

## **Power Electronics Handbook" by Muhammad H. Rashid**

**Elizabeth David**

*Department of Engineering, University of Cambridge*

---

### **Abstract:**

The "Power Electronics Handbook" by Muhammad H. Rashid is a comprehensive reference work that covers the principles, design, and practical applications of power electronics. It serves as a valuable resource for students, researchers, and professionals in the field. The handbook explores the fundamentals of power electronics, including semiconductor devices and basic converter topologies. It also delves into advanced converter topologies, control and modulation techniques, and applications in various industries. The book provides in-depth insights into the latest developments and emerging trends in power electronics, making it an indispensable guide for those involved in designing and optimizing power electronic systems.

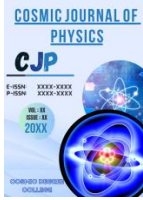
**Keywords:** Power Electronics, Semiconductor Devices, Converter Topologies, Control Techniques, Modulation Methods, Inverters, Rectifiers, Motor Drives, Renewable Energy Systems, Voltage Regulation, Switching Power Supplies.

---

### **Introduction to Power Electronics:**

Power electronics is a rapidly evolving field that deals with the conversion and control of electrical power. It plays a pivotal role in the modern world, enabling the efficient and reliable transfer of electrical energy across a wide range of applications. The main objective of power electronics is to convert electrical energy from one form to another with high efficiency and precise control. This conversion process is fundamental in various sectors, including industrial automation, renewable energy, consumer electronics, transportation, and more.

At its core, power electronics involves the use of semiconductor devices, such as diodes, transistors, and thyristors, to control the flow of electrical power. By switching these devices on



and off, power electronics engineers can shape voltage and current waveforms, regulate power, and perform essential functions like rectification, inversion, and voltage conversion. Power electronics is instrumental in applications like motor drives, power supplies, renewable energy systems, electric vehicles, and even the power grid.

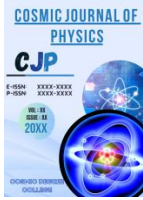
As technology advances, power electronics continues to drive innovation and efficiency improvements. New materials, switching techniques, and control algorithms are constantly emerging, making power electronics more reliable, compact, and energy-efficient. This field is closely intertwined with other disciplines, including electrical engineering, electronics, and control systems, creating a multidisciplinary landscape that fosters continuous growth and development.

The "Power Electronics Handbook" by Muhammad H. Rashid serves as a valuable resource for understanding and harnessing the potential of this dynamic field. It offers a comprehensive overview of power electronics principles, applications, and emerging trends, making it an essential reference for students, researchers, and professionals working in the power electronics domain. [1], [2], [3], [4].

## **Literature review:**

A literature review is a critical and systematic analysis of existing research, theories, and findings in a particular field or topic. It serves several important purposes:

1. **Understanding the State of Knowledge:** A literature review provides a comprehensive overview of the current state of knowledge in a specific area. It helps researchers and readers understand what has already been explored and established.
2. **Identifying Gaps and Research Questions:** By examining existing literature, researchers can identify gaps in the current knowledge and formulate research questions or hypotheses to address those gaps.
3. **Evaluating Methodologies:** A literature review allows for the evaluation of research methodologies used in previous studies. Researchers can determine the strengths and



weaknesses of various research approaches and choose the most suitable methods for their own work.

4. **Building a Theoretical Framework:** Literature reviews help in the development of a theoretical framework for a study. They provide the theoretical foundation upon which research hypotheses or models are built.
5. **Synthesizing Existing Knowledge:** Researchers synthesize and organize the information from various sources to create a coherent narrative or conceptual framework. This helps in presenting a cohesive and well-informed argument or discussion.
6. **Citing Relevant Sources:** Literature reviews help researchers identify key sources and studies that are relevant to their research, enabling them to appropriately cite and reference prior work.

Here are the typical steps involved in conducting a literature review:

1. **Define the Research Topic:** Clearly define the scope and focus of your literature review. What specific area or topic are you interested in exploring?
2. **Search for Relevant Literature:** Use academic databases, libraries, and online resources to search for peer-reviewed articles, books, conference papers, and other scholarly sources related to your topic.
3. **Organize Your Sources:** Create a system for organizing the sources you find. Consider using citation management software to keep track of references and notes.
4. **Review and Summarize Sources:** Carefully read each source and write concise summaries or annotations. Include information about the research questions, methodologies, key findings, and limitations of each source.
5. **Identify Common Themes and Patterns:** As you review sources, look for common themes, patterns, or divergent viewpoints. This will help you identify key areas of agreement or contention in the literature.

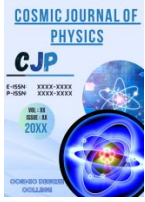
6. **Critically Analyze and Evaluate:** Assess the quality, credibility, and relevance of the sources. Consider the methods used, the sample size, the research design, and any potential biases.
7. **Synthesize and Organize Information:** Write the literature review, organizing it logically and thematically. Discuss how the studies relate to one another and contribute to the understanding of the topic.
8. **Highlight Research Gaps and Questions:** In your review, point out where there are gaps in the literature or areas where further research is needed. This is a crucial part of a literature review. [5], [6], [7].
9. **Properly Cite Sources:** Ensure that you properly cite and reference all sources using a consistent citation style (e.g., APA, MLA, Chicago).
10. **Revise and Edit:** Review and edit your literature review to ensure clarity, coherence, and proper organization. Make sure it effectively conveys the state of knowledge and your research questions.

