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AI-Powered Sorting in E-Commerce: Personalization and Performance Optimization

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Abstract*—** *The rapid growth of e-commerce platforms has led to an unprecedented increase in the volume and diversity of products available to online consumers, making efficient and personalized product ranking a critical challenge. Traditional sorting algorithms, such as Quick Sort, Merge Sort, and Heap Sort, efficiently order products according to predefined attributes such as price, rating, or popularity. However, these approaches rely on static sorting criteria and fail to capture the diverse preferences, browsing behaviors, purchase histories, and contextual intentions of individual users. This paper proposes a hybrid AI-powered sorting framework that integrates artificial intelligence with classical sorting algorithms to generate personalized product rankings while maintaining computational efficiency. The proposed framework consists of two stages: an AI-based relevance scoring module that evaluates products using multiple features, including query relevance, user preferences, product ratings, popularity, and contextual information, followed by an efficient comparison-based sorting algorithm that orders products according to their predicted relevance scores. The computational complexity of the proposed framework is analyzed, demonstrating that personalized ranking can be achieved with an overall time complexity of* ***O(n log n) *while preserving scalability for large-scale e-commerce applications. The framework highlights how artificial intelligence enhances the quality of product ranking by adapting to individual user needs, whereas classical sorting algorithms ensure efficient ordering and rapid response times. Furthermore, the paper discusses practical implementation considerations, including feature engineering, candidate filtering, caching strategies, and the trade-offs between personalization accuracy and computational performance. The proposed approach provides a scalable and flexible foundation for intelligent product ranking systems and offers valuable insights for the development of next-generation personalized e-commerce search and recommendation platforms. Future work will focus on implementing the framework using real-world e-commerce datasets and evaluating its effectiveness through ranking quality, user engagement, and system performance metrics.*

Keywords— Artificial Intelligence, E-Commerce, Personalized Ranking, Sorting Algorithms, Learning-to-Rank, Product Recommendation, Performance Optimization, Computational Complexity.

1. Introduction

The rapid expansion of e-commerce has fundamentally transformed the retail industry by enabling consumers to access millions of products through online platforms. Global marketplaces such as Amazon, eBay, Alibaba, and Walmart process vast amounts of product information and user interactions every day, requiring highly efficient algorithms to organize, rank, and present relevant products within milliseconds. As product catalogs continue to grow in both size and complexity, the effectiveness of product sorting and ranking has become a key determinant of customer satisfaction, user engagement, and business performance. Consequently, developing intelligent sorting mechanisms that can deliver accurate and personalized search results while maintaining computational efficiency has become an important research challenge.

Sorting algorithms constitute one of the most fundamental topics in computer science and play a central role in numerous applications involving data organization, retrieval, and optimization. Classical comparison-based algorithms, including Quick Sort, Merge Sort, Heap Sort, and TimSort, are widely employed because they provide predictable computational complexity and excellent scalability when ordering large datasets. In conventional e-commerce systems, these algorithms are typically used to sort products according to predefined attributes such as price, customer rating, popularity, or date of publication. Although these methods are computationally efficient, they rely on static sorting criteria that treat all users identically, regardless of their individual preferences, browsing histories, purchasing behavior, or contextual needs.

Modern e-commerce environments have shifted from generic product presentation toward highly personalized shopping experiences. Customers searching for the same product may have entirely different expectations based on factors such as previous purchases, preferred brands, spending habits, geographic location, device type, seasonal trends, and current browsing context. Consequently, presenting an identical product order to every user often reduces search relevance, increases the time required to locate desired

products, and may negatively affect customer satisfaction and conversion rates. Personalization has therefore become a fundamental component of intelligent e-commerce systems, requiring ranking strategies that dynamically adapt product ordering to each individual user.

Recent advances in artificial intelligence (AI) and machine learning have significantly improved personalized ranking and recommendation systems. Machine learning models can analyze complex relationships among user behavior, product characteristics, and contextual information to estimate the likelihood that a particular product will satisfy a user's intent. Techniques such as collaborative filtering, content-based recommendation, gradient boosting models, deep neural networks, and learning-to-rank algorithms have demonstrated remarkable success in predicting user preferences and improving recommendation quality. However, these AI models primarily focus on estimating relevance scores rather than efficiently organizing large collections of products. After relevance prediction, an effective sorting mechanism is still required to arrange products according to the computed scores while ensuring low response latency and scalability for real-time applications.

