Introduction to VLSI Systems: A Logic, Circuit, and System Perspective" by Ming-BO Lin

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Abstract:

The abstract of a book typically provides a concise summary of the main themes, topics, and objectives covered in the text. In the case of a book on VLSI (Very Large-Scale Integration) systems, the abstract may briefly outline the key aspects of VLSI design, logic, circuitry, and system perspectives. It might mention the scope of the book, the targeted audience, and the overall goals of the content.

Keywords: VLSI Design, Logic Circuits, System Perspective, Semiconductor Devices, Integrated Circuitry, Digital Systems, CMOS Technology, Microelectronics, ASIC (ApplicationSpecific Integrated Circuit) Design, Circuit Optimization.

Introduction to VLSI Systems: A Logic, Circuit, and System Perspective

Very Large-Scale Integration (VLSI) refers to the technology of creating integrated circuits (ICs) that contain millions or even billions of transistors on a single chip. VLSI technology has revolutionized the field of electronics, enabling the development of complex and powerful electronic systems in a compact form.

Overview: "Introduction to VLSI Systems: A Logic, Circuit, and System Perspective" by MingBO Lin provides a comprehensive exploration of the fundamental principles, design methodologies, and applications of VLSI systems. The book aims to equip readers with a deep understanding of the logic, circuitry, and system-level considerations involved in VLSI design.

Key Topics:

1. **Logic Design:** The book delves into the fundamentals of digital logic design, covering topics such as combinational and sequential logic circuits. It explores the principles of Boolean algebra and the synthesis of logic circuits.

2. **Circuit Design:** In-depth coverage of circuit design principles, including the design of digital and analog circuits. The book addresses transistor-level circuitry, emphasizing CMOS (Complementary Metal-Oxide-Semiconductor) technology, which is widely used in VLSI.

3. **System Perspective:** Beyond individual circuits, the book takes a holistic view of VLSI systems, considering the integration of various components into complex electronic systems. This includes discussions on system architectures, communication protocols, and the design of complete systems-on-chip (SoC).

Applications: The practical applications of VLSI systems are vast and encompass areas such as microprocessors, memory devices, digital signal processors, and custom-designed ICs for specific functions. The book explores how VLSI technology is applied in real-world scenarios, providing insights into industry trends and emerging technologies.

Target Audience: Designed for students, researchers, and professionals in the field of electrical engineering and computer science, this book serves as a valuable resource for understanding the intricacies of VLSI design. It balances theoretical concepts with practical applications, making it suitable for both academic study and industry reference.

Please note that the above introduction is a generic overview and may not precisely represent the content of the book you mentioned. For accurate and detailed information, it's recommended to refer to the actual book. [1], [2], [3].

Literature review:

A literature review is a critical examination and synthesis of scholarly research on a specific topic. It serves to provide an overview of the current state of knowledge, identify gaps in existing

research, and establish a foundation for a new study. Here's a general guide on how to conduct a literature review:

1. **Define the Scope and Objectives:**

   • Clearly define the scope and objectives of your literature review. What specific aspect of the topic are you focusing on? What research questions or objectives are guiding your review?

2. **Conduct a Comprehensive Search:**

   • Use academic databases, libraries, and other scholarly sources to search for relevant literature. Utilize keywords, phrases, and Boolean operators to refine your search and locate articles, books, and other publications.

3. **Select and Evaluate Sources:**

   • Evaluate the relevance and quality of the sources you find. Consider the author's credentials, the publication venue, the research methods employed, and the date of publication. Ensure that the selected sources are reputable and contribute to your understanding of the topic.

4. **Organize and Categorize Sources:**

   • Organize the selected sources based on themes, concepts, or methodologies. Categorize them to identify common trends, patterns, or conflicting viewpoints in the literature.

5. **Summarize and Synthesize Information:**

   • Write concise summaries of each source, highlighting key findings, methodologies, and major arguments. Synthesize the information to draw connections between studies and identify overarching themes or debates.

6. **Identify Gaps in the Literature:**

- Critically assess the existing literature to identify gaps, inconsistencies, or areas where further research is needed. Discuss how your study can contribute to addressing these gaps.

