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Adaptive Scheduling of Tasks in the Cloud Environment

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ABSTRACT: Cloud Computing is a computing environment where different services are provided to users over the Web. Task Scheduling is one of the important aspects of Cloud Computing, improving the performance of the cloud system. Task Scheduling involves assignment of resources to a particular task for the task to be completed within possible minimum time. Task Scheduling helps in achieving efficient utilization of resources. In Cloud systems, Virtual Machines (VMs) are scheduled to hosts according to their instant resource usage without considering their overall and long-term utilization. Also, in many cases, the scheduling and placement processes are computational expensive and affect performance of deployed VMs. In this work, the tasks are managed by using the AHP (Analytic Hierarchy process). The AHP assign a rank to each task. After ranking, the tasks are put into the task queue. The virtual machine is created for the task execution. By using divide and conquer method, the task are sub divided and executed in the virtual machine. The divide and conquer method utilize the resources efficiently in the task execution.

KEYWORDS: Adaptive Scheduling, Cloud Computing, Task Allocation, Resource Optimization, Load Balancing, Dynamic Scheduling, Performance Efficiency

I. INTRODUCTION

Maintaining rapid development of applications is an important aspect in the information technology sector and minimizing the time and effort spent on software deployment. It is an upcoming trend widely used for the purpose of storage, memory sharing, computational capacity sharing, and sharing of hardware resources over a network like the internet. Provides resources for both individuals and organizations as a service that can be used at any time or place of the user's request and convenience. This leads to time and cost saving for users because they don't necessarily need to have the resources they need and can use the service at their own will.

Cloud computing's major advantages are that it addresses important and necessary aspects such as scalability, reliability, energy consumption, load balancing, time efficiency and cost efficiency. Of these tasks, resource allocation is an important task for the network to carry out. This cannot be done manually when there is a large number of virtual machine in the network and is therefore done with a prefixed optimized algorithm by the machine layer.

II. CLOUD MODELS

There are three types of models present in cloud computing which are given as follows:

Public Cloud Model: The public cloud model is defined as a cloud infrastructure which is managed by an organization providing third-party service. This is available as a service over the internet for both individual users and software companies/ organizations. This model's main advantage is that it is very large in scale. With limited configurations and security protection, the users in this model share the same infrastructure pool as provided by the service provider.

Private Cloud Model: The private cloud model is defined as a cloud computing infrastructure exclusively developed by a given company for each project or software. This requires a policy of permission to host cloud applications to enforce system security and control. In addition to being generated for each specific project, an external party or supplier also provide the cloud service.

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Hybrid Cloud Model: The hybrid cloud model is defined as a cloud computing infrastructure that combines both public and private cloud models' advantageous factors. This is done using separate algorithms used to switch between the two infrastructures.

CLOUD COMPUTING MODELS

Infrastructure as a service (IaaS) allows users to use their storage or computational units remotely to access the given network. It does so on a demand-based basis whenever the service is required by the user. E.g:Amazon Web Service, Microsoft Azure.

Platform as a Service (PaaS) enables users to quickly and easily create web applications with permissions to provide a substitute for the purchase and maintenance of the system's software and infrastructure. Eg:Google App Engine.

Software as a service (SaaS) enables users to obtain an application license for any user, either as an on-demand service or through Internet subscription. In a simple way, it can be rented for use in a pay-as-you-go way instead of buying the required software. Example:Salesforce, Cisco WebEx.

CLOUD COMPUTING TOOLS

Cloud services across a network are used as efficient, organizational-based buisness solutions. Various cloud computing tools, such as Eucalyptus, Open Nebula, Nimbus, Openstack, etc., are available where they all have different deployment strategies.

Cloud computing load balancing is defined as the process of distributing workload and computing resources within a networked cloud computing environment. It enables an organization to manage applications or workload demands on a task-by-task basis, by allocating resources on the networks between the various computers or through servers.