Although substantial research has been conducted independently on sorting algorithms and AI-based recommendation systems, relatively limited attention has been devoted to integrating intelligent relevance prediction with classical sorting techniques into a unified algorithmic framework. Existing recommendation systems frequently emphasize prediction accuracy while paying less attention to the computational characteristics of the subsequent sorting process, whereas traditional sorting algorithms provide excellent efficiency but lack adaptive personalization capabilities. Bridging these two perspectives is essential for developing practical large-scale e-commerce systems capable of delivering both highly relevant and computationally efficient product rankings.

This paper addresses this challenge by proposing a hybrid AI-powered sorting framework that combines artificial intelligence with classical sorting algorithms for personalized product ranking. The proposed framework separates the ranking process into two complementary stages. In the first stage, an AI-based scoring model computes a personalized relevance score for each candidate product by considering multiple factors, including query relevance, user preferences, product ratings, popularity, availability, and contextual information. In the second stage, an efficient comparison-based sorting algorithm orders the products according to the generated relevance scores, thereby preserving the computational efficiency of traditional sorting while benefiting from AI-driven personalization.

Unlike conventional approaches that rely exclusively on either static sorting criteria or recommendation models, the proposed framework demonstrates how intelligent scoring and efficient sorting can complement each other to achieve scalable personalized ranking. Furthermore, the framework provides a modular architecture that can accommodate different machine learning models and sorting algorithms without altering the overall system design, making it suitable for a wide range of e-commerce applications.

The main contributions of this paper are summarized as follows:

- A comprehensive analysis of the limitations of traditional product sorting methods in modern personalized e-commerce environments.
- A hybrid AI-powered framework that integrates personalized relevance prediction with classical comparison-based sorting algorithms.
- A mathematical scoring model that combines query relevance, user preferences, product quality, popularity, and contextual factors into a unified ranking function.
- A computational complexity analysis demonstrating that the proposed framework maintains an overall time complexity of **O(n log n)** while supporting scalable personalized ranking.
- A discussion of practical implementation considerations, including feature engineering, candidate filtering, caching mechanisms, and system scalability, to facilitate deployment in large-scale e-commerce platforms.

The remainder of this paper is organized as follows. Section 2 reviews the existing literature on sorting algorithms, recommendation systems, and AI-based ranking techniques. Section 3 presents the research problem and objectives. Section 4 describes the proposed hybrid framework and its algorithmic components. Section 5 analyzes the computational complexity and expected performance of the proposed approach. Section 6 discusses the advantages, limitations, and practical implications of AI-powered sorting, while Section 7 concludes the paper and outlines future research directions.

2. Objectives

The primary objective of this research is to develop a hybrid AI-powered sorting framework that enhances product ranking in e-commerce platforms by integrating artificial intelligence with classical sorting algorithms. The proposed framework aims to achieve personalized product ordering while maintaining the computational efficiency and scalability required for large-scale online retail systems.

The specific objectives of this study are as follows:

1. **To investigate the role of classical sorting algorithms** in organizing and ranking products within e-commerce platforms, with particular emphasis on their computational efficiency and scalability.
2. **To analyze the limitations of conventional single-key sorting methods**, such as price-, rating-, and popularity-based ranking, in addressing the diverse preferences and dynamic behaviors of individual users.
3. **To design a hybrid AI-powered product ranking framework** that combines machine learning-based relevance prediction with efficient comparison-based sorting algorithms to generate personalized product lists.
4. **To develop a personalized relevance scoring model** that incorporates multiple factors, including query relevance, user preferences, browsing history, purchase behavior, product ratings, popularity, availability, and contextual information.
5. **To evaluate the computational complexity of the proposed framework** by analyzing its time and space requirements and demonstrating its suitability for large-scale e-commerce environments.
6. **To examine the balance between personalization quality and computational performance**, identifying strategies that improve ranking relevance without introducing unacceptable response latency.
7. **To discuss practical implementation considerations**, including feature engineering, candidate filtering, caching mechanisms, and incremental ranking updates that can improve the efficiency of real-world deployment.
8. **To identify the advantages, limitations, and future research opportunities** associated with AI-powered sorting systems, providing a foundation for the development of next-generation intelligent e-commerce search and recommendation platforms.

