corpora,” International Journal of Speech Technology, pp. 1–12, 2021.
 92. S. Jana, A. Dey, A. K. Maji, and R. K. Pal, “A novel hybrid genetic algorithm-based firefly mating algorithm for solving sudoku,” Innovations in Systems and Software Engineering, pp. 1–15, 2021.
 93. R. A. Hazarika, A. Abraham, S. N. Sur, A. K. Maji, and D. Kandar, “Different techniques for Alzheimer’s disease classification using brain images: a study,” International Journal of Multimedia Information Retrieval, pp. 1–20, 2021.
 94. R. A. Hazarika, A. K. Maji, S. N. Sur, B. S. Paul, and D. Kandar, “A survey on classification algorithms of brain images in alzheimer’s disease based on feature extraction techniques,” IEEE Access, vol. 9, pp. 58 503–58 536, 2021.
 95. S. M. Hassan, A. K. Maji, M. Jasiński, Z. Leonowicz, and E. Jasińska, “Identification of plant-leaf diseases using cnn and transfer-learning approach,” Electronics, vol. 10, no. 12, p. 1388, 2021.
 96. S. M. Hassan and A. K. Maji, “Comparison of automated leaf recognition techniques,” International Journal of Intelligent Enterprise, vol. 8, no. 2-3, pp. 205–214, 2021.
 97. I. Wahlang, P. Sharma, S. Sanyal, G. Saha, and A. K. Maji, “Deep learning techniques for classification of brain mri,” International Journal of Intelligent Systems Technologies and Applications, vol. 19, no. 6, pp. 571–588, 2020.
 98. K. Amitab, A. K. Maji, and D. Kandar, “Speckle noise filtering in sar images using fuzzy logic and particle swarm optimization,” Journal of Computational Methods in Sciences and Engineering, vol. 18, no. 4, pp. 859–873, 2018.
 99. A. K. Maji and R. K. Pal, “Sudoku solver using mini grid based back-tracking,” in 2014 IEEE International Advance Computing Conference(IACC). IEEE, 2014, pp. 36–44.
 100. A. K. Maji, R. K. Pal, and S. Roy, “A novel steganographic scheme using sudoku,” in 2013 International Conference on Electrical Information and Communication Technology (EICT). IEEE, 2014, pp. 1–6.
 101. S. Jana, A. K. Maji, and R. K. Pal, “A novel sudoku solving technique using column based permutation,” in 2015 International Symposium on Advanced Computing and Communication (ISACC). IEEE, 2015, pp. 71–77.
 102. S. M. Hassan and A. K. Maji, “A hybridized auto-encoder and convolution neural network-based model for plant identification,” In International Conference on Innovative Computing and

Communications. Springer, 2021, pp. 1027–1036.

103. D. Jayalakshmi and D. Kem, “Social informatics: The socio-technical network system,” *Guru Nanak Journal of Sociology*, vol. 25, no. 2, pp. 1-10, 2004.
104. D. Kem, “New Media technologies and the emerging social-technical network,” *European Journal of Physical Education and Sport Science*, vol. 3, no. 12, pp. 653-661, 2017.
105. D. Kem, “New media and adolescents: Portrayals and perspectives,” *International Journal of Current Advanced Research*, vol. 07, no. 4, pp. 11344-11351, 2018.
106. D. Kem, “Victim identification, identification devices, lead information and communication technologies in teaching and learning through open and distance education system: A paradigm shift,” *International Journal of Current Advanced Research*, vol. 07, no. 1, pp. 9192-9198, 2018.
107. D. Kem, “The Role of information communication technology in open and distance learning,” *The Research Journal Social Sciences*, vol. 9, no. 11, pp. 55-59, 2018.
108. F Rabbi, S Bature, M Omari, K Jermisittiparsert, “ The Mediating Effect of University Role in Determining the Relationship between Entrepreneurial Orientation, Entrepreneurial Perception and New Venture Creation: A Thai Case Study”, *International Journal of Innovation, Creativity and Change*, Vol. 6 (10), 278-298, 2019.
109. Rabbi, F., & Almutairi, S. S. “Corporate tax avoidance practices of multinationals and country responses to improve quality of compliance”. *International Journal for Quality Research*, 15(1), 21-44, 2021.
