

Editorial

The current issue of the journal brings together a collection of five research papers that span a range of groundbreaking topics, each addressing critical aspects of modern science and technology. These studies, though varied in their focus, share a common theme of advancing our understanding and capabilities in their respective fields, offering insights that could shape future practices and policies.

The first paper explores the ongoing debate between electric vehicles (EVs) and internal combustion engine (ICE) vehicles, shedding light on the intertwined interests of the automotive and oil industries. As the world grapples with the consequences of climate change, the transition to EVs is positioned as not just an option but a necessity for sustainable human civilization. The authors make a compelling case for the environmental benefits of electric vehicles, including reduced pollution in densely populated urban areas and the potential for EV batteries to serve as a backup for power grids. This paper challenges readers to consider the broader implications of vehicle technology choices and the vested interests that may hinder the shift towards cleaner alternatives [1].

In the realm of cybersecurity, the second paper delves into the complexities of protecting digital environments from cyber threats. With the rise of cyberattacks, safeguarding information systems has never been more crucial. The paper highlights the transformative role of artificial intelligence, specifically machine learning and deep learning, in fortifying cybersecurity measures. By analyzing patterns and predicting potential threats, these advanced technologies are proving invaluable in preempting cyber intrusions. This research underscores the importance of continuous innovation in cybersecurity practices to protect sensitive data and maintain trust in digital infrastructures [2].

The third study presents an in-depth analysis of software-defined networking (SDN), an innovative approach to network architecture that enhances control and operational efficiency. Using the Mininet simulator, the authors evaluate the performance of various network topologies and protocols, offering insights into the optimal configurations for different scenarios. The findings from this research are crucial for network administrators and developers aiming to implement SDN frameworks that maximize performance and reliability. By providing a detailed benchmark of performance metrics, this study contributes significantly to both academic research and practical applications in network management [3].

Moving to the field of medical imaging and diagnosis, the fourth paper introduces a novel approach to detecting keratoconus, a non-inflammatory eye disorder. The authors employ advanced techniques such as principal component analysis (PCA) and an improved recurrent neural network (RNN) with Grey Wolf optimization to enhance the accuracy of early diagnosis. Early detection of keratoconus is vital to prevent complications, especially in patients undergoing refractive surgery. This research not only improves diagnostic capabilities but also opens new avenues for developing more effective treatment plans, thereby enhancing patient outcomes [4].

The fifth paper addresses the challenge of text detection and recognition in multilingual contexts, specifically focusing on the Bengali language. While significant progress has been made in text recognition for languages like English, the unique characteristics of Bengali script pose additional challenges. The authors propose a combination of advanced machine learning models, including Mask-R-CNN, CRNN, and a novel Fast Iterative Nearest Neighbour (Fast INN) algorithm, to achieve high accuracy in text recognition. This research represents a significant step forward in making text recognition technology more inclusive and effective across different languages and scripts [5].

Each of these papers contributes to its field by addressing pressing issues with innovative approaches and thorough research methodologies. Together, they illustrate the diverse challenges and opportunities that modern science and technology present. As we navigate these complexities, it is clear that interdisciplinary research and collaboration are key to driving progress and fostering a more sustainable and technologically advanced future.

References:

- [1] P. Karunakaran, M. Shahril Osman, "Reviewing the Value of Electric Vehicles in Achieving Sustainability," *Journal of Engineering Research and Sciences*, vol. 3, no. 7, pp. 1–10, 2024, doi:10.55708/js0307001.
- [2] R. Khalid, M. Naqi Raza, "A Thorough Examination of the Importance of Machine Learning and Deep Learning Methodologies in the Realm of Cybersecurity: An Exhaustive Analysis," *Journal of Engineering Research and Sciences*, vol. 3, no. 7, pp. 11–22, 2024, doi:10.55708/js0307002.
- [3] N. V. Oikonomou, D. V. Oikonomou, E. Stergiou, D. Liarokapis, "Comprehensive Analysis of Software-Defined Networking: Evaluating Performance Across Diverse Topologies and Investigating Topology Discovery Protocols," *Journal of Engineering Research and Sciences*, vol. 3, no. 7, pp. 23–43, 2024, doi:10.55708/js0307003.
- [4] S. Hassan Musa, Q.J. Mohammed Alhaidar, M. Mahdi Borhan Elmi, "Keratoconus Disease Prediction by Utilizing Feature-Based Recurrent Neural Network," *Journal of Engineering Research and Sciences*, vol. 3, no. 7, pp. 44–52, 2024, doi:10.55708/js0307004.
- [5] M. Dutta, D. Tripura, J. Krishna Das, "A Computational Approach for Recognizing Text in Digital and Natural Frames," *Journal of Engineering Research and Sciences*, vol. 3, no. 7, pp. 53–58, 2024, doi:10.55708/js0307005.

Editor-in-chief

Prof. Paul Andrew