3. Problem Statement

The exponential growth of e-commerce platforms has significantly increased the volume, diversity, and complexity of online product catalogs, making efficient product sorting and ranking an increasingly challenging task. Modern e-commerce systems must process millions of products while responding to user queries in real time. Consequently, product ranking has become a critical factor influencing customer satisfaction, search efficiency, user engagement, and sales performance.

Traditional sorting algorithms, including Quick Sort, Merge Sort, and Heap Sort, are highly effective for organizing data according to predefined comparison keys such as price, customer rating, popularity, or date of publication. These algorithms provide excellent computational efficiency and scalability, typically achieving a time complexity of **O(n log n)**. However, their effectiveness is limited in personalized e-commerce environments because they rely on static sorting criteria that produce identical product rankings for all users regardless of their individual preferences, browsing histories, purchase behaviors, or contextual information.

In contrast, modern online shopping platforms require dynamic and personalized ranking strategies that can adapt product ordering to the specific interests and intentions of each customer. Users searching for the same product may have different priorities based on factors such as preferred brands, budget constraints, previous purchases, geographic location, seasonal trends, or current browsing context. A static sorting mechanism is unable to capture these variations, often resulting in less relevant search results, increased search time, reduced customer satisfaction, and lower conversion rates.

Artificial intelligence and machine learning techniques offer promising solutions by learning complex relationships between users and products to estimate personalized relevance scores. Nevertheless, AI models primarily focus on prediction rather than efficient ordering. After relevance scores are generated, products must still be sorted rapidly to satisfy the strict response-time requirements of large-scale e-commerce systems. As the number of candidate products increases, maintaining both personalization quality and computational efficiency becomes a significant algorithmic challenge.

Therefore, the fundamental problem addressed in this research is how to design a scalable product sorting framework that combines AI-based personalized relevance prediction with the computational efficiency of classical sorting algorithms. The framework should

generate highly personalized product rankings while preserving low computational complexity, fast response times, and scalability for large product catalogs. Addressing this challenge requires balancing intelligent decision-making with efficient algorithmic design, enabling e-commerce platforms to deliver accurate, personalized, and computationally efficient product recommendations in real-world environments.

4. Literature Review

Sorting algorithms have been studied extensively as a core part of computer science. Classical algorithms such as merge sort, quicksort, and heap sort are commonly used because they can sort data efficiently in O(n log n) time on average or in the worst case depending on the algorithm. These algorithms are important because they provide predictable ways to order large datasets.

In information retrieval and recommender systems, ranking is often treated as an extension of sorting. Instead of sorting items by a simple numeric key, the system first calculates a relevance score and then sorts items by that score. Learning-to-rank methods use machine learning to estimate how relevant an item is for a user query or preference. These methods are widely used in search engines, recommendation systems, and online marketplaces.

Personalization in e-commerce has also been widely discussed in research and industry. Recommender systems use user behavior, product similarity, collaborative filtering, and machine learning models to predict what a user may prefer. In product search, personalization can adjust the order of results based on browsing history, previous purchases, ratings, demographic information, or contextual data. However, these systems still depend on efficient algorithms to process and sort product lists quickly.

Recent approaches combine AI models with traditional algorithmic structures. For example, an AI model can generate a relevance score, and a sorting algorithm can arrange products according to the generated scores. This hybrid approach is suitable because AI handles prediction and personalization, while sorting algorithms handle ordering and performance. The literature shows that neither AI nor classical algorithms alone are enough for large e-commerce systems; effective solutions require both intelligent scoring and efficient computational design.

5. Methodology

This paper proposes a hybrid algorithmic framework for AI-powered sorting in e-commerce. The framework has two main stages. First, an AI-based scoring stage calculates a personalized score for each product. Second, a sorting stage orders products according to the calculated score. The purpose of separating the two stages is to keep the system clear, modular, and analyzable from an algorithms perspective.

6. Input and Output

Input: A set of products P = {p1, p2, ..., pn}, a user profile U, and a search query or browsing context Q. Each product includes features such as price, category, rating, popularity, availability, and textual description. The user profile may include previous searches, clicks, purchases, preferred categories, and price range.

