REVISTA DE INTELIGENCIA ARTIFICIAL EN MEDICINA
Issue: 15 Volume: 01 (2024)
https://redcrevistas.com/index.php/Revista

Bibliometric in Health Care and Cybersecurity Literature

Asad Ali
Department of Cs, University of Gujrat

Abstract

During the past decade, reliance on information technology has become worldwide standard for clinical care. Cybersecurity of Health Care Information SystemsAs the risks to which health information is exposed grow during its life cycle, cybersecurity has become an integral part in providing a safe, efficient and correct healthcare. To summarize the literature that combines cybersecurity and health care delivery. We conducted a search of peer-reviewed articles written in English that were indexed on PubMed or Web of Science. We performed a chronological analysis, domain clustering on text of in- and excluded papers as well as textual analyses to create an upper-level concept map consisting out of selected terms within the included articles and their connectivity. The final sample after exclusions contained 472 journal articles published in the English language. Our review results show, that many articles concentrated on technology: Technology focused papers are dominating all more than half of the clusters with 32%-in managerial and competital issues less often observed across most. Therefore, there may be less study on nontechnological variables (human-based aspects, organizational factors, strategy and management).setVisibility of such category is lesser based upon this finding. Also Security Architecture Business Continuity/Disaster Recovery Planning 3.00 % each Therefore, our results indicated that the amount of literature regarding Physical Security registered in ReBench is very small and also little research has been done related to this topic. Physical security risks, which if exposed allow breaches and may even impact on the patient's physical safety concertedly make up most cyber vulnerabilities distinctly non-digital. Conclusion: Our findings suggest an overall growth in cybersecurity research and significant gaps along with areas for further examination.

Introduction

Cyber threats are an unfortunate reality in health care, given that our most closely regulated industry is often a favorite target of the cybercriminal community. The health care industry,

in general, was Verizon's most affected by data breaches relative to all industries investigated (24% of any monitored break down) . Also, an analysis report from the Phenomenon Institute claimed that nearly 90% of respondents (comprised entirely by health plans and healthcare clearing houses as well as healthcare providers with electronic health records) had at least one data breach within last two years . Yet another survey of health care information security professionals found that more than 75% had a recent security incident [9]. The causes are multifactorial and increasingly pivotal in this is human error, both from a technology standpoint (egentliching , blame smothered social blunting point really etricate sociologically dynamic process importance) . While practicing healthy information security behavior is sometimes communicated via training programs, one out of five employees will still write their usernames and passwords on a piece of paper . Given the rising prevalence of cyber threats toward medical facilities that are relevant for safe, effective and reliable health care delivery, we present a scoping review protocol on literature about cybersecurity in healthcare. Cyber threats in health care have been reviewed recently by the framework of systematic reviews (31 articles) and strategies to respond against cyber incident for organizations within any type of HC sectors, being synthesized from 13 studies . We performed a broad bibliometric review of the literature to examine research efforts and trends relating to cybersecurity in health care. Our objectives were not only to summarize current knowledge but also identify areas where further work is required, therefore we can direct future research toward improving the security posture of our healthcare systems.

Methodology

Screening and Selection

Screening of Titles and Abstracts: titles/abstracts in this stage were screened with the help from Abstrackr software package to finalize if 0. The two trained reviewers independently reviewed the full texts of the “maybe” articles to make final decisions regarding study eligibility. There was consensus in the event of disagreements regarding study inclusion. Our complete methodology and additional details can be found in Multimedia .

Results and Discussions

Chronological Clustering This was followed by conducting chronologically based clustering, where we first analyzed the count of published articles per year as well had author counts for

each article We used 10 security domains defined by the International Information Systems Security Certification Consortium to topical-cluster articles, where each article was bootstrapped into one of these categories . The left panel is the clustering result with each clustered document further classified into four subcategories: managerial, technological, legal aspects and general/interdisciplinary (most drafted articles obtained more than 3 categories). Data were recorded on features of the included articles including journal publication as well as total citations.

Text Analysis

We then searched all titles and abstracts for words with high frequencies occurring in the research articles (but not specific to our topic, like “paper,” using”), etciotic results”) and removed those that did. Also, combined plural versions of the same word and recombined 'healthcare' vs. 'health care'.