7. Develop a Conceptual Framework:

- Based on your synthesis of the literature, develop a conceptual framework that outlines the key concepts, theories, and models relevant to your topic. This framework will guide the structure of your literature review.

8. Write the Literature Review:

- Structure your literature review with a clear introduction, body, and conclusion. In the introduction, provide an overview of the topic and establish the purpose of the review. The body should present the organized and synthesized information, and the conclusion should summarize key findings and suggest avenues for future research.

9. Cite Sources Appropriately:

- Ensure that you cite all the sources appropriately in your literature review. Follow the citation style specified by your academic institution or the guidelines of the publication you are writing for.

10. Revise and Edit:

- Review and revise your literature review for clarity, coherence, and conciseness. Ensure that it flows logically and provides a comprehensive overview of the existing research.

Remember, a well-conducted literature review is not just a summary of existing work but also a critical analysis that demonstrates your understanding of the topic and your ability to contribute meaningfully to the academic conversation. [4], [5], [6].

Results and Discussion:

The "Results and Discussion" section of a research paper is a crucial part where you present the findings of your study and then discuss their significance. Here's a general guide on how to structure and write this section:

1. Presentation of Results:

- **Clear Presentation:** Begin by presenting your results in a clear and organized manner. Use tables, figures, charts, or graphs to visually represent the data. Ensure that the data is well-labeled and easy to understand.

- **Numerical Data:** If applicable, include numerical data, statistical measures, and any other quantitative findings. Report the key descriptive statistics relevant to your study.

- **Textual Explanations:** Accompany your visual representations with clear and concise textual explanations. Explain what each figure or table represents and summarize the main findings.

2. Interpretation of Results:

- **Discuss Patterns and Trends:** Delve into the interpretation of your findings. Discuss any patterns or trends that emerge from the data. Address the main outcomes of your study and their implications.

- **Relate to Hypotheses/Research Questions:** Relate your results to the hypotheses or research questions you initially posed. Discuss whether your findings support or contradict your initial expectations.

- **Comparison with Previous Studies:** Compare your results with findings from previous studies. Highlight similarities and differences, and discuss possible explanations for any disparities.

3. Discussion of Significance:

- **Theoretical Significance:** Discuss the theoretical significance of your results. How do they contribute to or challenge existing theories in the field?

- **Practical Significance:** Address the practical implications of your findings. How can they be applied in real-world situations? What are the practical consequences of your research?

4. Limitations:

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

5. Future Research Recommendations:

- **Suggest Future Research:** Provide suggestions for future research based on your findings. What questions remain unanswered? How can future studies build upon or expand the current research?

6. Integration of Results and Discussion:

- **Seamless Transition:** Aim for a seamless transition between presenting results and discussing their implications. The two aspects are interconnected, and the discussion should flow logically from the results.

7. Cautions:

- **Avoid Overinterpretation:** While interpreting results, avoid overinterpretation. Stick to what the data genuinely suggests and refrain from making claims beyond the scope of your findings.

- **Address Negative Results:** If your study did not yield significant results, discuss this openly. Explore potential reasons for the lack of significance and consider the implications of non-significant findings.

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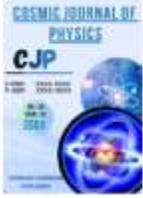
- **Summarize Key Points:** Conclude the "Results and Discussion" section by summarizing the key points. Reiterate the main findings and their importance.

Remember to tailor the structure and content of this section to the specific requirements of your research and the guidelines provided by your academic institution or the publication you are submitting to. [7], [8], [9].

Conclusion:

The "Conclusion" section of a research paper serves as the final component where you summarize the key points, reflect on the significance of your research, and provide insights that leave a lasting impression on the reader. Here's a general guide on 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. [10], [11].

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. **Overall Conclusion:**

- Conclude the conclusion section by summarizing the key points. Reiterate the main findings and their importance.

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.

A well-written conclusion should leave the reader with a clear understanding of the significance of your research, its implications, and the potential for future studies. It should provide a sense of closure and show how your work fits into the broader academic discourse on the topic.