110. Alharbi, Yousef; Rabbi, Fazle; Alqahtani, Rabee, “ Understanding University Student’s Intention To Use Quality Cloud Storage Services”, *International Journal for Quality Research*, Vol. 14 Issue 1, p313-324, 2020.
111. F Rabbi, “ A review of the recent trends in the use of machine learning in business’, *International Journal of Artificial Intelligence and Machine Learning* Vol.1 (1), 1-6, 2019.
112. F Rabbi, “ A review of the use of machine learning techniques by social media enterprises”, *Journal of Contemporary Scientific Research*, Vol.2 (4), pp. 1-14, 2018.
113. M Azeroual, Y Boujoudar, K Bhagat, L El Iysaouy, A Aljarbough, et al., “ Fault location and detection techniques in power distribution systems with distributed generation: Kenitra City (Morocco) as a case study.” *Electric Power Systems Research*, Volume 209, August 2022, 108026.
114. Azeroual M, Boujoudar Y, Iysaouy LE, et al. Energy management and control system for microgrid based wind-PV-battery using multi-agent systems. *Wind Engineering*. February 2022. doi:10.1177/0309524X221075583
115. Fazle Rabbi , Nasir Abdul Jalil , S. Suman Rajest , R. Regin, “ An Approximation For Monitoring The Efficiency Of Cooperative Across Diverse Network Aspects”, *Webology*, Volume 17, No 2, 2020, Pages: 1234-1247
116. U Kumar, C Khatun, MS Islam, N Kao, F Rabbi, M Maniruzzaman, et al., “ Effect of Drum Pressure on Flow Accelerated Corrosion in Gas Fired Combined Cycle Power Plant: A Case Study and Literature Review”, *Research Communication in Engineering Science & Technology*, 2, 17-27, 2019.
117. F Rabbi, “ Recent Trends in the Use of Machine Learning Techniques in Business”, *Asia Pacific Conference on Advances in Applied Science, Engineering and Technology (APCAASET)*, 2019.
118. Fazle Rabbi, “ A Review of the Recent Trends in the Use of Machine Learning in Business,”

International Conference on Education, Business and Social Science (ICONFEBSS), 2019.

119. F Rabbi, “ Application of Big Data in Promoting Sustainable Solutions for Business-A Review”, Global Journal of Applied Sciences and Technology Vol. 3 (11), 2018
120. E. Murugan and I. Pakrudheen, New amphiphilic poly (quaternary ammonium) dendrimer catalyst for effective reduction of citronellal, Applied Catalysis A: General, vol. 439, p. 142, 2012.
121. S.Vasanthakumari , “Effectiveness of play therapy in promoting socialization among the Mentally Challenged Children,” TNNMC JPN, vol. II, no. 1, p.4-7, 2014.
122. S.Vasanthakumari , Werku Etafa , “ Emotional Intelligence in the Workplace,” CCNE Digest, vol. 6, no.4, p. 1-4, 2019.
123. S.Vasanthakumari , Bizuneh Wakuma , “ Nomophobia – Smartphone Addiction,” CCNE Digest, vol. 7, no.1, p. 1-4, 2019.
124. S.Vasanthakumari , “ Transformational Leadership – A Model for Motivating Innovation,” CCNE Digest, vol. 7, no.2, p. 1-4, 2019.