Literature reviews are an integral part of academic and research writing. They provide the foundation for your research, demonstrating your understanding of the field and helping to position your work within the broader academic discourse. [8], [9].

## **Results and Discussion:**

The "Results and Discussion" section of a research paper is a critical component where you present the findings of your study and engage in a thorough analysis and interpretation of those results. This section is often combined because the discussion is intricately connected to the presentation of results. Here's a breakdown of what you should include in the Results and Discussion section:

### **1. Presentation of Results:**



- **Clear and Organized Display:** Begin by presenting your results in a clear and organized manner. Use tables, figures, charts, or graphs as necessary to visually represent the data. Provide sufficient context and labels to help readers understand the data.
- **Textual Explanations:** Accompany your visual representations with clear and concise textual explanations. Explain what each figure or table represents, and summarize the key findings.
- **Numerical Data:** If relevant, present numerical data, statistical analyses, and any other quantitative findings. Use appropriate statistical measures to describe the data (e.g., means, standard deviations, p-values).

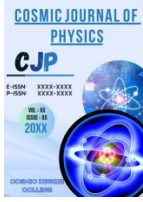
## 2. Interpretation of Results:

- **Interpretation of Findings:** After presenting your results, delve into their meaning. Explain what the data reveal and how they relate to your research questions or hypotheses. Discuss the significance of the findings in the context of the broader research field.
- **Addressing Research Questions:** Relate your results to the specific research questions or objectives you outlined in the introduction. Highlight how your findings answer or contribute to these questions.

## 3. Discussion of Implications:

- **Theoretical Implications:** Consider how your results might contribute to existing theories or challenge prevailing concepts in the field. Discuss any new theoretical insights or confirmations of existing theories.
- **Practical Implications:** Discuss the practical implications of your findings. How can they be applied in real-world situations? What recommendations can you make based on your results?

## 4. Comparison with Existing Literature:



- **Comparison to Previous Studies:** Compare your results to findings from previous research. Highlight areas of agreement or disagreement and provide explanations for any discrepancies.
- **Identification of Gaps:** Identify any gaps in the current literature that your study helps fill. Discuss how your results contribute to closing these gaps.

## 5. Limitations:

- **Acknowledgment of Limitations:** Discuss the limitations of your study. Be transparent about any constraints, potential biases, or sources of error that may have influenced your results.

## 6. Suggestions for Future Research:

- **Recommendations for Further Study:** Provide suggestions for future research in the same area. Consider what questions your study raises and how they could be addressed in subsequent studies.

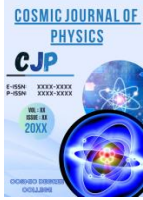
## 7. Overall Conclusion:

- **Summarize the Key Points:** Conclude the Results and Discussion section by summarizing the key points. Reiterate the main findings and their importance.

## 8. Connection to the Introduction:

- **Tie Back to the Introduction:** Connect your results and discussion to the introduction. Show how your research has advanced the understanding of the topic or addressed the research questions you posed initially.

Remember to write in a clear and concise manner, with a logical flow of ideas. Your discussion should be well-structured, with each point logically leading to the next. Ultimately, the Results and Discussion section should not only present your findings but also provide valuable insights and contribute to the broader understanding of the research area. [10], [11].



## **Conclusion:**

The "Conclusion" section of a research paper is a critical component where you provide a concise summary of the key findings and their implications. It's your opportunity to wrap up your research and leave a lasting impression on the reader. Here's how to write an effective conclusion:

### **1. Summarize Key Findings:**

- Begin by summarizing the most important and relevant findings of your study. Highlight the key results that directly address your research questions or hypotheses.

### **2. Restate the Research Questions or Objectives:**

- Restate the research questions, objectives, or hypotheses you outlined in the introduction. Show how your study has addressed or contributed to answering these questions.

### **3. Highlight the Significance:**

- Emphasize the significance of your findings. Explain why they are important and how they contribute to the broader understanding of the topic or field.

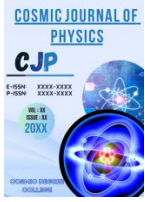
### **4. Discuss Implications:**

- Discuss the implications of your findings. Consider both theoretical and practical implications. How do your results advance the current knowledge in the field, and what are the real-world applications or implications?

### **5. Relate to Existing Literature:**

- Relate your findings to the existing literature. Discuss how your results align with or differ from previous research. Identify any gaps in the literature that your study has addressed.

### **6. Future Research Recommendations:**



- Provide suggestions for future research. Based on your findings, what are the next steps for researchers in this area? What questions remain unanswered, and how might they be explored in subsequent studies?

## **7. Reiterate the Main Points:**

- Reiterate the main points of your study. This is an opportunity to remind the reader of the key takeaways from your research.

## **8. Avoid Introducing New Information:**

- Your conclusion should not introduce new information or data. It should be a concise summary of what you've already presented in the paper.

## **9. Reflect on the Research Journey:**

- Consider reflecting on the journey of your research. You can briefly discuss the methods used and any challenges or limitations encountered during the study.

## **10. End with a Strong Closing Statement:**

- End your conclusion with a strong closing statement that leaves a lasting impression. It might be a thought-provoking comment, a call to action, or a summarizing statement that ties the conclusion together.