TASK SCHEDULING

This is a process that takes place while the virtual machines are using a restricted task based on the operation to be performed. The scheduler collects the data from the Request Manager or Server and Resource and then calculates it to make a decision that assigns each task to their respective virtual machine.

II. RELATED WORK

A heuristic approach that associates the modified analytic hierarchy process (MAHP), longest expected processing time pre-emption (LEPT), bandwidth aware divisible scheduling (BATS) + BAR optimization and divide-and-conquer methods to perform task scheduling and resource allocation. In this technique, every task is processed as earlier than its actual allocation to the cloud resources using a MAHP process. The combined BATS and BAR optimization method is used to allocate the resources that it considers the bandwidth and load of the cloud resources as constraints. In addition, proposed system pre-empts resource intensive tasks using LEPT pre-emption. Divide and conquer technique is used to improve the performance of a proposed system. It was experimentally proved through comparison with the IDEA and Bandwidth Aware Divisible Scheduling algorithm, where the response time and the turnaround time are used as a performance metrics [4].An online cloud task scheduling based on the load balancing and the virtual machine adaptive fault tolerance using ant colony algorithm. The main support of this work is that load balancing factor is added to the system to tolerate the faults by tacking the decision on the basis of the reliability of the virtual machines in the scheduling process. Experimental results show that the future algorithm is achieved better load balance than the Modified Ant Colony Optimization (MACO) and the Join-shortest-queue (JSQ) algorithms [6].Multi Queue (MQ) scheduling algorithm to improve the performance of the system. This scheduling algorithm overcome the disadvantage of the existing Round Robin and Weighted Round Robin algorithms. Simulation results of Multi Queue (MQ) scheduling algorithm shows that it has a better performance than a Weighted Round Robin (WRR) algorithms and the exiting Round Robin (RR) [10].

III. PROPOSED SYSTEM

In practice, various types and sizes of tasks arrive at the cloud data centers for execution. The proposed system takes the real tasks as an input. To manage the tasks that come into a cloud data center, the proposed system uses the analytic hierarchy process (AHP). The primary aim of this proposed system is to manage incoming tasks. Therefore, the proposed system uses the AHP methodology to assign a rank to each task based on its length and run time. After this identification, the proposed system uses a divide and conquer methodology, which breaks up thetaskanddistributesittoothervirtualmachines.

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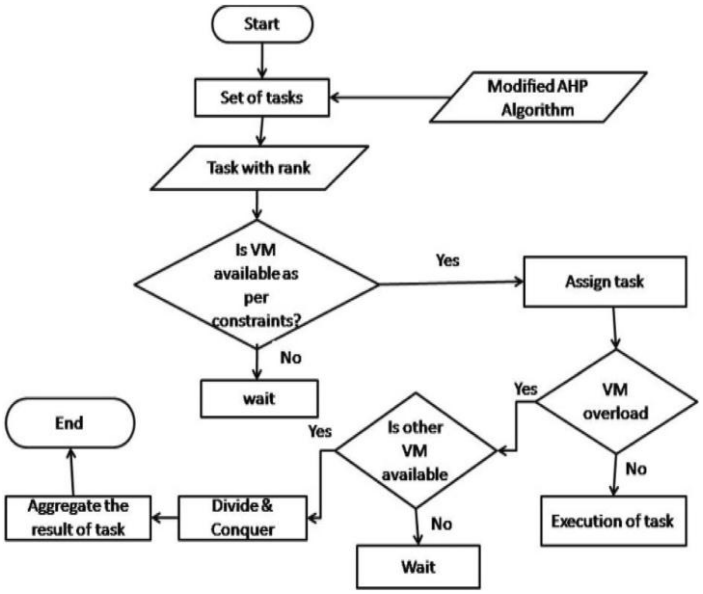

The experimental setup can be done by using the cloudsim which is a simulator. It creates a cloud environment using cloudsim. The environment contains data center, cloudlet and it also indicates the taken for the task execution. The cloudlet allocates the virtual machine for the task allocation and the resource allocation. Cloudsim is a library for the simulation of cloud scenarios. It provides essential classes for describing data centres, computational resources, virtual machines, applications, users, and policies for the management of various parts of the system such as scheduling and provisioning. The middle layer of the cloudsim provides support for the creation and simulation of cloud-based environments that includes interfaces for Virtual machines, storage and bandwidth. For the cloud formation, the cloudsim be merged to the eclipse.