125. Abu Sarwar Zamani, Mohammad Jawed Miandad and Shakir Khan, “Data Center – Based, Service Oriented Architecture (SOA) in Cloud Computing”, International Journal of Computing Science and Information Technology, Vol. 1, No. 1, pp. 33-37, 2013. <http://ijcsit.org/IJCSIT-PaperVI.pdf>
126. Shakir Khan and Mohamed F. AlAjmi, “Impact of Medical Technology on Expansion in Healthcare Expenses”, International Journal of Advanced Computer Science and Applications, Vol. 4, No. 4, pp. 150-152, 2013. <https://dx.doi.org/10.14569/IJACSA.2013.040424>
127. Shakir Khan, Mohammed AlAjmi and Arun Sharma, “Safety Measures Investigation in Moodle LMS. International Journal of Computer Applications (IJCA), Vol. ICNICT, Special Issue No. 4, pp. 41-44, 2012. <http://www.ijcaonline.org/specialissues/icnict/number4/9044-1080>
128. Mohammed AlAjmi, Shakir Khan and Abu Sarwar Zamani, “Using Instructive Data Mining Methods to Revise the Impact of Virtual Classroom in E-Learning”, International Journal of Advanced Science and Technology, Vol. 45, No. 9, pp. 125-134, 2012. <http://article.nadiapub.com/IJAST/vol45/9.pdf>
129. Shakir Khan and Arun Sharma, “Detailed Literature Survey Applying Data Mining Techniques in E-Learning. International Journal of Engineering & Science Research”, Vol. 2, No. 4, pp. 176-203, 2012. http://ijesr.org/admin/upload_journal/journal_shki%205april.pdf
130. Geno Peter, Anli Sherine, Yuvaraja Teekaraman, Ramya Kuppasamy, Arun Radhakrishnan, Histogram Shifting based Quick Response Steganography method for Secure Communication” Wireless Communications and Mobile Computing. vol. 2022, 10 pages, 2022.
131. Geno Peter, Anli Sherine, Yuvaraja Teekaraman, Ramya Kuppasamy, Arun Radhakrishnan, Design of Automated Deep Learning-based Fusion Model for Copy-Move Image Forgery Detection” Computational Intelligence and Neuroscience. vol. 2022, 9 pages, 2022.
132. Hariprasath Manoharan, Yuvaraja Teekaraman, Ramya Kuppasamy, Arun Radhakrishnan, K Venkatachalam, Acclimatization Of Nano Robots In Medical Applications Using Artificial Intelligence System With Data Transfer Approach” Wireless Communications And Mobile Computing. vol. 2022, 9 pages, 2022.
133. Ashok Kumar L, Ramya Kuppasamy, Yuvaraja Teekaraman, Indragandhi V, Arun Radhakrishnan, Design and Implementation of Automatic Water Spraying System for Solar Photovoltaic Module” Mathematical Problems In Engineering. vol. 2022, 9 pages, 2022.

134. K Veena, K Meena, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "Cybercrime Detection using C SVM and KNN Techniques" *Wireless Communications and Mobile Computing*. vol. 2022, 8 pages, 2022.
135. Yuvaraja Teekaraman, KA Ramesh Kumar, Ramya Kuppusamy, Amruth Ramesh Thelkar, SSNN Based Energy Management Strategy in Grid-Connected System for Load Scheduling and Load Sharing" *Mathematical Problems In Engineering*. vol. 2022, Article ID 2447299, 9 pages, 2022.
136. M. Bharathidasan, V. Indragandhi, Ramya Kuppusamy, Yuvaraja Teekaraman, Shabana Urooj4,*, Norah Alwadi, "Intelligent Fuzzy Based High Gain Non-Isolated Converter for DC Micro-Grids" *CMC-Computers, Materials & Continua*. Vol 71, No.2, 2022.
137. Hariprasath Manoharan, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "A Novel Optimal Robotized Parking System Using Advanced Wireless Sensor Network" *Journal of Sensors*. Volume 2021, Page 1-8, 2021.
138. Kamaleshwar T, Lakshminarayanan R, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "A Self-Adaptive framework for Rectification and Detection of Blackhole and Wormhole attacks in 6LoWPAN" *Wireless Communications And Mobile Computing*. Volume 2021, 2021. Page 1-8.
139. Pavan Babu Bandla, Indragandhi Vairavasundaram, Yuvaraja Teekaraman, Srete Nikolovski, "Real Time Sustainable Power Quality Analysis of Non-Linear Load under Symmetrical Conditions" *Energies* 2022, 15(01).
140. Hariprasath Manoharan, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "A Prognostic Three-Axis Coordination Model for Supply Chain Regulation Using Machine Learning Algorithm" *Scientific Programming*. Volume 2021, 2021. Page 1-9.
141. Hariprasath Manoharan, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "An Intellectual Energy Device for Household Appliances Using Artificial Neural Network" *Mathematical Problems In Engineering*. Volume 2021, 2021. Page 1-9.