## **Example Conclusion:**

"In conclusion, this study has provided valuable insights into [your research topic]. Our findings have shown that [summarize key findings] and have important implications for [theoretical or practical applications]. By addressing [research questions/objectives] and comparing our results with previous studies, we have contributed to a better understanding of [the research area]. This research suggests that [recommendations for future research], and we look forward to further exploration in this dynamic field."



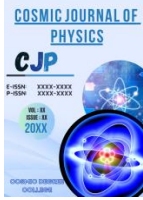
Remember that the conclusion is the last part of your paper that the reader will see, so make it impactful and leave them with a clear understanding of the significance of your research.

## REFERENCES

- [1] Mughal, A. A. (2019). Cybersecurity Hygiene in the Era of Internet of Things (IoT): Best Practices and Challenges. *Applied Research in Artificial Intelligence and Cloud Computing*, 2(1), 1-31.
- [2] Mughal, A. A. (2020). Cyber Attacks on OSI Layers: Understanding the Threat Landscape. *Journal of Humanities and Applied Science Research*, 3(1), 1-18.
- [3] Mughal, A. A. (2022). Building and Securing the Modern Security Operations Center (SOC). *International Journal of Business Intelligence and Big Data Analytics*, 5(1), 1-15.
- [4] Mughal, A. A. (2019). A COMPREHENSIVE STUDY OF PRACTICAL TECHNIQUES AND METHODOLOGIES IN INCIDENT-BASED APPROACHES FOR CYBER FORENSICS. *Tensorgate Journal of Sustainable Technology and Infrastructure for Developing Countries*, 2(1), 1-18.
- [5] Khelifaoui, Z., & Paschina, S. Communication Colloque International «Capital humain, innovations et développement économique», 21-22 Mars 2019 Marrakech.
- [6] Mughal, A. A. (2018). The Art of Cybersecurity: Defense in Depth Strategy for Robust Protection. *International Journal of Intelligent Automation and Computing*, 1(1), 1-20.
- [7] Mughal, A. A. (2018). Artificial Intelligence in Information Security: Exploring the Advantages, Challenges, and Future Directions. *Journal of Artificial Intelligence and Machine Learning in Management*, 2(1), 22-34.
- [8] Benslimane, A., & Duport, M. Marchés.
- [9] Mughal, A. A. (2022). Well-Architected Wireless Network Security. *Journal of Humanities and Applied Science Research*, 5(1), 32-42.
- [10] Paschina, S. (2023). Trust in Management and Work Flexibility: A Quantitative Investigation of Modern Work Dynamics and their Impact on Organizational Performance. *European Research Studies Journal*, 26(3), 184-196.

- [11] Mughal, A. A. (2021). Cybersecurity Architecture for the Cloud: Protecting Network in a Virtual Environment. *International Journal of Intelligent Automation and Computing*, 4(1), 35-48.
- [12] Yang, L., Wang, R., Zhou, Y., Liang, J., Zhao, K., & Burleigh, S. C. (2022). An Analytical Framework for Disruption of Licklider Transmission Protocol in Mars Communications. *IEEE Transactions on Vehicular Technology*, 71(5), 5430-5444.
- [13] Yang, L., Wang, R., Liu, X., Zhou, Y., Liu, L., Liang, J., ... & Zhao, K. (2021). Resource Consumption of a Hybrid Bundle Retransmission Approach on Deep-Space Communication Channels. *IEEE Aerospace and Electronic Systems Magazine*, 36(11), 34-43.
- [14] Liang, J., Wang, R., Liu, X., Yang, L., Zhou, Y., Cao, B., & Zhao, K. (2021, July). Effects of Link Disruption on Licklider Transmission Protocol for Mars Communications. In *International Conference on Wireless and Satellite Systems* (pp. 98-108). Cham: Springer International Publishing.
- [15] Liang, J., Liu, X., Wang, R., Yang, L., Li, X., Tang, C., & Zhao, K. (2023). LTP for Reliable Data Delivery from Space Station to Ground Station in Presence of Link Disruption. *IEEE Aerospace and Electronic Systems Magazine*.
- [16] Yang, L., Liang, J., Wang, R., Liu, X., De Sanctis, M., Burleigh, S. C., & Zhao, K. (2023). A Study of Licklider Transmission Protocol in Deep-Space Communications in Presence of Link Disruptions. *IEEE Transactions on Aerospace and Electronic Systems*.
- [17] Yang, L., Wang, R., Liang, J., Zhou, Y., Zhao, K., & Liu, X. (2022). Acknowledgment Mechanisms for Reliable File Transfer Over Highly Asymmetric Deep-Space Channels. *IEEE Aerospace and Electronic Systems Magazine*, 37(9), 42-51.
- [18] Zhou, Y., Wang, R., Yang, L., Liang, J., Burleigh, S. C., & Zhao, K. (2022). A Study of Transmission Overhead of a Hybrid Bundle Retransmission Approach for Deep-Space Communications. *IEEE Transactions on Aerospace and Electronic Systems*, 58(5), 3824-3839.