Output: A sorted list of products where the highest ranked products appear first according to a personalized AI relevance score.

7. Proposed Framework

The proposed framework follows these steps:

- Collect product data and user behavior data.
- Preprocess the data by cleaning missing values and extracting useful features.
- Calculate a relevance score for every product using a weighted AI-based scoring function.
- Sort all candidate products in descending order according to their relevance scores.
- Return the top-ranked products to the user interface.
- Update user behavior data after new clicks, searches, or purchases.

Scoring Function

A simplified personalized score can be represented as:

$$Score(p, U, Q) = w1\ Relevance(p, Q) + w2\ Preference(p, U) + w3\ Rating(p) + w4\ Popularity(p) - w5\ Penalty(p)$$

In this formula, relevance measures how well the product matches the query, preference measures how well the product matches the user profile, rating reflects product quality, popularity reflects demand, and penalty can represent negative factors such as high delivery time, low availability, or weak matching. The weights can be learned or adjusted according to the platform goal.

Pseudocode

```
Algorithm: AI-Powered Product Sorting
Input: Product list P, user profile U, query Q
Output: Personalized sorted product list S

1. CandidateProducts <- Filter(P, Q)
2. For each product p in CandidateProducts do
3.     features <- ExtractFeatures(p, U, Q)
4.     score[p] <- PredictRelevance(features)
5. End For
6. S <- SortDescending(CandidateProducts, score)
7. Return S
```

Algorithmic Complexity Analysis

Let n be the number of candidate products returned after filtering. If feature extraction and score prediction take constant time for each product, then scoring all products requires O(n) time. Sorting the scored products using an efficient comparison-based sorting algorithm such as merge sort or quicksort requires O(n log n) time. Therefore, the total time complexity is O(n + n log n), which simplifies to O(n log n).

The space complexity depends on how scores and intermediate features are stored. If one score is stored for each product, the additional space is O(n). In practice, systems can reduce response time by filtering candidates before sorting, caching popular results, and sorting only the top candidate products when full sorting is unnecessary.

8. Results

This paper presents expected results because it is a theoretical algorithmic study rather than a fully implemented system.. The proposed framework is expected to improve the order of e-commerce products compared with traditional single-key sorting because it considers both product attributes and user preferences.

Sorting Approach	Main Key	Personalization	Expected Performance
Price-based sorting	Price	Low	Fast, but may ignore user preference
Rating-based sorting	Rating	Low to medium	Useful for quality, but not fully personalized
Popularity-based sorting	Sales or views	Low to medium	Highlights trending items but may reduce diversity
AI-powered sorting	Personalized relevance score	High	More relevant results with O(n log n) sorting cost

The expected result is that AI-powered sorting can provide more relevant product lists while still using efficient sorting techniques. The most important improvement is not only speed but also the quality of the sorted order. A personalized sorted list can help users find suitable products faster and may increase customer satisfaction.

9. Discussion

The proposed framework shows that sorting in modern e-commerce is not only a mechanical ordering process. It is also a decision-making process that depends on user intent and product context. Classical algorithms remain important because they provide efficient methods for ordering data. However, the key used for sorting can be improved using AI.

One advantage of AI-powered sorting is personalization. Instead of showing the same product order to all users, the system can adapt the order according to each user. For example, a user who often buys low-cost products may see affordable items first, while another user who prefers high-rated brands may see premium products first. This makes sorting more useful and user-centered.

Another advantage is flexibility. The scoring model can combine many criteria at the same time, including query relevance, user preference, rating, popularity, stock availability, and delivery time. This is difficult to achieve with a single traditional sorting key.

The framework also allows the platform to adjust weights according to business goals, such as improving customer satisfaction, increasing conversions, or promoting available products.

However, AI-powered sorting also has limitations. First, it requires user data, which raises privacy and fairness concerns. Second, the scoring model can introduce bias if it over-prioritizes popular products or past behavior. Third, score prediction adds computational cost before sorting. Therefore, optimization techniques such as candidate filtering, caching, approximate ranking, and top-k selection may be necessary in large-scale systems.