142. Nagarajan Manikandan, Rajappa Muthaiah, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "A Novel Random Error Approximate Adder-Based Lightweight Image Encryption Scheme for Secure Remote Monitoring of Reliable Data" *Security and Communication Networks*. Vol 2021, 2021. Page 1-14.
143. Senthilselvan Natarajan, Subramaniaswamy Vairavasundaram, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "Schema-Based Mapping Approach for Data Transformation to Enrich Semantic Web" *Wireless Communications and Mobile Computing*. Vol 2021, 2021. Page 1-15.
144. S. Sudhakar and S.Chenthur Pandian "Secure Packet Encryption and Key Exchange System in Mobile Ad hoc Network", *Journal of Computer Science*, Vol.8, No. 6, pp : 908-912, 2012, DOI:10.3844/jcssp.2012.908.912.
145. S. Sudhakar and S. Chenthur Pandian, "Hybrid Cluster-based Geographical Routing Protocol to Mitigate Malicious Nodes in Mobile Ad Hoc Network", *International Journal of Ad Hoc and Ubiquitous Computing*, 2016 Vol.21 No.4, pp.224-236. DOI: 10.1504/IJAHUC.2016.076358, 2016.
146. N. Keerthana, Viji Vinod and S. Sudhakar, "A Novel Method for Multi-Dimensional Cluster to Identify the Malicious Users on Online Social Networks", *Journal of Engineering Science and Technology* Vol. 15, No. 6, pp: 4107-4122, 2020.
147. A. U. Priyadarshni and S. Sudhakar, "Cluster Based Certificate Revocation by Cluster Head in

- Mobile Ad-Hoc Network”, International Journal of Applied Engineering Research, Vol. 10, No. 20, pp. 16014-16018, 2015.
148. S. Sudhakar and S. Chenthur Pandian, “Investigation of Attribute Aided Data Aggregation Over Dynamic Routing in Wireless Sensor,” Journal of Engineering Science and Technology Vol.10, No.11, pp:1465–1476, 2015.
 149. S. Sudhakar and S. Chenthur Pandian, “Trustworthy Position Based Routing to Mitigate against the Malicious Attacks to Signifies Secured Data Packet using Geographic Routing Protocol in MANET”, WSEAS Transactions on Communications, Vol. 12, No. 11, pp:584- 603, 2013,
 150. S. Sudhakar and S. Chenthur Pandian, “A Trust and Co-Operative Nodes with Affects of Malicious Attacks and Measure the Performance Degradation on Geographic Aided Routing in Mobile Ad Hoc Network”, Life Science Journal, Vol. 10, No. (4s), pp:158-163, 2013.
 151. S. Sudhakar and S. Chenthur Pandian, “An Efficient Agent-Based Intrusion Detection System for Detecting Malicious Nodes in MANET Routing”, International Review on Computers and Software (I.RE.CO.S.), Vol.7, No.6, pp.3037-304,2012.
 152. S. Sudhakar and S. Chenthur Pandian, “Authorized Node Detection and Accuracy in Position-Based Information for MANET”, European Journal of Scientific Research, Vol.70, No.2, pp.253-265,2012.
 153. K. Ganesh Kumar and S. Sudhakar, Improved Network Traffic by Attacking Denial of Service to Protect Resource Using Z-Test Based 4-Tier Geomark Traceback (Z4TGT), Wireless Personal Communications, Vol.114, No. 4, pp:3541–3575, 2020, DOI:10.1007/s11277-020-07546-1
 154. Aakanksha Singhal and D.K. Sharma, “Seven Divergence Measures by CDF of fitting in Exponential and Normal Distributions of COVID-19 Data”, Turkish Journal of Physiotherapy and Rehabilitation, Vol.32(3), pp. 1212 - 1222, 2021.
 155. D.K. Sharma and Haldhar Sharma, “A Study of Trend Growth Rate of Confirmed cases, Death cases and Recovery cases in view of Covid-19 of Top Five States of India”, Solid State Technology, Vol.64(2), pp. 4526-4541, 2021.
 156. D.K. Sharma, “Information Measure Computation and its Impact in MI COCO Dataset”, IEEE Conference Proceedings, 7th International Conference on Advanced Computing and Communication Systems (ICACCS), Vol.1, pp. 2011-2014, 2021.