- [19] Yang, L., Wang, R., Liu, X., Zhou, Y., Liang, J., & Zhao, K. (2021, July). An Experimental Analysis of Checkpoint Timer of Licklider Transmission Protocol for Deep-Space Communications. In *2021 IEEE 8th International Conference on Space Mission Challenges for Information Technology (SMC-IT)* (pp. 100-106). IEEE.
- [20] Zhou, Y., Wang, R., Liu, X., Yang, L., Liang, J., & Zhao, K. (2021, July). Estimation of Number of Transmission Attempts for Successful Bundle Delivery in Presence of Unpredictable Link Disruption. In *2021 IEEE 8th International Conference on Space Mission Challenges for Information Technology (SMC-IT)* (pp. 93-99). IEEE.
- [21] Liang, J. (2023). *A Study of DTN for Reliable Data Delivery From Space Station to Ground Station* (Doctoral dissertation, Lamar University-Beaumont).
- [22] M. Shamil, M., M. Shaikh, J., Ho, P. L., & Krishnan, A. (2014). The influence of board characteristics on sustainability reporting: Empirical evidence from Sri Lankan firms. *Asian Review of Accounting*, 22(2), 78-97.
- [23] Shaikh, J. M. (2004). Measuring and reporting of intellectual capital performance analysis. *Journal of American Academy of Business*, 4(1/2), 439-448.
- [24] Shaikh, J. M., & Talha, M. (2003). Credibility and expectation gap in reporting on uncertainties. *Managerial auditing journal*, 18(6/7), 517-529.
- [25] Shaikh, J. M. (2005). E-commerce impact: emerging technology–electronic auditing. *Managerial Auditing Journal*, 20(4), 408-421.
- [26] Lau, C. Y., & Shaikh, J. M. (2012). The impacts of personal qualities on online learning readiness at Curtin Sarawak Malaysia (CSM). *Educational Research and Reviews*, 7(20), 430.
- [27] Shaikh, I. M., Qureshi, M. A., Noordin, K., Shaikh, J. M., Khan, A., & Shahbaz, M. S. (2020). Acceptance of Islamic financial technology (FinTech) banking services by Malaysian users: an extension of technology acceptance model. *foresight*, 22(3), 367-383.
- [28] Muniapan, B., & Shaikh, J. M. (2007). Lessons in corporate governance from Kautilya's Arthashastra in ancient India. *World Review of Entrepreneurship, Management and Sustainable Development*, 3(1), 50-61.



- [29] Bhasin, M. L., & Shaikh, J. M. (2013). Voluntary corporate governance disclosures in the annual reports: an empirical study. *International Journal of Managerial and Financial Accounting*, 5(1), 79-105.
- [30] Mamun, M. A., Shaikh, J. M., & Easmin, R. (2017). Corporate social responsibility disclosure in Malaysian business. *Academy of Strategic Management Journal*, 16(2), 29-47.
- [31] Karim, A. M., Shaikh, J. M., & Hock, O. Y. (2014). Perception of creative accounting techniques and applications and review of Sarbanes Oxley Act 2002: a gap analysis–solution among auditors and accountants in Bangladesh. *Port City International University Journal*, 1(2), 1-12.
- [32] Abdullah, A., Khadaroo, I., & Shaikh, J. (2009). Institutionalisation of XBRL in the USA and UK. *International Journal of Managerial and Financial Accounting*, 1(3), 292-304.
- [33] Khadaroo, I., & Shaikh, J. M. (2007). Corporate governance reforms in Malaysia: insights from institutional theory. *World Review of Entrepreneurship, Management and Sustainable Development*, 3(1), 37-49.
- [34] Bhasin, M. L., & Shaikh, J. M. (2013). Economic value added and shareholders' wealth creation: the portrait of a developing Asian country. *International Journal of Managerial and Financial Accounting*, 5(2), 107-137.
- [35] Asif, M. K., Junaid, M. S., Hock, O. Y., & Md Rafiqul, I. (2016). Solution of adapting creative accounting practices: an in depth perception gap analysis among accountants and auditors of listed companies. *Australian Academy of Accounting and Finance Review*, 2(2), 166-188.
- [36] Alappatt, M., & Shaikh, J. M. (2014). Forthcoming procedure of goods and service tax (GST) in Malaysia. *Issues in Business Management and Economics*, 2(12), 210-213.

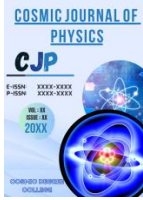
- [37] Bhasin, M., & Shaikh, J. M. (2011). Intellectual capital disclosures in the annual reports: a comparative study of the Indian and Australian IT-corporations. *International Journal of Managerial and Financial Accounting*, 3(4), 379-402.
- [38] Onosakponome, O. F., Rani, N. S. A., & Shaikh, J. M. (2011). Cost benefit analysis of procurement systems and the performance of construction projects in East Malaysia. *Information management and business review*, 2(5), 181-192.
- [39] Asif, M. K., Junaid, M. S., Hock, O. Y., & Md Rafiqul, I. (2016). Creative Accounting: Techniques of Application-An Empirical Study among Auditors and Accountants of Listed Companies in Bangladesh. *Australian Academy of Accounting and Finance Review (AAAFR)*, 2(3).
- [40] Sylvester, D. C., Rani, N. S. A., & Shaikh, J. M. (2011). Comparison between oil and gas companies and contractors against cost, time, quality and scope for project success in Miri, Sarawak, Malaysia. *African Journal of Business Management*, 5(11), 4337.
- [41] Abdullah, A., Khadaroo, I., & Shaikh, J. M. (2008). A'macro'analysis of the use of XBRL. *International Journal of Managerial and Financial Accounting*, 1(2), 213-223.
- [42] Kangwa, D., Mwale, J. T., & Shaikh, J. M. (2021). The social production of financial inclusion of generation Z in digital banking ecosystems. *Australasian Accounting, Business and Finance Journal*, 15(3), 95-118.
- [43] Khadaroo, M. I., & Shaikh, J. M. (2003). Toward research and development costs harmonization. *The CPA Journal*, 73(9), 50.
- [44] Jais, M., Jakpar, S., Doris, T. K. P., & Shaikh, J. M. (2012). The financial ratio usage towards predicting stock returns in Malaysia. *International Journal of Managerial and Financial Accounting*, 4(4), 377-401.
- [45] Shaikh, J. M., & Jakpar, S. (2007). Dispelling and construction of social accounting in view of social audit. *Information Systems Control Journal*, 2(6).
- [46] Jakpar, S., Shaikh, J. M., Tinggi, M., & Jamali, N. A. L. (2012). Factors influencing entrepreneurship in small and medium enterprises (SMEs) among residents in