Analytic hierarchy process:
The analytic hierarchy process is designed to solve complex problems with multiple criteria. The proposed system uses this procedure in cloud computingenvironments to rank the incoming tasks based on its length and time.

IV. EXPERIMENTAL ANALYSIS

The algorithms are compared in the experiments that include round robin and hierarchy process. Cloudsim can be used to model data centers, host, service brokers, scheduling and allocation policies of a large scaled cloud platform. In the experimental result, hierarchy can execute the task in the lower time comparing with the round robin method. It can be because of ranking the task. While ranking, the task can be scheduled in the task queue for the execution.

Makespan: It is the total execution time in which task get scheduled or completely executed. For better performance of cloud system, makespan always should be low.
Average Resource Utilization: It can be defined as the complete utilization of each resource present in cloud environment. For better performance of cloud system, average resource utilization ratio should be high.

Table 1: Number of task with execution time

Number of task	Round Robin	AHP
50	21.72	19.91
100	21.72	19.94
200	21.72	20.08
300	21.72	20.08

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Table 2: Number of task with the average resource utilization

Number of tasks	Round Robin	AHP
50	35.43	39.49
100	35.46	39.56
200	35.48	39.61
300	35.49	39.59

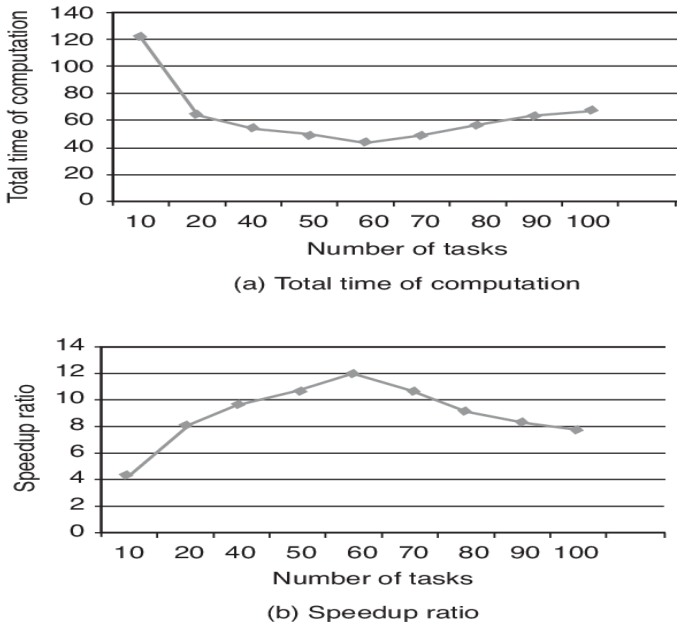

Fig1 Execution time and Speedup ratio for AHP method

V. CONCLUSION AND FUTURE WORK

In this paper, we proposed divide and conquer algorithm that performs task scheduling and allocates resources efficiently in cloud computing environments. The primary aim of this project is to manage incoming tasks. Therefore, this system uses the AHP methodology to assign a rank to each task based on its length and run time. When compare with the existing system, the proposed system utilize the resources efficiently and it also executes the task within a lower time.

The future work will focus on more effective scheduling algorithms in which turnaround time and response time will be improved. The future experiment will also help in improving the maximum utilization result for computing resources such as CPU, memory and bandwidth.