 157. Aakanksha Singhal and D.K. Sharma, “Keyword extraction using Renyi entropy: a statistical and domain independent method”, IEEE Conference Proceedings, 7th International Conference on Advanced Computing and Communication Systems (ICACCS), Vol.1, pp. 1970-1975, 2021.
 158. Aakanksha Singhal and D.K. Sharma, “Generalization of F-Divergence Measures for Probability Distributions with Associated Utilities”, Solid State Technology, Vol.64(2), pp. 5525-5531, 2021.
 159. Aakanksha Singhal and D.K. Sharma, “A Study of before and after Lockdown Situation of 10 Countries through Visualization of Data along With Entropy Analysis of Top Three Countries”, International Journal of Future Generation Communication and Networking, Vol.14(1), pp. 496-525, 2021.
 160. Aakanksha Singhal and D.K. Sharma, “Generalized ‘Useful’ Rényi & Tsallis Information Measures, Some Discussions with Application to Rainfall Data”, International Journal of Grid and Distributed Computing, Vol. 13(2), pp. 681-688, 2020.
 161. Reetu Kumari and D. K. Sharma, “Generalized ‘Useful non-symmetric divergence measures and Inequalities”, Journal of Mathematical Inequalities, Vol. 13(2), pp. 451-466, 2019.

162. D.S. Hooda and D.K. Sharma, "On Characterization of Joint and Conditional Exponential Survival Entropies", *International Journal of Statistics and Reliability Engineering*, Vol. 6(1), pp. 29-36, 2019.
163. Reetu Kumari and D. K. Sharma, "Generalized 'Useful' AG and 'Useful' JS-Divergence Measures and their Bounds", *International Journal of Engineering, Science and Mathematics*, Vol. 7 (1), pp. 441-450, 2018.
164. D.S. Hooda, Reetu Kumari and D. K. Sharma, "Intuitionistic Fuzzy Soft Set Theory and Its Application in Medical Diagnosis", *International Journal of Statistics in Medical Research*, Vol. 7, pp. 70-76, 2018.
165. D.K. Sharma and Sonali Saxena, "Generalized Coding Theorem with Different Source Coding Schemes", *International Journal on Recent and Innovation Trends in Computing and Communication*, Vol. 5(6), pp. 253 – 257, 2017.
166. A.K. Gupta, Y. K. Chauhan, and T Maity, "Experimental investigations and comparison of various MPPT techniques for photovoltaic system," *Sādhanā*, Vol. 43, no. 8, pp.1-15, 2018.
167. A.K. Gupta, "Sun Irradiance Trappers for Solar PV Module to Operate on Maximum Power: An Experimental Study," *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, Vol. 12, no.5, pp.1112-1121, 2021.
168. A.K. Gupta, Y.K Chauhan, and T Maity and R Nanda, "Study of Solar PV Panel Under Partial Vacuum Conditions: A Step Towards Performance Improvement," *IETE Journal of Research*, pp.1-8, 2020.
169. A.K. Gupta, Y.K Chauhan, and T Maity, "A new gamma scaling maximum power point tracking method for solar photovoltaic panel Feeding energy storage system," *IETE Journal of Research*, vol.67, no.1, pp.1-21, 2018.
170. A. K. Gupta et al., "Effect of Various Incremental Conductance MPPT Methods on the Charging of Battery Load Feed by Solar Panel," in *IEEE Access*, vol. 9, pp. 90977-90988, 2021, doi: 10.1109/ACCESS.2021.3091502.
171. Yuvaraja Teekaraman, Hariprasath Manoharan, Ramya Kuppusamy, Fadwa Alrowais, Shabana Urooj, "Energy Efficient Multi-Hop Routing Protocol for Smart Vehicle Monitoring Using Intelligent Sensor Networks" *International Journal Of Distributed Sensor Networks*. Vol 17, Issue 12. 2021. Page 1-11.
172. F. J. John Joseph and S. Auwatanamongkol, "A crowding multi-objective genetic algorithm for image parsing," *Neural Comput. Appl.*, vol. 27, no. 8, pp. 2217–2227, 2016, doi: 10.1007/s00521-015-2000-2.