- Sarawak Malaysia. *International Journal of Entrepreneurship and Small Business*, 16(1), 83-101.
- [47] Sheng, Y. T., Rani, N. S. A., & Shaikh, J. M. (2011). Impact of SMEs character in the loan approval stage. *Business and Economics Research*, 1, 229-233.
- [48] Boubaker, S., Mefteh, S., & Shaikh, J. M. (2010). Does ownership structure matter in explaining derivatives' use policy in French listed firms. *International Journal of Managerial and Financial Accounting*, 2(2), 196-212.
- [49] Hla, D. T., bin Md Isa, A. H., & Shaikh, J. M. (2013). IFRS compliance and nonfinancial information in annual reports of Malaysian firms. *IUP Journal of Accounting Research & Audit Practices*, 12(4), 7.
- [50] Shaikh, J. M., Khadaroo, I., & Jasmon, A. (2003). *Contemporary Accounting Issues (for BAcc. Students)*. Prentice Hall.
- [51] SHAMIL, M. M., SHAIKH, J. M., HO, P., & KRISHNAN, A. (2022). External Pressures, Managerial Motive and Corporate Sustainability Strategy: Evidence from a Developing Economy. *Asian Journal of Accounting & Governance*, 18.
- [52] Kadir, S., & Shaikh, J. M. (2023, January). The effects of e-commerce businesses to small-medium enterprises: Media techniques and technology. In *AIP Conference Proceedings* (Vol. 2643, No. 1). AIP Publishing.
- [53] Ali Ahmed, H. J., Lee, T. L., & Shaikh, J. M. (2011). An investigation on asset allocation and performance measurement for unit trust funds in Malaysia using multifactor model: a post crisis period analysis. *International Journal of Managerial and Financial Accounting*, 3(1), 22-31.
- [54] Shaikh, J. M., & Linh, D. T. B. (2017). Using the TFP Model to Determine Impacts of Stock Market Listing on Corporate Performance of Agri-Foods Companies in Vietnam. *Journal of Corporate Accounting & Finance*, 28(3), 61-74.
- [55] Jakpar, S., Othman, M. A., & Shaikh, J. (2008). The Prospects of Islamic Banking and Finance: Lessons from the 1997 Banking Crisis in Malaysia. *2008 MFA proceedings*



*"Strengthening Malaysia's Position as a Vibrant, Innovative and Competitive Financial Hub", 289-298.*

- [56] Junaid, M. S., & Dinh Thi, B. L. (2016). Stock Market Listing Influence on Corporate Performance: Definitions and Assessment Tools.
- [57] Ghelani, D., Mathias, L., Ali, S. A., & Zafar, M. W. (2023). SENTIMENT ANALYSIS OF BIG DATA IN TOURISM BY BUSINESS INTELLIGENCE.
- [58] Ali, S. A. (2023). Navigating the Multi-Cluster Stretched Service Mesh: Benefits, Challenges, and Best Practices in Modern Distributed Systems Architecture. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 7(3), 98-125.
- [59] Ali, S. A., & Zafar, M. W. (2023). Istio Service Mesh Deployment Pattern for On-Premises.
- [60] Ali, S. A., & Zafar, M. W. (2022). API GATEWAY ARCHITECTURE EXPLAINED. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 6(4), 54-98.
- [61] Ali, S. A. (2020). NUMA-AWARE REAL-TIME WORKLOADS. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 4(1), 36-61.
- [62] Ali, S. A. (2019). DESIGNING TELCO NFVI WITH OPENSTACK. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 3(2), 35-70.
- [63] Ali, S. A. (2019). SR-IOV Low-Latency Prioritization. *PAKISTAN JOURNAL OF LINGUISTICS*, 1(4), 44-72.
- [64] Ali, S. A. (2017). OPENSTACK AND OVN INTEGRATION: EXPLORING THE ARCHITECTURE, BENEFITS, AND FUTURE OF VIRTUALIZED NETWORKING IN CLOUD ENVIRONMENTS. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 1(4), 34-65.