REFERENCES

[1] Lan Wang and ErolGelenbe "Adaptive Dispatching of Tasks in the Cloud" IEEE TRANSACTIONS ON CLOUD COMPUTING, VOL. 6, NO. 1, JANUARY-MARCH 2018.

[2] JasrajMeena, Malay Kumar, And Manu Vardhan "Cost Effective Genetic Algorithm for Workflow Scheduling in Cloud Under Deadline Constraint" IEEE ACCESS ON CLOUD COMPUTING, SEPTEMBER 28, 2018.

|ISSN: 2322-0163| www.ijeetr.com | A Bimonthly, Peer Reviewed, Scholarly Indexed Journal |

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DOI:10.15662/IJEETR.2026.0802465

[3] Muhammad Awais1, Ashfaq Ahmed, Muhammad Naeem, Muhammad Iqbal,WaleedEjaz, AlaganAnpalagan And HyungSeok Kim "Efficient Joint User Association and Resource Allocation for Cloud Radio Access Networks" IEEE ACCESS, FEBRUARY 13, 2017.

[4] MahendraBhatuGawali,Subhash K. Shinde "Task scheduling and resource allocation in cloud computing using a heuristic approach" SPRINGER: Gawali and Shinde Journal of Cloud Computing: Advances, Systems and Applications (2018) 7:4.

[5] Yang Liu,WannengShu,Chrish Zhang "A Parallel Task Scheduling Optimization Algorithm Based on Clonal Operator in Green Cloud Computing"Journal of Communications Vol. 11, No. 2, February 2016.

[6] Arabi E. Keshk "Cloud Computing Online Scheduling" (IOSRJEN) ISSN (e): 2250-3021, ISSN (p): 2278-8719, Vol. 04, Issue 03 (March. 2014), ||V6|| PP 07-17.

[7] C.Nagarajan and M.Madheswaran - 'Stability Analysis of Series Parallel Resonant Converter with Fuzzy Logic Controller Using State Space Techniques'- Taylor &Francis, Electric Power Components and Systems, Vol.39 (8), pp.780-793, May 2011. DOI: 10.1080/15325008.2010.541746

[8] C.Nagarajan and M.Madheswaran - 'Experimental verification and stability state space analysis of CLL-T Series Parallel Resonant Converter' - Journal of Electrical Engineering, Vol.63 (6), pp.365-372, Dec.2012. DOI: 10.2478/v10187-012-0054-2

[9] C.Nagarajan and M.Madheswaran - 'Performance Analysis of LCL-T Resonant Converter with Fuzzy/PID Using State Space Analysis'- Springer, Electrical Engineering, Vol.93 (3), pp.167-178, September 2011. DOI 10.1007/s00202-011-0203-9

[10] S.Tamilselvi, R.Prakash, C.Nagarajan,"Solar System Integrated Smart Grid Utilizing Hybrid Coot-Genetic Algorithm Optimized ANN Controller" Iranian Journal Of Science And Technology-Transactions Of Electrical Engineering, DOI10.1007/s40998-025-00917-z,2025

[11] S.Tamilselvi, R.Prakash, C.Nagarajan," Adaptive sliding mode control of multilevel grid-connected inverters using reinforcement learning for enhanced LVRT performance" Electric Power Systems Research 253 (2026) 112428, doi.org/10.1016/j.epsr.2025.112428

[12] S.Thirunavukkarasu, C. Nagarajan, 2024, "Performance Investigation on OCF and SCF study in BLDC machine using FTANN Controller," Journal of Electrical Engineering And Technology, Volume 20, pages 2675–2688, (2025), doi.org/10.1007/s42835-024-02126-w

[13] C. Nagarajan, M.Madheswaran and D.Ramasubramanian- 'Development of DSP based Robust Control Method for General Resonant Converter Topologies using Transfer Function Model'- *Acta Electrotechnica et Informatica Journal* , Vol.13 (2), pp.18-31,April-June.2013, DOI: 10.2478/aeei-2013-0025.