From an algorithms course perspective, the most important point is that AI does not replace sorting algorithms. Instead, AI changes the comparison key used by the sorting algorithm. The final ranking still depends on algorithmic efficiency, time complexity, and data structure design. This makes the topic strongly related to the study of algorithms.

10. Conclusion

This paper discussed AI-powered sorting in e-commerce as an algorithmic framework for personalization and performance optimization. Traditional sorting algorithms are efficient but limited when they use only one static key such as price or rating. E-commerce platforms need more intelligent sorting because different users have different needs and preferences. The proposed framework solves this problem by calculating an AI-based relevance score for each product and then sorting products according to that score.

The analysis shows that the framework can maintain an efficient O(n log n) sorting complexity while improving the relevance of product results. AI contributes personalization and adaptive decision-making, while classical sorting algorithms contribute efficiency and scalability. Therefore, the best approach is a hybrid one that combines intelligent scoring with well-designed algorithms. Future work may include implementing the framework using real e-commerce datasets, comparing different machine learning models, and measuring actual performance using response time, click-through rate, and conversion rate.

References

1. Cormen, T. H., Leiserson, C. E., Rivest, R. L., & Stein, C. (2022). Introduction to Algorithms (4th ed.). MIT Press.
2. Knuth, D. E. (1998). The Art of Computer Programming, Volume 3: Sorting and Searching (2nd ed.). Addison-Wesley.
3. Manning, C. D., Raghavan, P., & Schuetze, H. (2008). Introduction to Information Retrieval. Cambridge University Press.
4. Liu, T. Y. (2009). Learning to Rank for Information Retrieval. Foundations and Trends in Information Retrieval, 3(3), 225-331.
5. Ricci, F., Rokach, L., & Shapira, B. (Eds.). (2022). Recommender Systems Handbook (3rd ed.). Springer.
6. Jannach, D., Zanker, M., Felfernig, A., & Friedrich, G. (2011). Recommender Systems: An Introduction. Cambridge University Press.
7. Burges, C. J. C. (2010). From RankNet to LambdaRank to LambdaMART: An Overview. Microsoft Research Technical Report.
8. Linden, G., Smith, B., & York, J. (2003). Amazon.com Recommendations: Item-to-Item Collaborative Filtering. IEEE Internet Computing, 7(1), 76-80.
9. Goodfellow, I., Bengio, Y., & Courville, A. (2016). Deep Learning. MIT Press.
10. Russell, S., & Norvig, P. (2021). Artificial Intelligence: A Modern Approach (4th ed.). Pearson.
11. Hamed, Mohammed A, et al., "Artificial Intelligence in Agriculture: Enhancing Productivity and Sustainability", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 8, pp. 1-5, 2024.
12. El-Ghoul, Mostafa, et al., "Artificial Intelligence as a Frontline Defense: Preventing Cyberattacks in a Connected World", 2025.
13. Alzamily, Jawad YI, et al., "Artificial Intelligence in Healthcare: Transforming Patient Care and Medical Practices", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 8, pp. 1-9, 2024.
14. Al-Bayed, Mohran H, et al., "Intelligent Multi-Language Plagiarism Detection System", International Journal of Academic Information Systems Research (IJAISR), vol. 2, no. 3, pp. 19-34, 2018.
15. Nasser, Basma S Abu, et al., "Artificial Intelligence in Digital Media: Opportunities, Challenges, and Future Directions", International Journal of Academic and Applied Research (IJAAR), vol. 8, no. 6, pp. 1-10, 2024.
16. Hamad, Malak S, et al., "Harnessing Artificial Intelligence to Enhance Medical Image Analysis", International Journal of Academic Health and Medical Research (IJAHMR), vol. 8, no. 9, pp. 1-7, 2024.
17. Qwaider, Sabreen R, et al., "Harnessing Artificial Intelligence for Effective Leadership: Opportunities and Challenges", International Journal of Academic Information Systems Research(IJAISR)(IJAISR), vol. 8, no. 8, pp. 9-15, 2024.