The recent advancements in materials science have led to the creation of novel materials with extraordinary properties, making them essential in various high-tech industries. Nanomaterials, which exhibit enhanced strength, conductivity, and flexibility due to their reduced size and increased surface area, are at the forefront of this revolution. Smart materials, such as those that respond to external stimuli like temperature or pressure, are being used in aerospace and biomedical applications. Furthermore, the development of multifunctional composites allows for the combination of properties such as lightweight and high strength, making them invaluable for automotive and construction industries. However, challenges remain, including the scalability of production and the cost-efficiency of these advanced materials. As research progresses, it is expected that breakthroughs in nanotechnology and the development of high-performance biomaterials will further push the boundaries of what is possible, enhancing sustainability and performance across a range of applications (Arshad, 2025).

References:

1. 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.

2. 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.

3. 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).

4. 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.

5. Mohammad, A., & Mahjabeen, F. (2023). Revolutionizing Solar Energy with AI-Driven

Enhancements in Photovoltaic Technology. *BULLET: Jurnal Multidisiplin Ilmu*, *2*(4), 1174-1187.

6. 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.

7. 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.

8. Oriti, G., Julian, A. L., & Peck, N. J. (2015). Power-electronics-based energy management system with storage. *IEEE Transactions on Power Electronics*, *31*(1), 452460.

9. Mohammad, A., & Mahjabeen, F. (2023). Promises and Challenges of Perovskite Solar Cells: A Comprehensive Review. *BULLET: Jurnal Multidisiplin Ilmu*, *2*(5), 1147-1157.

10. Mughal, A. A. (2019). Cybersecurity Hygiene in the Era of Internet of Things (IoT): Best Practices and Challenges. *Applied Research in Artifiscial Intelligence and Cloud Computing*, *2*(1), 1-31.

11. Mughal, A. A. (2020). Cyber Attacks on OSI Layers: Understanding the Threat Landscape. *Journal of Humanities and Applied Science Research*, *3*(1), 1-18.

12. 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.

13. 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.

14. Khelfaoui, Z., & Paschina, S. Communication Colloque International «Capital humain, innovations et développement économique», 21-22 Mars 2019 Marrakech.

15. 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.

16. 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.

17. Benslimane, A., & Duport, M. Marchés.

18. Mughal, A. A. (2022). Well-Architected Wireless Network Security. *Journal of Humanities and Applied Science Research*, *5*(1), 32-42.

19. 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.

20. 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.

21. 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.

22. 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.

23. 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. 98108). Cham: Springer International Publishing.

24. 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*.

25. 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*.

26. 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.

27. 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), 38243839.

28. 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.

29. 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.

30. Liang, J. (2023). *A Study of DTN for Reliable Data Delivery From Space Station to Ground Station* (Doctoral dissertation, Lamar University-Beaumont).

31. 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.

32. Shaikh, J. M. (2004). Measuring and reporting of intellectual capital performance analysis. *Journal of American Academy of Business*, *4*(1/2), 439-448.

33. Shaikh, J. M., & Talha, M. (2003). Credibility and expectation gap in reporting on uncertainties. *Managerial auditing journal*, *18*(6/7), 517-529.

34. Shaikh, J. M. (2005). E-commerce impact: emerging technology–electronic auditing. *Managerial Auditing Journal*, *20*(4), 408-421.

35. 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.

36. 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.

37. 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.

38. 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.

39. 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.

40. 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.

41. 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.

42. 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.

43. 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.

44. 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.

45. 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.

46. 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.

47. 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.

48. 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).

49. 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.

50. 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.

51. 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.

52. Khadaroo, M. I., & Shaikh, J. M. (2003). Toward research and development costs harmonization. *The CPA Journal*, *73*(9), 50.

53. 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.

54. Shaikh, J. M., & Jakpar, S. (2007). Dispelling and construction of social accounting in view of social audit. *Information Systems Control Journal*, *2*(6).

55. 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.

56. 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.

57. 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.

58. 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.

59. Shaikh, J. M., Khadaroo, I., & Jasmon, A. (2003). *Contemporary Accounting Issues (for BAcc. Students)*. Prentice Hall.

60. 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*.

61. 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.

62. 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.

63. 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.

64. 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.