- [65] Enoh, M. K. E., Ahmed, F., Muhammad, T., Yves, I., & Aslam, F. (2023). *Navigating Utopian Futures*. AJPO Journals USA LLC.
- [66] Muhammad, T., & Munir, M. (2023). Network Automation. *European Journal of Technology*, 7(2), 23-42.
- [67] Muhammad, T., Munir, M. T., Munir, M. Z., & Zafar, M. W. (2022). Integrative Cybersecurity: Merging Zero Trust, Layered Defense, and Global Standards for a Resilient Digital Future. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 6(4), 99-135.
- [68] Muhammad, T., Munir, M. T., Munir, M. Z., & Zafar, M. W. (2018). Elevating Business Operations: The Transformative Power of Cloud Computing. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 2(1), 1-21.
- [69] Yvan Jorel Ngaleu Ngoyi, & Elie Ngongang. (2023). Forex Daytrading Strategy: An Application of the Gaussian Mixture Model to Marginalized Currency pairs in Africa. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 7(3), 149-191. Retrieved from <https://ijcst.com.pk/IJCST/article/view/279>
- [70] Muhammad, T. (2022). A Comprehensive Study on Software-Defined Load Balancers: Architectural Flexibility & Application Service Delivery in On-Premises Ecosystems. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 6(1), 1-24.
- [71] Muhammad, T. (2019). Revolutionizing Network Control: Exploring the Landscape of Software-Defined Networking (SDN). *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 3(1), 36-68.
- [72] Muhammad, T. (2021). Overlay Network Technologies in SDN: Evaluating Performance and Scalability of VXLAN and GENEVE. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 5(1), 39-75.
- [73] Mahmoud, M. S., Khalid, H. M., & Hamdan, M. M. (2021). *Cyberphysical infrastructures in power systems: architectures and vulnerabilities*. Academic Press.



- [74] M. Amir, R. G. Deshmukh, H. M. Khalid, Z. Said, A. Raza, S. M. Muyeen, A.-S. Nizami, R. M. Elavarasano, R. Saidur, and K. Sopian, "Energy Storage Technologies: An Integrated Survey of Developments, Global Economical/Environmental Effects, Optimal Scheduling Model, and Sustainable Adaption Policies," *Journal of Energy Storage*, pp. 1 - 64, Aug. 2023. [Early Access].
- [75] Z. Said, P. Sharma, Q. T. B. Nhung, B. J Bora, E. Lichtfouse, H. M. Khalid, R. Luque, X. P. Nguyen, and A. T. Hoang, 'Intelligent Approaches for Sustainable Management and Valorisation of Food Waste,' *El Sevier – Bioresource Technology*, vol. 377, pp. 128952, June 2023.
- [76] D. Al Momani, Y. Al Turk, M. I. Abuashour, H. M. Khalid, S. M. Muyeen, T. O. Sweidan, Z. Said, and M. Hasanuzzaman, 'Energy Saving Potential Analysis Applying Factory Scale Energy Audit – A Case Study of Food Production', *El Sevier – Heliyon*, vol. 9, no. 3, pp. E14216, March 2023.
- [77] H. M. Khalid, Z. Rafique, S. M. Muyeen, A. Raqeeb, Z. Said, R. Saidur, and K. Sopian, 'Dust Accumulation and Aggregation on PV Panels: An Integrated Survey on Impacts, Mathematical Models, Cleaning Mechanisms, and Possible Sustainable Solution', *El Sevier – Solar Energy*, vol. 251, pp. 261–285, February 2023.
- [78] N. Osman, H. M. Khalid, T. O. Sweidan, M. I. Abuashour, S. M. Muyeen, 'A PV Powered DC Shunt Motor: Study of Dynamic Analysis using Maximum Power Point-Based Fuzzy Logic Controller', *El-Sevier – Energy Conversion and Management: X*, vol. 14, pp. 100253, June 2022.
- [79] E. Aljdaeh, I. Kamwa, W. Hammad, M. I. Abuashour, T. Sweidan, H. M. Khalid, and S. M. Muyeen, 'Performance Enhancement of Self-Cleaning Hydrophobic Nanocoated Photovoltaic Panel in Dusty Environment', *MDPI — Energies*, vol. 14, no. 20, 6800, October 2021.
- [80] W. Hammad, T. O. Sweidan, M. I. Abuashour, H. M. Khalid, and S. M. Muyeen, 'Thermal Management of Grid-Tied PV System: A Novel Active and Passive Cooling

- Design-Based Approach’, IET Renewable Power Generation, vol. 15, pp. 2715–2725, May 2021.
- [81] H. M. Khalid, M. M. Qasaymeh, S. M. Muyeen, M. S. El Moursi, A. M. Foley, T.O. Sweidan, P. Sanjeevikumar
- [82] ‘WAMS Operations in Power Grids: A Track Fusion-Based Mixture Density Estimation-Driven Grid Resilient Approach Towards Cyberattacks,’ IEEE Systems Journal, pp. 1–12, August 2023.
- [83] H. M. Khalid, F. Flitti, M. S. Mahmoud, M. Hamdan, S. M. Muyeen, and Z. Y. Dong, ‘WAMS Operations in Modern Power Grids: A Median Regression Function-Based State Estimation Approach Towards Cyber Attacks’, El-Sevier – Sustainable Energy, Grid, and Networks, vol. 34, pp. 101009, June 2023.
- [84] H. M. Khalid, S. M. Muyeen, and I. Kamwa, ‘Excitation Control for Multi-Area Power Systems: An Improved Decentralized Finite-Time Approach’, El-Sevier – Sustainable Energy, Grid, and Networks, vol. 31, pp. 100692, September 2022.
- [85] U. Inayat, M. F. Zia, S. Mahmood, H. M. Khalid, and M. Benbouzid, ‘Learning-Based Methods for Cyber Attacks Detection in IoT Systems: A Survey on Methods, Analysis, and Future Prospects’, MDPI – Electronics, vol. 11(9), pp. 1–20, May 2022.
- [86] H. M. Khalid, and J. C.-H. Peng, ‘Improved Recursive Electromechanical Oscillations Monitoring Scheme: A Novel Distributed Approach’, IEEE Transactions on Power Systems, vol. 30, no. 2, pp. 680-688, March 2015.
- [87] Z. Rafique, H. M. Khalid, S. M. Muyeen, I. Kamwa, ‘Bibliographic Review on Power System Oscillations Damping: An Era of Conventional Grids and Renewable Energy Integration’, El-Sevier – International Journal of Electrical Power and Energy Systems (IJEPES), vol. 136, pp. 107556, March 2022.
- [88] S. Ashraf, M. H. Shawon, H. M. Khalid, and S. M. Muyeen, ‘Denial-of-Service Attack on IEC 61850-Based Substation Automation System: A Crucial Cyber Threat towards Smart Substation Pathways’, MDPI – Sensors, vol. 21, pp. 6415, pp. 1–19, September 2021.