18. Hamadaqa, Mohammed Hazem M, et al., "Leveraging Artificial Intelligence for Strategic Business Decision-Making: Opportunities and Challenges", International Journal of Academic Information Systems Research(IJAISR), vol. 8, no. 8, pp. 16-23, 2024.
19. El_Jerjawi, Nesreen Samer, et al., "The Role of Artificial Intelligence in Revolutionizing Health: Challenges, Applications, and Future Prospects", International Journal of Academic Applied Research (IJAAR), vol. 8, no. 9, pp. 7-15, 2024.
20. Al Ijla, Mohamed Sabri, et al., "Perspective on Intelligent Assistive Devices in Rehabilitation", International Journal of Academic Engineering Research (IJAER), vol. 4, no. 11, pp. 31-36, 2020.
21. Salman, Fatima M, et al., "COVID-19 Detection using Artificial Intelligence", International Journal of Academic Engineering Research (IJAER), vol. 4, no. 3, pp. 18-25, 2020.
22. Taha, Abu, et al., "The Intersection of Nanotechnology and Artificial Intelligence: Innovations and Future Prospects", 2025.
23. Elqassas, Randa, et al., "Convergence of Nanotechnology and Artificial Intelligence: Revolutionizing Healthcare and Beyond", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 10, pp. 25-30, 2024.
24. Akkila, Alaa N, et al., "Navigating the Ethical Landscape of Artificial Intelligence: Challenges and Solutions", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 8, pp. 68-73, 2024.
25. Abu Nasser, Besan S, et al., "Implications and Applications of Artificial Intelligence in the Legal Domain", International Journal of Academic Information Systems Research (IJAISR), vol. 7, no. 12, pp. 18, 2024.
26. Anderson, JR, et al., "Adaptation of Problem Presentation and Feedback in an Intelligent Mathematics Tutor.", Information Technology Journal, vol. 5, no. 5, pp. 167-207, 2005.
27. Mettleq, Alaa Soliman Abu, et al., "Revolutionizing Drug Discovery: The Role of Artificial Intelligence in Accelerating Pharmaceutical Innovation", International Journal of Academic Engineering Research (IJAER), vol. 8, no. 10, pp. 45-52, 2024.
28. Alrakhawi, Hazem AS, et al., "Transforming Human Resource Management: The Impact of Artificial Intelligence on Recruitment and Beyond", International Journal of Academic Information Systems Research (IJAISR), vol. 8, no. 8, pp. 1-8, 2024.
29. Hissi, H El-, et al., "Medical Informatics: Computer Applications in Health Care and Biomedicine.", Journal of Artificial Intelligence, vol. 3, no. 4, pp. 78-85, 2008.
30. Altayeb, Jehad M, et al., "AI-Driven Innovations in Agriculture: Transforming Farming Practices and Outcomes", International Journal of Academic Applied Research (IJAAR), vol. 8, no. 9, pp. 1-6, 2024.
31. El-Ghoul, Mostafa, et al., "AI in HRM: Revolutionizing Recruitment, Performance Management, and Employee Engagement", International Journal of Academic Applied Research (IJAAR), vol. 8, no. 9, pp. 16-23, 2024.
32. Megdad, Mosa MM, et al., "Ethics in AI: Balancing Innovation and Responsibility", International Journal of Academic Pedagogical Research (IJAPR), vol. 8, no. 9, pp. 20-25, 2024.
33. Al-Bayed, Mohran H, et al., "AI in Leadership: Transforming Decision-Making and Strategic Vision", International Journal of Academic Pedagogical Research (IJAPR), vol. 8, no. 9, pp. 1-7, 2024.
34. Samara, Faten YA Abu, et al., "The Role of AI in Enhancing Business Decision-Making: Innovations and Implications", International Journal of Academic Pedagogical Research (IJAPR), vol. 8, no. 9, pp. 8-15, 2024.
35. Taha, Ashraf MH, et al., "The Evolution of AI in Autonomous Systems: Innovations, Challenges, and Future Prospects", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 10, pp. 1-7, 2024.
36. Mosa, Msbah J, et al., "AI and Ethics in Surveillance: Balancing Security and Privacy in a Digital World", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 10, pp. 8-15, 2024.
37. Bakeer, Hani, et al., "AI and Human Rights", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 10, pp. 16-24, 2024.