173. J. F. Joe, T. Ravi, A. Natarajan and S. P. Kumar, "Object recognition of Leukemia affected cells using DCC and IFS," 2010 Second International conference on Computing, Communication and Networking Technologies, 2010, pp. 1-6, doi: 10.1109/ICCCNT.2010.5591694.
174. J. F. Joe, "Enhanced sensitivity of motion detection in satellite videos using instant learning algorithms," *IET Chennai 3rd International on Sustainable Energy and Intelligent Systems (SEISCON 2012)*, 2012, pp. 1-6, doi: 10.1049/cp.2012.2250.
175. F. J. John Joseph and V. R. T, "Enhanced Robustness for Digital Images Using Geometric Attack simulation," *Procedia Eng.*, vol. 38, no. Apr 2012, pp. 2672–2678, 2012, doi: 10.1016/j.proeng.2012.06.314.
176. F. J. John Joseph, R. T, and J. J. C, "Classification of correlated subspaces using HoVer

- representation of Census Data,” in 2011 International Conference on Emerging Trends in Electrical and Computer Technology, Mar. 2011, pp. 906–911, doi: 10.1109/ICETECT.2011.5760248.
177. U. Zulfiqar, S. Mohy-Ul-Din, A. Abu-Rumman, A. E. M. Al-Shraah, And I. Ahmed, “Insurance-Growth Nexus: Aggregation and Disaggregation,” *The Journal of Asian Finance, Economics and Business*, vol. 7, no. 12, pp. 665–675, Dec. 2020. <https://doi.org/10.13106/jafeb.2020.vol7.no12.665>
 178. Al-Shqairat, Z. I., Al Shraah, A. E. M., Abu-Rumman, A., “The role of critical success factors of knowledge stations in the development of local communities in Jordan: A managerial perspective,” *Journal of management Information and Decision Sciences*, vol. 23, no.5, pp. 510-526, Dec. 2020. DOI: 1532-5806-23-5-218
 179. Abu-Rumman, Ayman. "Transformational leadership and human capital within the disruptive business environment of academia." *World Journal on Educational Technology: Current Issues* 13, no. 2 (2021): 178-187.
 180. Almomani, Reham Zuhier Qasim, Lina Hamdan Mahmoud Al-Abbadi, Amani Rajab Abed Alhaleem Abu Rumman, Ayman Abu-Rumman, and Khaled Banyhamdan. "Organizational Memory, Knowledge Management, Marketing Innovation and Cost of Quality: Empirical Effects from Construction Industry in Jordan." *Academy of Entrepreneurship Journal* 25, no. 3 (2019): 1528-2686.
 181. Alshawabkeh, Rawan, Amani Abu Rumman, Lina Al-Abbadi, and Ayman Abu-Rumman. "The intervening role of ambidexterity in the knowledge management project success connection." *Problems and Perspectives in Management* 18, no. 3 (2020): 56.
 182. Abu-Rumman, Ayman. "Gaining competitive advantage through intellectual capital and knowledge management: an exploration of inhibitors and enablers in Jordanian Universities." *Problems and Perspectives in Management* 16, no. 3 (2018): 259-268.
 183. Abu-Rumman, A. Al Shraah, F. Al-Madi, T. Alfalah, “Entrepreneurial networks, entrepreneurial orientation, and performance of small and medium enterprises: are dynamic capabilities the missing link?” *Journal of Innovation and Entrepreneurship*. Vol 10 Issue 29, pp 1-16. Jul 2021. DOI: <https://doi.org/10.1186/s13731-021-00170-8>
 184. A. Al Shraah, A. Abu-Rumman, F. Al Madi, F.A. Alhammad, A.A. AlJboor, “The impact of quality management practices on knowledge management processes: a study of a social security corporation in Jordan” *The TQM Journal*. Vol. ahead-of-print No. Issue ahead-of- print. Apr 2021. DOI: <https://doi.org/10.1108/TQM-08-2020-0183>
 185. Abu-Rumman, A. Al Shraah, F. Al-Madi, T. Alfalah, "The impact of quality framework application on patients' satisfaction", *International Journal of Human Rights in Healthcare*, Vol. ahead-of-print No. Issue ahead-of- print. Jun2021. DOI: <https://doi.org/10.1108/IJHRH-01-2021-0006>.