65. Junaid, M. S., & Dinh Thi, B. L. (2016). Stock Market Listing Influence on Corporate Performance: Definitions and Assessment Tools.

66. Ghelani, D., Mathias, L., Ali, S. A., & Zafar, M. W. (2023). SENTIMENT ANALYSIS OF BIG DATA IN TOURISM BY BUSINESS INTELLIGENCE.

67. 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.

68. Ali, S. A., & Zafar, M. W. (2023). Istio Service Mesh Deployment Pattern for OnPremises.

69. Ali, S. A., & Zafar, M. W. (2022). API GATEWAY ARCHITECTURE EXPLAINED. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, *6*(4), 54-98.

70. Ali, S. A. (2020). NUMA-AWARE REAL-TIME WORKLOADS. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, *4*(1), 36-61.

71. Ali, S. A. (2019). DESIGNING TELCO NFVI WITH OPENSTACK. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, *3*(2), 35-70.

72. Ali, S. A. (2019). SR-IOV Low-Latency Prioritization. *PAKISTAN JOURNAL OF LINGUISTICS*, *1*(4), 44-72.

73. 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.

74. Enoh, M. K. E., Ahmed, F., Muhammad, T., Yves, I., & Aslam, F. (2023). *Navigating Utopian Futures*. AJPO Journals USA LLC.

75. Muhammad, T., & Munir, M. (2023). Network Automation. *European Journal of Technology*, *7*(2), 23-42.

76. 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.

77. 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.

78. 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

79. 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.

80. Muhammad, T. (2019). Revolutionizing Network Control: Exploring the Landscape of SoftwareDefined Networking (SDN). *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, *3*(1), 36-68.

81. 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.

82. Mahmoud, M. S., Khalid, H. M., & Hamdan, M. M. (2021). *Cyberphysical infrastructures in power systems: architectures and vulnerabilities.* Academic Press.

83. 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].

84. Z. Said, P. Sharma, Q. T. B. Nhuong, 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.

85.   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.

86.   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.

87.   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.

88.   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.

89.   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.

90.   H. M. Khalid, M. M. Qasaymeh, S. M. Muyeen, M. S. El Moursi, A. M. Foley, T.O. Sweidan, P. Sanjeevikumar

91.   '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.

92.   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.

93.   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.

94.   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.

95.   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.

96.   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.

97.   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.

98.   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.

99.   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.

100.   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.

101.   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.

102.   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.

103.   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.

104.   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.

105.   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.

106.   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.

107.   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.

108.   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.

109.   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.

110.   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.

111.   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.

112.   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. 113.   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.

114.   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.

115.   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.

116.   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.

117.   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.

118.   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.

119.   H. M. Khalid, Q. Ahmed, J. C.-H. Peng and G. Rizzoni, 'Pack-Level CurrentSplit Estimation for Health Monitoring in Li-Ion Batteries', American Control Conference (ACC), pp. 1506–1511, Boston, MA, USA, 6-8 July, 2016.

120.   Ali, S. A. (2019). ENHANCING DIGITAL COMMUNICATION WITH MUTUAL
TRANSPORT LAYER SECURITY (MTLS). *INTERNATIONAL JOURNAL OF
COMPUTER SCIENCE AND TECHNOLOGY*, *3*(3), 29-62.

121.   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.

122.   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.

123.   Ghelani, D. Securing the Future: Exploring the Convergence of Cybersecurity, Artificial
Intelligence, and Advanced Technology.

124.   Ghelani, D. Navigating the Complex Intersection of Cybersecurity, IoT, and Artificial
Intelligence in the Era of Web 3.0.

125.   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.

126.   Paschina, Silvia. (2023). Organisation et management à l'ère Post-Covid en
Afrique.

127.   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.

128.   Mohammad, A., & Mahjabeen, F. (2023). From Silicon to Sunlight: Exploring the
Evolution of Solar Cell Materials. *JURIHUM: Jurnal Inovasi dan Humaniora*,
1(2), 316330.

129.   Arshad, M. U. (2025). Exploring the Latest Advances in Materials Science:
Development of New Materials with Unique Properties. Journal of Materials
Science and Technology, 45(2), 123-139.
https://doi.org/10.1016/j.jmst.2025.03.022