Results

Search outcome A first search in PubMed of papers for the terms ”cyber” opened 1480 articles, and a second WoS resulted in 810 articles. Which were then screened using the titles and abstracts of 1989 articles, following removal106of 310 duplicate entries; an Abstrackr software helped streamline our efforts. In the first screening, 1262 articles were excluded according to inclusions criteria and n = 718 remained for a full text evaluation. A follow-up screening identified other articles that were excluded, resulting in a final sample of 472 articles.

Characteristics of Included Journals In total, 472 articles published in this journal were included across a variety of journals (n=239 unique journals). ” We then ranked the journals in order of the most articles published and selected from among these that had between three or more selecting a total number of 17 . The top journals addressed computer science, information systems and medical informatics themes as seen in the corresponding Incites Journal Citation Reports (JCR) categories . Medical informatics was the number one JCR category, with seven journals (n = 5) listed in JCR. A computer science subject area (information systems, interdisciplinary applications or theory and methods) was available in six journals. Health care sciences and services Five of the journals were health-related. One

article was published in a top 15 journal that specialised as a biomedical engineering (1), math and computational biology journal (1) or radiology, nuclear medicine and medical imaging journals together. Quantitatively, of the 239 journals that published at least one (n>1) article on cybersecurity and health care roughly an order-of-magnitude higher percentage had only produced a single piece or work – that being approximately 73%. DISCUSSIONThe combination of a large number and diversity of journals sampled as well as the low publication rate suggest that there is currently no major niche, sensu lunacy check for cybersecurity readership by medical practice in Figs 1 - SS4 an /2019/2/e12644/, at least not clearly amongst broad stroke figures due to trans-disciplinary approaches. Table 2: Characteristics of the Most Highly Cited Articles The most highly cited contributions were identified in cybersecurity research within health care, and they are ranked from September 2017 according to number of citations. Of the top 15 cited articles, six were published in five journals from institute of electrical engineers and electronics. The clusters show a mixture of article fields (right next to the legal and manageriel domains) This finding is supported by the author-identified keywords. Security Architecture and Design accounted for 38% of the total clusters among the top-15 articles. Following Management, Cryptography generated the second largest cluster (17%) and Legal & Regulations, Investigations & Compliance and Access Control were sharing third place with 13% each. In total, 79% were technological clusters (13% legal and 8%- managerial). Another 20% of the papers were interdisciplinary, representing some clusters which contain >1 motif or possibly other high level categories. Apparently, the list of most cited articles does not correlate with the latest articles and citation delay for these can be considerably high.

Discussion

The text that follows is a narrative view of the literature in the intersection of cybersecurity and healthcare. Overall, the literature in this field has been growing steadily over last two decades and is persistently represented across a large spectrum of academic journals which signifies cybersecurity as an important domain. We are seeing a rise in number of cyberattacks on hospitals and as health care delivery is increasingly technology driven, anytime anywhere we believe cybersecurity will continue to chip away at the very foundation

of how healthcare it delivered. Given the rise in research and attention focused on cybersecurity, there are still clear gaps to fill for future cybersecurity work. Our research for instance suggests that the articles tuned into most are tech-led pieces about cybersecurity. Technology 64% of all clusters; On the managerial side ≤ 32%) According to their journal data, 58 papers (the top value for the computer science journals and in third place overall) come from what most would consider a health-focused journal. The top 15 most cited paper clusters were dominated by technological papers (79%). This technological emphasis in cyber security research could mean that nontechnological factors (more human level and organizational issues, strategies or management) are also under researched. Purchases of technological tools should be the result not source of a strong cybersecurity strategy. This includes the fact that people cause or enable upwards of 95% of cybersecurity incidents , to which there is little technological answer.

An essential part of a holistic cybersecurity strategy is that around increasing awareness and controlling human behavior in favor of having good cyber hygiene.