[14] C.Nagarajan and M.Madheswaran - 'DSP Based Fuzzy Controller for Series Parallel Resonant converter'- *Springer, Frontiers of Electrical and Electronic Engineering*, Vol. 7(4), pp. 438-446, Dec.12. DOI 10.1007/s11460-012-0212-0.

[15] C.Nagarajan and M.Madheswaran - 'Experimental Study and steady state stability analysis of CLL-T Series Parallel Resonant Converter with Fuzzy controller using State Space Analysis'- *Iranian Journal of Electrical & Electronic Engineering*, Vol.8 (3), pp.259-267, September 2012.

[16] C.Nagarajan and M.Madheswaran, "Analysis and Simulation of LCL Series Resonant Full Bridge Converter Using PWM Technique with Load Independent Operation" has been presented in ICTES'08, a IEEE / IET International Conference organized by M.G.R.University, Chennai.Vol.no.1, pp.190-195, Dec.2007

[17] Suganthi Mullainathan, Ramesh Natarajan, "An SPSS and CNN modelling based quality assessment using ceramic materials and membrane filtration techniques", Revista Materia (Rio J.) Vol. 30, 2025, DOI: https://doi.org/10.1590/1517-7076-RMAT-2024-0721

[18] M Suganthi, N Ramesh, "Treatment of water using natural zeolite as membrane filter", Journal of Environmental Protection and Ecology, Volume 23, Issue 2, pp: 520-530,2022

[19] PeiYun Zhang "Dynamic Cloud Task Scheduling Based on a Two-Stage Strategy" IEEE TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING, VOL. 15, NO. 2, APRIL 2018.

[20] Sergio Iserte, Raúl Peña-Ortiz, Juan Gutiérrez-Aguado, Jose M. Claver And Rafael Mayo "A Service to Cloudify and Schedule GPUs" IEEE ACCESS, AUGUST 7, 2018.

[21] WenzhongGuo , Bing Lin , Guolong Chen, Yuzhong Chen, and Feng Liang "Cost-Driven Scheduling for Deadline-Based Workflow Across Multiple Clouds" IEEE TRANSACTIONS ON CLOUD COMPUTING, VOL. 15, NO. 4, DECEMBER 2018.

[22] Pooja,Dr Sanjay Tyagi "Scheduling of Heterogeneous tasks in cloud computing using Multi Queue (MQ) Approach" International Research Journal of Engineering and Technology (IRJET) Volume: 04 Issue: 07 | July - 2017 e-ISSN: 2395-0056 p-ISSN: 2395-0072.

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[23] Anand, L., Maurya, M., Seetha, J., Nagaraju, D., Ravuri, A., & Vidhya, R. G. (2023, July). An intelligent approach to segment the liver cancer using Machine Learning Method. In 2023 4th international conference on electronics and sustainable communication systems (ICESC) (pp. 1488-1493). IEEE.

[24] Rajendran, S., Sundarapandi, A. M. S., Krishnamurthy, A., & Thanarajan, T. (2022). An intelligent face recognition technology for iot-based smart city application using condition-cnn with foraging learning pso model. International Journal of Pattern Recognition and Artificial Intelligence, 36(14), 2256018.

[25] Murugeshwari, B., & Sujatha, R. (2014). Preservation of Privacy for Multiparty Computation System with Homomorphic Encryption. International Journal of Emerging Technology and Advanced Engineering, 4(3), 530-535.

[26] Sugumar, R. (2025). Unified AI Framework for Predictive Data Engineering and Real Time Prescription and Billing Systems. International Journal of Advanced Engineering Science and Information Technology (IJAESIT), 8(5), 17261.

[27] Samrat, B., Thomas, P. K., Kumar, S., Benila, A., Bhardwaj, R., & Vigenesh, M. (2024, December). Industrial informatics in optimizing software-defined vehicles for logistics. In 2024 IEEE 2nd International Conference on Innovations in High Speed Communication and Signal Processing (IHCSP) (pp. 1-9). IEEE.