- [89] Z. Rafique, H. M. Khalid, and S. M. Muyeen, 'Communication Systems in Distributed Generation: A Bibliographical Review and Frameworks', *IEEE Access*, vol. 8, pp. 207226-207239, November 2020.
- [90] Nazarian, A., Shabankareh, M., Ranjbaran, A., Sadeghilar, N., & Atkinson, P. (2023). Determinants of Intention to Revisit in Hospitality Industry: A Cross-Cultural Study Based on Globe Project. *Journal of International Consumer Marketing*, 1-18.
- [91] H. M. Khalid, S. M. Muyeen, and J. C.-H. Peng, 'Cyber-Attacks in a Looped Energy-Water Nexus: An Inoculated Sub-Observer Based Approach', *IEEE Systems Journal*, vol. 14, no. 2, pp. 2054-2065, June 2020.
- [92] Ranjbaran, A., Shabankareh, M., Nazarian, A., & Seyyedamiri, N. (2022). Branding through visitors: How cultural differences affect brand co-creation in independent hotels in Iran. *Consumer Behavior in Tourism and Hospitality*, 17(2), 161-179.
- [93] A. S. Musleh, H. M. Khalid, S. M. Muyeen, and Ahmed Al-Durra, 'A Prediction Algorithm to Enhance Grid Resilience towards Cyber Attacks in WAMCS Applications', *IEEE Systems Journal*, vol. 13, no. 1, pp. 710-719, March 2019.
- [94] H. M. Khalid, and J. C.-H. Peng, 'Immunity Towards Data-Injection Attacks Using Track Fusion-Based Model Prediction', *IEEE Transactions on Smart Grid*, vol. 8, no. 2, pp. 697-707, March 2017.
- [95] H. M. Khalid, and J. C.-H. Peng, 'A Bayesian Algorithm to Enhance the Resilience of WAMS Applications Against Cyber Attacks', *IEEE Transactions on Smart Grid*, Special Issue - Theory of Complex Systems with Applications to Smart Grid Operations, vol. 7, no. 4, pp. 2026-2037, March 2016.
- [96] H. M. Khalid, and J. C.-H. Peng, 'Tracking Electromechanical Oscillations: An Enhanced ML Based Approach', *IEEE Transactions on Power Systems*, vol. 31, no. 3, pp. 1799-1808, May 2016.
- [97] A. Alamin, H. M. Khalid, and J. C. H. Peng, 'Power System State Estimation Based on Iterative Extended Kalman Filtering and Bad Data Detection using Normalized Residual Test', *IEEE Power & Energy Conference*, pp. 1-5, Illinois, USA, 20-21 February 2015.

- [98] Ahmed S. Musleh, Mahdi Debouza, H. M. Khalid, and Ahmed Al-Durra, ‘Detection of False Data Injection Attacks in Smart Grids: A Real-Time Principal Component Analysis’, IEEE 45th Annual Conference of the Industrial Electronics Society (IECON), pp. 2958–2963, Lisbon, Portugal, Oct. 14-17, 2019.
- [99] Nazarian, A., Atkinson, P., Foroudi, P., & Soares, A. (2021). Working together: Factors affecting the relationship between leadership and job satisfaction in Iranian HR departments. *Journal of General Management*, 46(3), 229-245.
- [100] H. M. Khalid, J. C.-H. Peng and M. S. Mahmoud, ‘An Enhanced Distributed Estimation Based on Prior Information’, IET Signal Processing, vol. 9, no. 1, pp. 60-72, March 2015.
- [101] Nazarian, A., Zaeri, E., Foroudi, P., Afrouzi, A. R., & Atkinson, P. (2022). Cultural perceptions of ethical leadership and its effect on intention to leave in the independent hotel industry. *International Journal of Contemporary Hospitality Management*, 34(1), 430-455.
- [102] A. S. Nayef, H. M. Khalid, S. M. Muyeen and A. Al-Durra, ‘PMU based Wide Area Voltage Control of Smart Grid: A Real Time Implementation Approach’, IEEE PES Innovative Smart Grid Technologies (ISGT) Asian Conference, pp. 365–370, Melbourne, Australia, 28 Nov-01 Dec. 2016.
- [103] Nazarian, A., Velayati, R., Foroudi, P., Edirisinghe, D., & Atkinson, P. (2021). Organizational justice in the hotel industry: revisiting GLOBE from a national culture perspective. *International Journal of Contemporary Hospitality Management*, 33(12), 4418-4438.
- [104] M. S. Mahmoud, and H. M. Khalid, ‘Bibliographic Review on Distributed Kalman Filtering’, IET Control Theory & Applications (CTA), vol. 7, no. 4, pp. 483-501, March 2013.
- [105] Nazarian, A., Atkinson, P., Foroudi, P., & Dennis, K. (2019). Finding the right management approach in independent hotels. *International Journal of Contemporary Hospitality Management*, 31(7), 2862-2883.
- [106] H. M. Khalid, Farid Flitti, S. M. Muyeen, M. El-Moursi, T. Sweidan, X. Yu, ‘Parameter Estimation of Vehicle Batteries in V2G Systems: An Exogenous Function-Based Approach’, IEEE Transactions on Industrial Electronics, vol. 69, no. 9, pp. 9535—9546, September 2022.