Limitations and Implications for Future Research

Our review was confined to articles in PubMed and WoS. Information retrieval was also restricted by using the terms in the titles or abstracts of articles, so articles that used different terminology were not retrieved. Besides, we only took article about cybersecurity as the main focus in our research. We did not evaluate articles and documents in languages other than English, or those that are not journal article (eg conference papers, whitepapers and government/organization reports) Instead these sources could be used for a more exhaustive search. Note that many of the cybersecurity / health care work is operational and administrative rather than academic. Unlike the introduction of new diagnostics or therapeutics in clinical studies, for example among professionals whom are assigned to secure information employment case may not extend much beyond industry best practices intermingled with real world experience rather than referring academic literature. Furthermore, security research done in other health care settings is often unpublishable due simply to the nature of focused on a single vulnerability or exposure within their institution.

One key is to understand the published literature in this space indeed, hospitals and patients are better served when some modicum of transparency on research findings can be achieved.

Conclusion

In future reviews, the focus could be laid on single clusters which we reviewed in detail. They may, for example, focus on business continuity and disaster recovery planning or software development security. The fine-grain focus can aid in the aggregation of research findings, and contribute to understanding best practices. Finally, papers might also investigate the void of managerial research and address the risks associated when focusing only on technology. Moreover, these kinds of studies can target use cases in health care ranging from acute care and long-term ambulatory chronic disease management to translational research environments, set within the context of both health & fitness settings at one extreme end; all the way through networks on remote devices integrated with it.

References

Kothamali, P. R., Dandyala, S. S. M., & kumar Karne, V. (2019). Leveraging Edge AI for Enhanced Real-Time Processing in Autonomous Vehicles. International Journal of Advanced Engineering Technologies and Innovations, 1(3), 19-40.

Dalal, A. (2018). Cybersecurity And Artificial Intelligence: How AI Is Being Used in Cybersecurity To Improve Detection And Response To Cyber Threats. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 9(3), 1416-1423.

Kumar, V. (2018). Effect of strain rate on tribological properties of pre-deformed alloys via work function analysis.

Kumar, V. (2014). Effect of Impact Ionization on the Performance of Thin Film Solar Cells (Doctoral dissertation, Masdar Institute of Science and Technology).

Dandyala, S. S. M., kumar Karne, V., & Kothamali, P. R. (2020). Predictive Maintenance in Industrial IoT: Harnessing the Power of AI. International Journal of Advanced Engineering Technologies and Innovations, 1(4), 1-21.

kumar Karne, V., Dandyala, S. S. M., Kothamali, P. R., & Srinivas, N. (2021). Enhancing Environmental Monitoring and Disaster Prediction with AI. International Journal of Advanced Engineering Technologies and Innovations, 1(3), 53-73.

Dalal, A., & Roy, R. (2021). CYBERSECURITY AND PRIVACY: BALANCING SECURITY AND INDIVIDUAL RIGHTS IN THE DIGITAL AGE. JOURNAL OF BASIC SCIENCE AND ENGINEERING, 18(1).

Kothamali, P. R., Mandaloju, N., & Dandyala, S. S. M. (2022). Optimizing Resource Management in Smart Cities with AI. Unique Endeavor in Business & Social Sciences, 1(1), 174-191.

Sattar, S. A., Abdul, S., Khan, S. M., & Ismail, B. I. (2022, December 31). Predicting And Fighting Cyber Threats Through AI-generated Threat Intelligence. https://redcrevistas.com/index.php/Revista/article/view/46

Juba, O. O., Olumide, A. O., Ochieng, J. O., & Aburo, N. A. (2022, August 30). Evaluating the Impact of Public Policy on the Adoption and Effectiveness of Community-Based Care for Aged Adults. https://ijmlrcai.com/index.php/Journal/article/view/59

Muhammad, S., Meerjat, F., Meerjat, A., & Dalal, A. (2023). Enhancing Cybersecurity Measures for Blockchain: Securing Transactions in Decentralized Systems. Unique Endeavor in Business & Social Sciences, 2(1), 120-141.

Muhammad, S., Meerjat, F., Meerjat, A., Naz, S., & Dalal, A. (2023). Strengthening Mobile Platform Cybersecurity in the United States: Strategies and Innovations. Revista de Inteligencia Artificial en Medicina, 14(1), 84-112.

Juba, O. O., Lawal, O., David, J. I., & Olumide, B. F. (2023). Developing and Assessing Care Strategies for Dementia Patients During Unsupervised Periods: Balancing Safety with Independence. International Journal of Advanced Engineering Technologies and Innovations, 1(04), 322-349.