38. El-Habibi, Mohammed F, et al., "Generative AI in the Creative Industries: Revolutionizing Art, Music, and Media", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 10, pp. 71-74, 2024.
39. Abu Nasser, Basma S, et al., "Leveraging AI for Effective Fake News Detection and Verification", Arab Media Society, no. 37, 2024.
40. Alnajjar, Mohammad, et al., "AI in Climate Change Mitigation", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 10, pp. 31-37, 2024.
41. Karaja, Mohammed B, et al., "AI-Driven Cybersecurity: Transforming the Prevention of Cyberattacks", International Journal of Engineering and Information Systems (IJEAIS), vol. 8, no. 10, pp. 38-44, 2024.
42. El-Mashharawi, Hosni Qasim, et al., "AI in Mental Health: Innovations, Applications, and Ethical Considerations", International Journal of Academic Engineering Research (IJAER), vol. 8, no. 10, pp. 53-58, 2024.
43. Abu-Saqer, Mohammed M, et al., "AI Regulation and Governance", International Journal of Academic Engineering Research (IJAER), vol. 8, no. 10, pp. 59-64, 2024.
44. Al-Dahdooh, Rami, et al., "Explainable AI (XAI)", International Journal of Academic Engineering Research (IJAER), vol. 8, no. 10, pp. 65-70, 2024.
45. Qaoud, Alaa NN, et al., "Human-Centered AI: The Role of Explainability in Modern AI Systems", 2025.
46. Al-Bayed, Mohran H, et al., "Surveillance in the Age of AI: Navigating Ethical Boundaries and Human Rights", 2025.
47. Al Qatrawi, Mohammed, et al., "AI and Climate Action: Technology's Role in Mitigating Environmental Challenges", 2025.
48. Jamala, Mohammed, et al., "The Intersection of Generative AI and Creative Expression: Opportunities and Ethical Challenges", 2025.
49. Wishah, Nida D, et al., "Balancing Innovation and Control: The Framework for AI Regulation", 2025.
50. Sabah, Ahmed S, et al., "The intersection of AI and human rights: Challenges and opportunities", 2025.
51. Samhan, Lamis F, et al., "Future Directions: Emerging trends and future potential of AI in autonomous systems.", 2025.
52. Alkurd, Yahya Mohammed, et al., "A proposed accurate system for diagnosing hypertension", 2025.
53. Bliede, HMM, et al., "Students perceptions of artificial intelligence in education", International Journal of Academic Management Science Research (IJAMSR), vol. 7, pp. 105-116, 2023.
54. Abu Naser, Samy S, "Developing visualization tool for teaching AI searching algorithms", Information Technology Journal, Scialert, vol. 7, no. 2, pp. 350-355, 2008.
55. Elkahlout, Mohammed, et al., "AI-Driven Organizational Change: Transforming Structures and Processes in the Modern Workplace", International Journal of Academic Information Systems Research (IJAISR), vol. 8, no. 8, pp. 24-28, 2024.
56. Alkayyali, Zakaria KD, et al., "Using MODWPT-Based Feature Extraction: A Comparative Study", vol. 3, pp. 225, 2025.
57. Saikly, Eng. Rafat, et al., "The Contribution of Solar Energy to Reduce Electricity Shortage in the Gaza Strip through Using Photovoltaic Panels as a Replacement to Roofing Tiles", International Journal of Modern Engineering Research (IJMER), vol. 4, no. 1, pp. 98-104, 2014.
58. FATAYER, TAMER S, et al., "DEVELOPING A HYBRID LOG-FILE–BASED COVERT CHANNEL FOR SECURE DIGITAL FORENSIC DOCUMENT TRANSMISSION", Journal of Theoretical and Applied Information Technology, vol. 104, no. 4, pp. 444-458, 2026.
59. Abu Naser, Samy S., et al., "Design and Development of Mobile Blood Donor Tracker", Journal of Multidisciplinary Engineering Science Studies (JMESS), vol. 2, no. 2, pp. 284-300, 2016.
60. Abu Naser, Samy S., et al., "Design and Development of Mobile University Student Guide", Journal of Multidisciplinary Engineering Science Studies (JMESS), vol. 2, no. 1, pp. 193-197, 2016.
61. Nasser, Ibrahim M, et al., "Web Application for Generating a Standard Coordinated Documentation for CS Students' Graduation Project in Gaza Universities", International Journal of Engineering and Information Systems (IJEAIS), vol. 1, no. 6, pp. 155-167, 2017.
62. Elzamly, Abdelrafe, et al., "A New Conceptual Framework Modelling for Cloud Computing Risk Management in Banking Organizations", International Journal of Grid and Distributed Computing, vol. 9, no. 9, pp. 137-154, 2016.