[28] Soundappan, S. J. (2024). AI-driven customer intelligence in enterprise lakehouse systems Sentiment Mining Governance-Aware Analytics and Real-Time Data Synchronization. International Journal of Advanced Engineering Science and Information Technology.

[29] Rajasekar, M. (2024). AI-Powered Cyber-Secure Federated Learning on AWS for Next-Generation Digital Banking Analytics. International Journal of Advanced Research in Computer Science & Technology (IJARCST), 7(3).

[30] Deivendran, P., Babu, P. S., Malathi, G., Anbazhagan, K., & Kumar, R. S. (2023). Emotion Recognition for Challenged People Facial Appearance in Social using Neural Network. arXiv preprint arXiv:2305.06842.

[31] Sugumar, R., & Murugeshwari, B. (2016). An Efficient MChord based Authentication for Vehicular Ad-Hoc Networks.

[32] Pandey, V. K., Mishra, S., Rengarajan, A., Savita, & Roomi, M. M. (2024, March). Enhancing Weather Forecasting with Machine Learning Techniques. In International Conference on Renewable Power (pp. 147-156). Singapore: Springer Nature Singapore.

[33] Mathew, A., & Alex, H. (2025). Federated Learning for Secure Genomic Research: Privacy-Preserving AI Solutions for Precision Medicine. Science and Technology: Developments and Applications Vol. 9, 36-43.

[34] Selvi, G. V., Anbarasan, A. B., Murthy, B. A., & Prabavathy, S. (2023). An Application Oriented Integrated Unequal Clustering Algorithm for Wireless Sensor Network. In Underwater Vehicle Control and Communication Systems Based on Machine Learning Techniques (pp. 140-154). CRC Press.

[35] Soundappan, S. J. (2025). Next Generation AI Enabled Holistic Cognitive Platform for Secure Cloud Network Intelligence Enterprise Systems and Digital Trust Optimization. International Journal of Computer Technology and Electronics Communication, 8(5), 11534-11542.

[36] Rajasekar, M. (2024). Real-Time Predictive DevOps Intelligence for Risk-Aware Digital Business Processes in Cloud and SAP Ecosystems. International Journal of Advanced Research in Computer Science & Technology (IJARCST), 7(4), 10713-10718.

[37] Jagadeesh, S., & Sugumar, R. (2017). A comparative study on artificial bee colony with modified ABC algorithm. European Journal of Applied Sciences, 9(5), 243–248.

[38] Murugeshwari, B., Sarukesi, K., & Jayakumar, C. (2010, March). An efficient method for knowledge hiding through database extension. In 2010 International Conference on Recent Trends in Information, Telecommunication and Computing (pp. 342-344). IEEE.

[39] Reddy, K. V. V. K., & Vimal, V. R. (2024, July). A novel approach on improved segmentation and classification of remote sensing images using AlexNet compared over linear discriminant analysis with improved accuracy. In 2024 Second International Conference on Advances in Information Technology (ICAIT) (Vol. 1, pp. 1-6). IEEE.

[40] Gowthami, D., & Vigenesh, M. (2024). Distributed and Lightweight Intrusion Detection for IoT: A Lightweight Pyramidal U-Net With Tri-Level Dual Inception-Based Framework. In The Convergence of Self-Sustaining Systems With AI and IoT (pp. 154-173). IGI Global Scientific Publishing.

[41] Anand, P. V., & Anand, L. (2023, December). An Enhanced Breast Cancer Diagnosis using RESNET50. In 2023 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICSES) (pp. 1-5). IEEE.