Kothamali, P. R., Srinivas, N., Mandaloju, N., & kumar Karne, V. (2023). Smart Healthcare: Enhancing Remote Patient Monitoring with AI and IoT. Revista de Inteligencia Artificial en Medicina, 14(1), 113-146.

Kothamali, P. R., Mandaloju, N., Srinivas, N., & Dandyala, S. S. M. (2023). Ensuring Supply Chain Security and Transparency with Blockchain and AI. International Journal of Machine Learning Research in Cybersecurity and Artificial Intelligence, 14(1), 165-194.

Kothamali, P. R., Srinivas, N., & Mandaloju, N. (2023). Smart Grid Energy Management: The Role of AI in Efficiency and Stability. International Journal of Advanced Engineering Technologies and Innovations, 1(03), 332-352.

Muhammad, S., Meerjat, F., Meerjat, A., Dalal, A., & Abdul, S. (2023, April 24). Enhancing Cybersecurity Measures for Blockchain: Securing Transactions in Decentralized Systems. https://unbss.com/index.php/unbss/article/view/53

Ismail, B. I., Abdul, S., Khan, S. M., Sattar, S. A., & Muhammad, S. (2023, April 10). AI for Cyber Security: Automated Incident Response Systems. https://jest.com.pk/index.php/jest/article/view/174

Juba, O. O., Olumide, A. O., & Azeez, O. (2023, November 14). The Influence of Family Involvement on the Quality of Care for Aged Adults: A Comparative Study. https://jest.com.pk/index.php/jest/article/view/177

Abdul, S., Ismail, B. I., Khan, S. M., Sattar, S. A., & Muhammad, S. (2023, August 31). Assessing AI-Based Threat Detection in the Cloud Security. https://ijmlrcai.com/index.php/Journal/article/view/52

Dalal, A., Venaik, U., Kumari, R., & Venaik, A. (2023). ChatGPT's Role In Healthcare Education, Research, And Practice: A Systematic Review Of Promising Prospects And Legitimate Concerns. Educational Administration: Theory and Practice, 29(1), 337-344.

Banik, S., Barai, N. G., & Shamrat, F. M. (2023). Blockchain Integrated Neural Networks: A New Frontier in MRI-based Brain Tumor Detection. International Journal of Advanced Computer Science & Applications, 14(11).

Barai, N. G., Banik, S., & Javed Mehedi Shamrat, F. M. (2023). A Novel Fusion Deep Learning Approach for Retinal Disease Diagnosis Enhanced by Web Application Predictive Tool. International Journal of Advanced Computer Science & Applications, 14(12).

Kumar, V., & Nayfeh, A. (2016). TCAD simulation and modeling of impact ionization (II) enhanced thin film c-Si solar cells. Journal of Computational Electronics, 15, 248-259.

Muhammad, S., Meerjat, F., Meerjat, A., & Dalal, A. (2024). Integrating Artificial Intelligence and Machine Learning Algorithms to Enhance Cybersecurity for United States Online Banking Platforms. Journal Environmental Sciences And Technology, 3(1), 117-139.

Muhammad, S., Meerjat, F., Meerjat, A., & Dalal, A. (2024). Safeguarding Data Privacy: Enhancing Cybersecurity Measures for Protecting Personal Data in the United States. International Journal of Machine Learning Research in Cybersecurity and Artificial Intelligence, 15(1), 141-176.

Muhammad, S., Meerjat, F., Meerjat, A., Naz, S., & Dalal, A. (2024). Enhancing Cybersecurity Measures for Robust Fraud Detection and Prevention in US Online Banking. International Journal of Advanced Engineering Technologies and Innovations, 1(3), 510-541.

Omolara, J. Occupational Health and Safety Challenges Faced by Caregivers and the Respective Interventions to Improve their Wellbeing.

Phiri, A. K., Juba, O. O., Baladaniya, M., Regal, H. Y. A., & Nteziryayo, T. (2024). Strategies for Quality Health Standards. Cari Journals USA LLC.

Juba, O. O., Olumide, A. F., David, J. I., & Adekunle, K. A. (2024). The Role of Technology in Enhancing Domiciliary Care: A Strategy for Reducing Healthcare Costs and Improving Safety for Aged Adults and Carers. Unique Endeavor in Business & Social Sciences, 3(1), 213-230.