 186. Zafar, S.Z., Zhilin, Q., Malik, H., Abu-Rumman, A., Al Shraah, A., Al-Madi, F. and Alfalah, T.F. (2021), "Spatial spillover effects of technological innovation on total factor energy efficiency: taking government environment regulations into account for three continents", *Business Process Management Journal*, Vol. 27 No. 6, pp. 1874-1891. <https://doi.org/10.1108/BPMJ-12-2020-0550>
 187. Yousaf, A., Umer, M., Sadiq, S., Ullah, S., Mirjalili, S., Rupapara, V., & Nappi, M. (2021b). Emotion Recognition by Textual Tweets Classification Using Voting Classifier (LR-SGD). *IEEE Access*, 9, 6286–6295. <https://doi.org/10.1109/access.2020.3047831>
 188. Sadiq, S., Umer, M., Ullah, S., Mirjalili, S., Rupapara, V., & NAPPI, M. (2021). Discrepancy detection between actual user reviews and numeric ratings of Google App store using deep learning.

Expert Systems with Applications, 115111. <https://doi.org/10.1016/j.eswa.2021.115111>

189. Rupapara, V., Narra, M., Gonda, N. K., Thipparthi, K., & Gandhi, S. (2020). Auto-Encoders for Content-based Image Retrieval with its Implementation Using Handwritten Dataset. 2020 5th International Conference on Communication and Electronics Systems (ICCES), 289–294. <https://doi.org/10.1109/icces48766.2020.9138007>
190. Rupapara, V., Thipparthi, K. R., Gunda, N. K., Narra, M., & Gandhi, S. (2020). Improving video ranking on social video platforms. 2020 7th International Conference on Smart Structures and Systems (ICSSS), 1–5. <https://doi.org/10.1109/icsss49621.2020.9202153>
191. Rupapara, V., Narra, M., Gonda, N. K., & Thipparthi, K. (2020). Relevant Data Node Extraction: A Web Data Extraction Method for Non Contagious Data. 2020 5th International Conference on Communication and Electronics Systems (ICCES), 500–505. <https://doi.org/10.1109/icces48766.2020.9137897>
192. Ibrahim, K., Obaid, A. (2021). Fraud usage detection in internet users based on log data. International Journal of Nonlinear Analysis and Applications, 12(2), 2179-2188. doi: 10.22075/ijnaa.2021.5367
193. Sharma, G., Kumar, J., Sharma, S., Singh, G., Singh, J., Sharma, A., . . . Obaid, A. J. (2021). Performance of diesel engine having waste heat recovery system fixed on stainless steel made exhaust gas pipe. Materials Today: Proceedings.
194. Abdulreda, A., Obaid, A. (2022). A landscape view of deepfake techniques and detection methods. International Journal of Nonlinear Analysis and Applications, 13(1), 745-755. doi: 10.22075/ijnaa.2022.5580
195. Abdulbaqi, A., Younis, M., Younus, Y., Obaid, A. (2022). A hybrid technique for EEG signals evaluation and classification as a step towards to neurological and cerebral disorders diagnosis. International Journal of Nonlinear Analysis and Applications, 13(1), 773-781. doi: 10.22075/ijnaa.2022.5590
196. Pandey, D., Wairya, S., Al Mahdawi, R., Najim, S., Khalaf, H., Al Barzinji, S., Obaid, A. (2021). Secret data transmission using advanced steganography and image compression. International Journal of Nonlinear Analysis and Applications, 12(Special Issue), 1243-1257. doi: 10.22075/ijnaa.2021.5635
197. Adhikari, S., Hutaihit, M., Chakraborty, M., Mahmood, S., Durakovic, B., Pal, S., Akila, D., Obaid, A. (2021). Analysis of average waiting time and server utilization factor using queueing theory in cloud computing environment. International Journal of Nonlinear Analysis and Applications, 12(Special Issue), 1259-1267. doi: 10.22075/ijnaa.2021.5636
198. Azmi Shawkat Abdulbaqi, Ahmed J. Obaid & Maysaa Hameed Abdulameer (2021) Smartphone-based ECG signals encryption for transmission and analyzing via IoMTs, Journal of Discrete Mathematical Sciences and Cryptography, DOI: 10.1080/09720529.2021.1958996