- [107] H. M. Khalid, and J. C. -H. Peng, ‘Bi-directional Charging in V2G Systems: An In-Cell Variation Analysis of Vehicle Batteries’, *IEEE Systems Journal*, vol. 14, no. 3, pp. 3665-3675, September 2020.
- [108] H. M. Khalid, Q. Ahmed, J. C.-H. Peng and G. Rizzoni, ‘Current-Split Estimation in Li-Ion Battery Pack: An Enhanced Weighted Recursive Filter Method’, *IEEE Transactions on Transportation Electrification*, vol. 1, no. 4, pp. 402-412, October 2015.
- [109] H. M. Khalid, Q. Ahmed and J. C.-H. Peng, ‘Health Monitoring of Li-Ion Battery Systems: A Median Expectation-based Diagnosis Approach (MEDA)’, *IEEE Transactions on Transportation Electrification*, vol. 1, no. 1, pp. 94-105, May 2015.
- [110] H. M. Khalid, Q. Ahmed, J. C.-H. Peng and G. Rizzoni, ‘Pack-Level Current-Split Estimation for Health Monitoring in Li-Ion Batteries’, *American Control Conference (ACC)*, pp. 1506–1511, Boston, MA, USA, 6-8 July, 2016.
- [111] Ali, S. A. (2019). ENHANCING DIGITAL COMMUNICATION WITH MUTUAL TRANSPORT LAYER SECURITY (MTLS). *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 3(3), 29-62.
- [112] Ali, S. A., & Zafar, M. W. (2021). RESILIENT RED HAT GLOBAL FILE SYSTEM (GFS) DESIGN. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 5(2), 143-162.
- [113] Ali, S. A., & Zafar, M. W. (2022). Choosing between Kubernetes on Virtual Machines vs. Bare-Metal. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, 6(1), 119-142.
- [114] Ghelani, D. Securing the Future: Exploring the Convergence of Cybersecurity, Artificial Intelligence, and Advanced Technology.
- [115] Ghelani, D. Navigating the Complex Intersection of Cybersecurity, IoT, and Artificial Intelligence in the Era of Web 3.0.
- [116] Paschina, Silvia. (2023). Challenging the Value of Authenticity: The Consumption of Counterfeit Luxury Goods in Morocco. *International Business Research*. 16. 1-11. 10.5539/ibr.v16n11p1.
- [117] Paschina, Silvia. (2023). Organisation et management à l'ère Post-Covid en Afrique.

[118]

- [119] Mohammad, A., Mahjabeen, F., Tamzeed-Al-Alam, M., Bahadur, S., & Das, R. (2022). Photovoltaic Power plants: A Possible Solution for Growing Energy Needs of Remote Bangladesh. *NeuroQuantology*, 20(16), 1164.
- [120] Bose, B. K. (2000, December). Energy, environment, and advances in power electronics. In *ISIE'2000. Proceedings of the 2000 IEEE International Symposium on Industrial Electronics (Cat. No. 00TH8543)* (Vol. 1, pp. TU1-T14). IEEE.
- [121] Mohammad, A., & Mahjabeen, F. (2023). Revolutionizing Solar Energy: The Impact of Artificial Intelligence on Photovoltaic Systems. *International Journal of Multidisciplinary Sciences and Arts*, 2(1).
- [122] Blaabjerg, F., Iov, F., Teodorescu, R., & Chen, Z. (2006, August). Power electronics in renewable energy systems. In *2006 12th International Power Electronics and Motion Control Conference* (pp. 1-17). IEEE.
- [123] Mohammad, A., & Mahjabeen, F. (2023). Revolutionizing Solar Energy with AI-Driven Enhancements in Photovoltaic Technology. *BULLET: Jurnal Multidisiplin Ilmu*, 2(4), 1174-1187.
- [124] Hannan, M. A., Lipu, M. H., Ker, P. J., Begum, R. A., Agelidis, V. G., & Blaabjerg, F. (2019). Power electronics contribution to renewable energy conversion addressing emission reduction: Applications, issues, and recommendations. *Applied energy*, 251, 113404.

- [125] 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.
- [126] Oriti, G., Julian, A. L., & Peck, N. J. (2015). Power-electronics-based energy management system with storage. *IEEE Transactions on Power Electronics*, 31(1), 452-460.
- [127] Mohammad, A., & Mahjabeen, F. (2023). Promises and Challenges of Perovskite Solar Cells: A Comprehensive Review. *BULLET: Jurnal Multidisiplin Ilmu*, 2(5), 1147-1157.
- [128] Chakraborty, S., Simões, M. G., & Kramer, W. E. (2013). Power electronics for renewable and distributed energy systems. *A Sourcebook of Topologies, Control and Integration*, 99, 100.
- [129] 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.