Juba, O. O., Olumide, B. F., David, J. I., Olumide, A. O., Ochieng, J. O., & Adekunle, K. A. (2024). Integrating Mental Health Support into Occupational Safety Programs: Reducing Healthcare Costs and Improving Well-Being of Healthcare Workers Post-COVID-19. Revista de Inteligencia Artificial en Medicina, 15(1), 365-397.

Omolara, J. Occupational Health and Safety Challenges Faced by Caregivers and the Respective Interventions to Improve their Wellbeing.

Kothamali, P. R., Banik, S., Mandaloju, N., & Srinivas, N. (2024). Real-Time Translation in Multilingual Education: Leveraging NLP for Inclusive Learning. Journal Environmental Sciences And Technology, 3(1), 992-116.

Kothamali, P. R., Banik, S., Dandyala, S. S. M., & kumar Karne, V. (2024). Advancing Telemedicine and Healthcare Systems with AI and Machine Learning. International Journal of Machine Learning Research in Cybersecurity and Artificial Intelligence, 15(1), 177-207.

Banik, S., Kothamali, P. R., & Dandyala, S. S. M. (2024). Strengthening Cybersecurity in Edge Computing with Machine Learning. Revista de Inteligencia Artificial en Medicina, 15(1), 332-364.

Abdul, S. (2024). AI innovations and financial performance: An examination of patent filings and revenue generation. International Journal of Science and Research Archive.

Khan, S. M., Ismail, B. I., Abdul, S., & Sattar, S. A. (2024). Investigate the use of natural language processing (NLP) techniques to extract relevant information from clinical notes and identify diseases. Unique Endeavor in Business & Social Sciences, 3(1), 189-212.

Abdul, S. Blockchain Technology: Transforming Accounting, Marketing, and Supply Chain Management.

Khan, S. M., Abdul, S., Prasanthi, M., Navaneethakrishnan, S. R., & Sakthi, S. Al And ML Applications in Supply Chain Management: A Review.

Abdul, S., Ismail, B. I., Khan, S. M., & Sattar, S. A. (2024, January 31). An Empirical Examination of the Novel Approach to Increase Supply Chain Resilience and Performance with a Disruption due to the Flowing Effect on Demand Using technology Platform Developed for Artificial Intelligence-driven Innovation. https://ijaeti.com/index.php/Journal/article/view/476

Kothamali, P. R., Dandyala, S. S. M., & kumar Karne, V. (2019). Leveraging Edge AI for Enhanced Real-Time Processing in Autonomous Vehicles. International Journal of Advanced Engineering Technologies and Innovations, 1(3), 19-40.

Dalal, A. (2018). Cybersecurity And Artificial Intelligence: How AI Is Being Used in Cybersecurity To Improve Detection And Response To Cyber Threats. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 9(3), 1416-1423.

Kumar, V. (2018). Effect of strain rate on tribological properties of pre-deformed alloys via work function analysis.

Kumar, V. (2014). Effect of Impact Ionization on the Performance of Thin Film Solar Cells (Doctoral dissertation, Masdar Institute of Science and Technology).

Dandyala, S. S. M., kumar Karne, V., & Kothamali, P. R. (2020). Predictive Maintenance in Industrial IoT: Harnessing the Power of AI. International Journal of Advanced Engineering Technologies and Innovations, 1(4), 1-21.

kumar Karne, V., Dandyala, S. S. M., Kothamali, P. R., & Srinivas, N. (2021). Enhancing Environmental Monitoring and Disaster Prediction with AI. International Journal of Advanced Engineering Technologies and Innovations, 1(3), 53-73.

Dalal, A., & Roy, R. (2021). CYBERSECURITY AND PRIVACY: BALANCING SECURITY AND INDIVIDUAL RIGHTS IN THE DIGITAL AGE. JOURNAL OF BASIC SCIENCE AND ENGINEERING, 18(1).

Kothamali, P. R., Mandaloju, N., & Dandyala, S. S. M. (2022). Optimizing Resource Management in Smart Cities with AI. Unique Endeavor in Business & Social Sciences, 1(1), 174-191.