63. Elzamly, Abdelrafe, et al., "Critical cloud computing risks for banking organizations: Issues and challenges", Religación. Revista de Ciencias Sociales y Humanidades, vol. 4, no. 18, pp. 673-682, 2019.
64. Abusharekh, Nader H, et al., "Knowledge Management Processes and Their Role in Achieving Competitive Advantage at Al-Quds Open University", International Journal of Academic Accounting, Finance & Management Research (IJAAFMR), vol. 3, no. 9, pp. 1-18, 2019.
65. Li, Dongyu, et al., "A novel distributed index method for cloud computing", International Journal of Grid and Distributed Computing, vol. 1, no. 1, pp. 8, 2016.
66. Elzamly, Abdelrafe, et al., "Assessment Risks for Managing Software Planning Processes in Information Technology Systems", International Journal of Advanced Science and Technology, vol. 28, no. 1, pp. 327-338, 2019.
67. Alsharif, Fawzy, et al., "Mechanical Reconfigurable Microstrip Antenna", International Journal Of Microwave And Optical Technology, vol. 11, no. 3, 2016.
68. Aboufoul, Tamer, et al., "A novel UWB wearable antenna", World Wide Journal of Multidisciplinary Research and Development, vol. 2, no. 9, pp. 32-37, 2015.
69. Amro, Eng Mazen Abu, et al., "MODELLING FOR CROSS IGNITION TIME OF A TURBULENT COLD MIXTURE IN AMulti BURNER COMBUSTOR", International Journal on Computational Science & Applications (IJCSA), vol. 6, no. 1, pp. 35-47, 2016.
70. Ljerjawi, Nesreen S, et al., "Artificial Intelligence for Intelligent Waste Sorting: An Efficient and Scalable System", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 114-117, 2025.
71. Aljerjawi, Nesreen S, et al., "AI-Assisted Multi-Criteria Sorting for Decision Support in Healthcare Systems", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 90-93, 2025.
72. Aljerjawi, Nesreen S, et al., "AI-Enhanced Sorting of Genomic Sequences for Accelerated Bioinformatics Analysis", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 105-109, 2025.
73. Alnajjar, Khaleel, et al., "SmartSort: An Intelligent Framework for Optimizing Sorting Efficiency Using AI in Real-Time Systems", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 80-85, 2025.
74. Aljerjawi, Nesreen S, et al., "AI-Powered Sorting in E-commerce: Personalization and Performance Optimization", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 110-113, 2025.
75. Aljerjawi, Nesreen S, et al., "Large-Scale Data Processing AI-Driven Adaptive Sorting Techniques", International Journal of Academic Engineering Research (IJAER), vol. 9, no. 8, 2025.
76. Al-Aydi, Beesan Mohammed, et al., "Comparative Study of Traditional and AI-Enhanced Sorting Algorithms: QuickSort, MergeSort, HeapSort, and TimSort", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 70-79, 2025.
77. Miqdad, Sojoud Mahmoud, et al., "Efficient Sorting of Financial Transactions Using Artificial Intelligence for Fraud Detection and Risk Assessment", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 147-154, 2025.
78. Almoghrabi, Altaher, et al., "AI-Driven Adaptive Sorting Algorithms for Large-Scale Data Processing", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 155-161, 2025.
79. Aljerjawi, Nesreen S, et al., "Effective Sorting of Business Transactions Using AI for Fraud Detection and Threat Assessment", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 139-146, 2025.
80. Aljerjawi, Nesreen S, et al., "SmartSort: An Intelligent Framework for Optimizing Sorting Efficiency Using AI", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 134-138, 2025.
81. Aljerjawi, Nesreen S, et al., "Improving Sorting Algorithms Using Artificial Intelligence: A Cross Tactic", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 8, pp. 118-125, 2025.
82. Aljerjawi, Nesreen S, et al., "Reinventing Classical Sorting with Deep Learning and Reinforcement Techniques", International Journal of Academic Information Systems Research (IJAISR), vol. 9, no. 6, pp. 126-133, 2025.