[42] Mathew, A. (2022). Leveraging Big Data Analytics to Power AI and ML (Machine Learning) Automation. Educational Research (IJMCER), 4(5), 131-134.

|ISSN: 2322-0163| www.ijeetr.com | A Bimonthly, Peer Reviewed, Scholarly Indexed Journal |

| Volume 8, Issue 2, March - April 2026 |

DOI:10.15662/IJEETR.2026.0802465

[43] Dhinakaran, D. (2022). Joe Prathap P. M, Selvaraj D, Arul Kumar D and Murugeshwari B," Mining Privacy-Preserving Association Rules based on Parallel Processing in Cloud Computing,". International Journal of Engineering Trends and Technology, 70(3), 284-294.

[44] Poornima, G., & Anand, L. (2024, April). Effective Machine Learning Methods for the Detection of Pulmonary Carcinoma. In 2024 Ninth International Conference on Science Technology Engineering and Mathematics (ICONSTEM) (pp. 1-7). IEEE.

[45] Rengarajan, A., Jayakumar, C., & Sugumar, R. (2012). Optimization Of Recent Attacks Using Internet Protocol. National Journal of System and Information Technology, 5(1), 8.

[46] Mathew, A., & Romasco, L. (2024). Forensic Investigation of Artificial Intelligence Systems. Research Updates in Mathematics and Computer Science Vol. 4, 154-164.

[47] Vekariya, V., Kumar, S., & Rengarajan, A. (2024). A distinctive and smart agricultural knowledge-based framework using ontology. In Sustainability in Digital Transformation Era: Driving Innovative & Growth (pp. 207-213). CRC Press.

[48] Soundappan, S. J. (2020). Big data analytics in healthcare: Applications for pandemic forecasting. International Journal of Advanced Research in Computer Science & Technology, 3.

[49] Sugumar, R. (2024). AI-Augmented Quality Engineering for Performance Optimization and Test Orchestration in Distributed Systems. International Journal of Science, Research and Technology, 7(5), 12835-12846.

[50] Soundappan, S. J., & Sugumar, R. (2016). Optimal knowledge extraction technique based on hybridisation of improved artificial bee colony algorithm and cuckoo search algorithm. International Journal of Business Intelligence and Data Mining, 11(4), 338–356.

[51] Mathew, A. (2025). Ahead of the breach: Predictive threat intelligence in aviation inspired by Scattered Spider attacks. Multidisciplinary International Journal of Research and Development (MIJRD), 4(6), 54–58.

[52] Soundappan, S. J. (2021). DataOps: Orchestrating Reliable ML Data Pipelines. International Journal of Research and Applied Innovations, 4(4), 5533-5537.

[53] Garg, V. K., Soundappan, S. J., & Kaur, E. M. (2020). Enhancement in intrusion detection system for WLAN using genetic algorithms. South Asian Research Journal of Engineering and Technology, 2(6), 62–64.

[54] Anand, L., Tyagi, R., & Mehta, V. (2024, January). Food recognition using deep learning for recipe and restaurant recommendation. In Proceedings of Eighth International Conference on Information System Design and Intelligent Applications (pp. 269-279). Singapore: Springer Nature Singapore.

[55] Kumar, A., & Anand, L. (2025). A Novel EEG-Based Deep Learning Framework for Enhancing Communication in Locked-In Syndrome Using P300 Speller and Attention Mechanisms. KSII Transactions on Internet and Information Systems (TIIS), 19(11), 3841-3855.

[56] Soundappan, S. J. (2022). AI-Based Fault Detection and Isolation for Reliability in Modern Power Systems. International Journal of Research Publications in Engineering, Technology and Management (IJRPETM), 5(4), 7106-7110.

[57] Chandra, S., Rengarajan, A., Sahoo, G. S., & Sharma⁴, S. (2024, October). Identifying Neuronal Damage and Plasticity by Analyzing Changes in Diffusion Tensor. In Proceedings of the 5th International Conference on Data Science, Machine Learning and Applications; Volume 2: ICDSMLA 2023, 15–16 December, Hyderabad, India (Vol. 2, p. 433). Springer Nature.