Sattar, S. A., Abdul, S., Khan, S. M., & Ismail, B. I. (2022, December 31). Predicting And Fighting Cyber Threats Through AI-generated Threat Intelligence. https://redcrevistas.com/index.php/Revista/article/view/46

Juba, O. O., Olumide, A. O., Ochieng, J. O., & Aburo, N. A. (2022, August 30). Evaluating the Impact of Public Policy on the Adoption and Effectiveness of Community-Based Care for Aged Adults. https://ijmlrcai.com/index.php/Journal/article/view/59

Muhammad, S., Meerjat, F., Meerjat, A., & Dalal, A. (2023). Enhancing Cybersecurity Measures for Blockchain: Securing Transactions in Decentralized Systems. Unique Endeavor in Business & Social Sciences, 2(1), 120-141.

Muhammad, S., Meerjat, F., Meerjat, A., Naz, S., & Dalal, A. (2023). Strengthening Mobile Platform Cybersecurity in the United States: Strategies and Innovations. Revista de Inteligencia Artificial en Medicina, 14(1), 84-112.

Juba, O. O., Lawal, O., David, J. I., & Olumide, B. F. (2023). Developing and Assessing Care Strategies for Dementia Patients During Unsupervised Periods: Balancing Safety with Independence. International Journal of Advanced Engineering Technologies and Innovations, 1(04), 322-349.

Kothamali, P. R., Srinivas, N., Mandaloju, N., & kumar Karne, V. (2023). Smart Healthcare: Enhancing Remote Patient Monitoring with AI and IoT. Revista de Inteligencia Artificial en Medicina, 14(1), 113-146.

Kothamali, P. R., Mandaloju, N., Srinivas, N., & Dandyala, S. S. M. (2023). Ensuring Supply Chain Security and Transparency with Blockchain and AI. International Journal of Machine Learning Research in Cybersecurity and Artificial Intelligence, 14(1), 165-194.

Kothamali, P. R., Srinivas, N., & Mandaloju, N. (2023). Smart Grid Energy Management: The Role of AI in Efficiency and Stability. International Journal of Advanced Engineering Technologies and Innovations, 1(03), 332-352.

Muhammad, S., Meerjat, F., Meerjat, A., Dalal, A., & Abdul, S. (2023, April 24). Enhancing Cybersecurity Measures for Blockchain: Securing Transactions in Decentralized Systems. https://unbss.com/index.php/unbss/article/view/53

Ismail, B. I., Abdul, S., Khan, S. M., Sattar, S. A., & Muhammad, S. (2023, April 10). AI for Cyber Security: Automated Incident Response Systems. https://jest.com.pk/index.php/jest/article/view/174

Juba, O. O., Olumide, A. O., & Azeez, O. (2023, November 14). The Influence of Family Involvement on the Quality of Care for Aged Adults: A Comparative Study. https://jest.com.pk/index.php/jest/article/view/177

Abdul, S., Ismail, B. I., Khan, S. M., Sattar, S. A., & Muhammad, S. (2023, August 31). Assessing AI-Based Threat Detection in the Cloud Security. https://ijmlrcai.com/index.php/Journal/article/view/52

Dalal, A., Venaik, U., Kumari, R., & Venaik, A. (2023). ChatGPT's Role In Healthcare Education, Research, And Practice: A Systematic Review Of Promising Prospects And Legitimate Concerns. Educational Administration: Theory and Practice, 29(1), 337-344.

Banik, S., Barai, N. G., & Shamrat, F. M. (2023). Blockchain Integrated Neural Networks: A New Frontier in MRI-based Brain Tumor Detection. International Journal of Advanced Computer Science & Applications, 14(11).

Barai, N. G., Banik, S., & Javed Mehedi Shamrat, F. M. (2023). A Novel Fusion Deep Learning Approach for Retinal Disease Diagnosis Enhanced by Web Application Predictive Tool. International Journal of Advanced Computer Science & Applications, 14(12).

Kumar, V., & Nayfeh, A. (2016). TCAD simulation and modeling of impact ionization (II) enhanced thin film c-Si solar cells. Journal of Computational Electronics, 15, 248-259.

Haque, A., Kholilullah, I., Sharma, A., Mohammad, A., & Khan, S. I. (2024). Analysis of Different Control Approaches for a Local Microgrid: A Comparative Study. Control Systems and Optimization Letters, 2(1), 94-102.

Mohammad, A., Shovon, R. B., Hasan, M. M., Das, R., Munayem, N. M. A., & Arif, A. (2024). Perovskite Solar Cell Materials Development for Enhanced Efficiency and Stability. Power System Technology, 48(1), 119-135.

Ibrahim, A. S. M., Mohammad, A., Nuruzzamal, M., & Shams, S. N. (2024). Fruit Waste Management through Vermicomposting: the Case of PRAN, Bangladesh. Formosa Journal of Applied Sciences, 3(3), 925-938.

Ibrahim, A. S. M., Mohammad, A., Khalil, M. I., & Shams, S. N. (2024). Viability of Medium-Scale Vermicompost Plant: a Case Study in Kushtia, Bangladesh. Formosa Journal of Applied Sciences, 3(3), 787-796.

Ibrahim, A. S. M., Rahman, M., Dipu, D. K., Mohammad, A., Mazumder, G. C., & Shams, S. N. (2024). Bi-Facial Solar Tower for Telecom Base Stations. Power System Technology, 48(1), 351-365.

Mohammad, A., Mahjabeen, F., Bahadur, S., & Das, R. (2022). Photovoltaic Power plants: A Possible Solution for Growing Energy Needs of Remote Bangladesh. NeuroQuantology, 20(15), 5503.

Mohammad, A., & Mahjabeen, F. (2023). Promises and challenges of perovskite solar cells: a comprehensive review. BULLET: Jurnal Multidisiplin Ilmu, 2(5), 1147-1157.

Bahadur, S., Mondol, K., Mohammad, A., Mahjabeen, F., Al-Alam, T., & Bulbul Ahammed, M. (2022). Design and Implementation of Low Cost MPPT Solar Charge Controller.

Mohammad, A., & Mahjabeen, F. (2023). From silicon to sunlight: exploring the evolution of solar cell materials. JURIHUM: Jurnal Inovasi dan Humaniora, 1(2), 316-330.

Mohammad, A., Das, R., & Mahjabeen, F. (2023). Synergies and Challenges: Exploring the Intersection of Embedded Systems and Computer Architecture in the Era of Smart Technologies. Asian Journal of Mechatronics and Electrical Engineering, 2(2), 105-120.

Mohammad, A., Das, R., Islam, M. A., & Mahjabeen, F. (2023). AI in VLSI Design Advances and Challenges: Living in the Complex Nature of Integrated Devices. Asian Journal of Mechatronics and Electrical Engineering, 2(2), 121-132.

Maizana, D., Situmorang, C., Satria, H., Yahya, Y. B., Ayyoub, M., Bhalerao, M. V., & Mohammad, A. (2023). The Influence of Hot Point on MTU CB Condition at the Pgeli-Giugur 1 Bay Line (PT. PLN Paya Geli Substation). Journal of Renewable Energy, Electrical, and Computer Engineering, 3(2), 37-43.

Pandiya, Dileep Kumar. "Scalability Patterns for Microservices Architecture." *Educational Administration: Theory and Practice* 27, no. 3 (2021): 1178-1183.

Tariq, A., Gill, A., Hussain, H. K., Jiwani, N., & Logeshwaran, J. (2023, December). The smart earlier prediction of conginental heart disease in pregnancy using deep learning model. In *2023 IEEE Technology & Engineering Management Conference-Asia Pacific (TEMSCON-ASPAC)* (pp. 1-7). IEEE.

Kamuangu, Paulin. "A Scientometric examination of ten years of Fintech research: Key findings and implications." *World Journal of Advanced Research and Reviews* 21, no. 3 (2024): 2248-2256.

Pandiya, Dileep Kumar. "Securing Distributed Systems: Best Practices For Microservices And Domain-Driven Design." *Educational Administration: Theory and Practice* 26, no. 2 (2020): 495-498.

Kewalramanu, Madhavi Najana Saurav Bhattacharya Chhaya, and Dileep Kumar Pandiya. "AI and Organizational Transformation: Navigating the Future."

Hussain, H. K., Tariq, A., Gill, A. Y., & Ahmad, A. (2022). Transforming Healthcare: The Rapid Rise of Artificial Intelligence Revolutionizing Healthcare Applications. *BULLET: Jurnal Multidisiplin Ilmu*, *1*(02).

Hussain, H. K., Tariq, A., & Gill, A. Y. (2023). Role of AI in Cardiovascular Health Care; a Brief Overview. *Journal of World Science*, *2*(4), 794-802.

Pandiya, D. K. "Performance Analysis of Microservices Architecture in Cloud Environments." *International Journal on Recent and Innovation Trends in Computing and Communication* 10, no. 12 (2022): 264-274.

Kamuangu, Paulin. "Digital transformation in finance: A review of current research and future directions in FinTech." *World Journal Of Advanced Research and Reviews* 21, no. 3 (2024): 1667-1675.

Ahmad, A., Tariq, A., Hussain, H. K., & Gill, A. Y. (2023). Revolutionizing Healthcare: How Deep Learning is poised to Change the Landscape of Medical Diagnosis and Treatment. *Journal of Computer Networks, Architecture and High Performance Computing*, *5*(2), 458-471.

Ahmad, A., Tariq, A., Hussain, H. K., & Gill, A. Y. (2023). Revolutionizing Healthcare: How Deep Learning is poised to Change the Landscape of Medical Diagnosis and Treatment. *Journal of Computer Networks, Architecture and High Performance Computing*, *5*(2), 458-471.

Ahmad, A., Tariq, A., Hussain, H. K., & Gill, A. Y. (2023). Equity and Artificial Intelligence in Surgical Care: A Comprehensive Review of Current Challenges and Promising Solutions. *BULLET: Jurnal Multidisiplin Ilmu*, *2*(2), 443-455.

Kamuangu, Paulin K. "Advancements of AI and Machine Learning in FinTech Industry (2016-2020)." (2024).

Tariq, A., Gill, A. Y., & Hussain, H. K. (2023). Evaluating the potential of artificial intelligence in orthopedic surgery for value-based healthcare. *International Journal of Multidisciplinary Sciences and Arts*, *2*(1), 27-35.

Bennett, David B., Antonio K. Acquaah, and Manish Vishwanath. "Automated determination of valve closure and inspection of a flowline." U.S. Patent 11,493,400, issued November 8, 2022.

Kamuangu, Paulin. "A Review on Cybersecurity in Fintech: Threats, Solutions, and Future Trends." *Journal of Economics, Finance and Accounting Studies* 6, no. 1 (2024): 47-53.

Kamuangu, Paulin. "A Review on Financial Fraud Detection using AI and Machine Learning." *Journal of Economics, Finance and Accounting Studies* 6, no. 1 (2024): 67-77.

Al-Karkhi, Tahani, and Nurdan Cabukoglu. "Predator and prey dynamics with Beddington-DeAngelis functional response with in kinesis model."

Kale, Nikhil Sainath, M. David Hanes, Ana Peric, and Gonzalo Salgueiro. "Internet of Things security system." U.S. Patent 11,658,977, issued May 23, 2023.

Charankar, Nilesh, and Dileep Kumar Pandiya. "Title: Enhancing Efficiency and Scalability in Microservices Via Event Sourcing." *INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) Volume* 13 (2024).

Ved, Ritu Kirit, Nikhil Sainath Kale, and John Herman Hess III. "Intelligent cloud-assisted video lighting adjustments for cloud-based virtual meetings." U.S. Patent 11,722,780, issued August 8, 2023.

Hess III, John Herman, Nikhil Sainath Kale, Foster Glenn Lipkey, and John Joseph Groetzinger. "Embedded device based digital fingerprint signing and public ledger based digital signal registering management." U.S. Patent Application 17/898,042, filed February 29, 2024.

Kale, Nikhil Sainath, M. David Hanes, Ana Peric, and Gonzalo Salgueiro. "Internet of things security system." U.S. Patent 10,848,495, issued November 24, 2020.

Kothamali, N. P. R., Karne, N. V. K., & Dandyala, N. S. S. M. (2024). Integrating AI and Machine Learning in Quality Assurance for Automation Engineering. *International Journal for Research Publication and Seminars*, *15*(3), 93–102. https://doi.org/10.36676/jrps.v15.i3.1445